

CLIMATE RISK AND RESILIENCE RECOMMENDATIONS REPORT

RURAL MUNICIPALITY OF ALEXANDER

This Report was prepared as part of the Municipalities and Utilities Partnering for Resilience
Project led by QUEST (www.questcanada.org)

QUEST

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Lead Authors

Eddie Oldfield and Aïda Nciri of QUEST

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About QUEST

QUEST is a national non-government organization that works to accelerate the adoption of efficient and integrated community-scale energy systems in Canada by informing, inspiring, and connecting decision-makers. The organization commissions research, communicates best practices, convenes government, utility, and private-sector leaders, and works directly with local authorities to implement on-the-ground solutions. QUEST recognizes communities that have embraced these principles by referring to them as Smart Energy Communities. Visit us at www.questcanada.org.



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1.0 Executive Summary

1.1. Key findings

In the Resilience Assessment Report the Rural Municipality (RM) of Alexander identified the following weaknesses or areas of improvement: a need for more communication, coordination, and partnerships with local key stakeholders on emergency management and resilience/adaptation measures; regulations to encourage low risk development; budget and resources to carry out proactive risk reduction planning and measures (as identified in this report); and reducing risk to any facilities and key infrastructure that was identified as being vulnerable, including reducing flood risk and implementing back-up power systems. The RM displayed strong support for improved communication, engagement, education, collaboration, and information sharing with the community and local stakeholders, as well as a need to improve policies, budget and resources, to advance risk reduction activities, and to integrate climate, resilience, and adaptation considerations across all departments and activities.

This report is intended to help the rural municipality address these shortcomings with specific recommendations selected during the second workshop. This Recommendations Report cover each of these key hazards. To make this report user-friendly and impactful, the recommendations detailed below are organized by lead department responsible for implementing them.

As a reminder, the major hazards identified in the rural municipality are presented in the table below.

Table 1: Major Hazards

Hazard types	Description
Atmospheric hazards	Snow storms, ice storms, wind storms, hailstorms, and the number of hot days (above 29 degrees Celsius) which are expected to more than quadruple by the 2080s, with more freeze-thaw cycles in the winter months.
Hydrological hazards	Flooding from increased precipitation, especially in winter and spring.
Forest Fires	Wooded areas in close proximity to residential areas are of particular concern.
Power & Water Outages	Extended outages are possible due to ice loading and extreme weather events on distribution and transmission lines.
Hazardous material spills / contamination	Contamination of wells.
Geological Hazards	Erosion of Lake Winnipeg and Winnipeg River shorelines.

1.2 Key priority actions

Some key recommended priority actions are presented in the table below. They are based on the data collected during the two workshops and the survey.

Table 2: Key recommended priority actions

Recommendation	Description	Refer to...
Create a task force to oversee progress and advance climate adaptation measures; to engage community stakeholders, enable collaboration, knowledge exchange, and accountability.	Creating a task force (or appointing this to an existing committee) is a critical first step to keep these plans moving forward in a cohesive way. This will increase the ability of the RMA to develop, implement and monitor a climate adaptation plan; coordinate with other departments; and integrate the adaptation plan into existing plans and initiatives. This should involve staff, EMS providers, Council, and a range of community stakeholders (industry, power utilities, community associations, local government, emergency management, reps from school and care facility, insurance provider, etc.) Should start monthly, and then quarterly in future years	Section 3.1
Explore local energy resources (CEP) for local renewable power and heat options at municipal facilities and shelters, for community energy	The RM does not have a Community Energy Plan or Sustainability Plan. There are no renewable energy installations other than a hydro dam. Participants identified Municipal Hall for installation of alternative heat/power (e.g. solar farm, microgrid), or district heat system Some participants noted: this is the CCAP (Climate Change Action Plan).	Section 3.1
Obtain copies of EM Plans from local industry, schools, hospitals, nursing homes. Engage in task force/ committee/working group	The RM will need to coordinate municipal EM plans with local industry, schools and nursing homes to ensure alignment and collaboration on key topics and issues related to resilience.	Section 3.2
Develop regular community-based exercises for each hazard type	Participants noted the value of table top exercises to discuss with key stakeholders. Could exercise once annually (minimum) for different hazard types especially those identified in section 1.1. Could also ensure community-based exercises have taken place in the community at large (e.g., table-top discussions or full exercises) for each hazard type.	Section 3.2
Ensure all critical municipal facilities and services have access to mobile or stationary back-up	Consider multiple energy sources for Emergency Operations Centre, Lift Stations/Water Treatment, Emergency Shelters. This can be achieved through diesel generators (mobile), or natural gas (stationary), and renewable energy sources. This will provide redundancy to mitigate potential gaps in critical services provided to citizens during severe weather events.	Section 3.2

	City Hall, Public Works, EMO and one emergency shelter have back-up power. Water treatment has back-up. One emergency shelter does not have back-up power and it is unclear if schools, nursing homes, communication towers, animal shelters, or bank outlets have back-up power	
Implement building codes and/or adopt updates to National Building Code	The development of the adoption of revised codes will help reduce disaster risk for new buildings and retrofits (2019-2025).	Section 3.3
Discourage development in identified zones using Land Use Plan, Zoning, or Official Plan	Participants identified areas to discourage development: area South and East of Poplar Bay; the area immediately north of MB-304 between Provincial Trunk Highway 59 and Road 44 East; the area between Provincial Trunk Highway 59 and Lakeshore Rd; and the area between Grand Marais and Lester Beach. Notify builders of restrictions in these areas.	Section 3.3
Develop an integrated communication strategy focused on key hazards faced by the community	Consider implementing a combination of activities, clear and simple messaging, and a variety of communication channels, to inform and educate the public and vulnerable populations. Develop communications material / content. Conduct activities on a quarterly or annual basis.	Section 3.6
Establish monthly, quarterly or annual updates to Council, all Staff.	Participants noted all departments and CAO already report to council every 2 weeks. Updates could be made at that time	Section 3.6
Secure Budget and funding	Access to financial resources is crucial to the viability of many climate adaptation and emergency management measures. Participants in the first and second workshops noted that municipal financial capacities are limited, and that investment from the federal and provincial levels of government is needed to support local projects and initiatives. The RM is invited to explore multiple funding sources and mechanisms.	Section 4.0

1.5 Challenges

Some of the key challenges that have been identified by workshop participants are:

- Need to create a committee structure to coordinate advancing these recommendations, and report to council. This could take the form of a staff task force, council committee, or integrated with an existing committee.
- Need for additional capacity (1 FT staff) to tackle many of the recommendations, and develop, implement, and report on long-term adaptation measures
- Ensuring alignment of hazard/risk assessment, climate change plan, emergency plan, asset plan, and that they inform each other.
- Continued stakeholder engagement, shared responsibilities - must be proactive
- Budgetary constraints are a barrier to the implementation of some recommendations.
- The municipality does not always have the power to constrain residents and business owners, nor to involve schools and change building codes as those are provincial powers.

2.0 Introduction

2.1 Contents of This Report

This report covers recommendations ranked as “Important” by participants for improving community resilience and adapting to climate change. They are tailored to local context and use data presented in the Resilience Assessment report and collected during the second workshop.

This report organizes all selected recommendations by the stakeholder/department identified as being responsible for implementation (i.e.: the “lead”), as well as by priority assigned by the participants. Recommendations address vulnerabilities associated with each type of climate-related hazard and areas of low resilience for each community. It also integrates a specific lens on addressing the needs of vulnerable populations. Areas of strength, or measures that are already implemented by the municipality, were identified within the Climate Risk and Vulnerability Assessment Report and associated annexes - these areas of strength are not covered in this recommendations report.

Finally, the report also includes a detailed section on budget and funding consideration and on internal and external communication strategy, which are crucial to the implementation of all recommendations.

2.2 The Issue

Municipalities across Canada are facing extreme climate change impacts, such as high winds, ice storms, floods, droughts, and forest fires. At the same time, almost 90% of Canadian energy utilities have been significantly impacted by a weather event in the past decade¹. Both municipal systems and energy distribution systems are essential, interconnected, and must work together to maintain the resilience of a community. Reliable energy supply is needed to maintain the essential functions of everyday life. This includes the operation of municipal infrastructure such as water and wastewater treatment, heating and cooling of buildings, operating vehicle fleets, street lighting, powering emergency shelters, as well as other community infrastructure such as health systems, communications, transportation, food production, financial systems, and the list goes on.

Despite concerns that climate change and weather related events threaten the reliability and resiliency of Canadian energy distribution services, there remains limited tools and assessment processes to help local governments and utilities collaboratively and effectively plan to reduce risks and costs to residents and businesses. This project aimed to develop assessment tools and recommendations to foster collaboration between municipalities, utilities, and other key community stakeholders so they can work together on adaptation through land use planning, energy planning and reliability measures, and emergency response during power outages.

2.3 The Project

The “**Municipalities and Utilities Partnering for Community Resilience**” project led by QUEST with funding from Natural Resources Canada (NRCan), supported six municipalities to develop climate risk and vulnerability assessments using a combination of workshop exercises, validated tools, and methods.

¹ See QUEST’s [Resilient Pipes and Wires](#) report. 2015

In 2018, a survey and a workshop assessing resilience were conducted. The participatory and interactive workshop tapped in participants’ knowledge to identify strengths and gaps in their community to climate and industrial hazards. Each participating community received their draft Resilience Assessment report, which also includes climate change trends, in early 2019.

Based on the Resilience Assessment report the project team prepared a set of recommendations for each community. The recommendations were selected, discussed, and prioritized during a second workshop with municipal participants, local utilities, and other local stakeholders that took place in Spring 2019. For each recommendation selected, participants were invited to assign a timeline, a cost range, and a department/unit lead. Participants were also invited to identify other stakeholders to engage; and whether the implementation of this recommendation needed further study, faced any specific challenges, or could be integrated within existing plans.

2.4 List of Stakeholders

Table 3: Key recommended priority actions

Person’s Role	Organization
EDO	RMA
CAO	RMA
Assistant CAO	RMA
Regional Manager	Community and Regional Planning (MB)
Councillor	RMA
Public Works Manager	RMA
Fire Chief	RM of Victoria Beach
Public Works lead hand	RMA
Municipal Engineer	KGS Group
Assistant Municipal Emergency Coordinator	RMA
Municipal Emergency Coordinator	RMA
General Manager	Ludman Manufacturing; Chair of Man SEA
Duty Officer	MB Hydro

In order to implement resilience recommendations, the municipality should also engage:

- A specific staff person responsible for resilience and sustainability,
- External stakeholders
- Public

3.0 Recommendations by Lead Responsible

This section presents the key recommendations for the community by lead department/organisation. The recommendations address vulnerabilities associated with climate hazards that have been identified in the Assessment report. For a detailed list of all recommendations, see the spreadsheet document, sent in a separate Annex.

3.1 Chief Administrative Officer (CAO)

Recommendation	Explore local renewable power and heat options at municipal facilities and shelters, for community energy (e.g. solar farm, microgrid)
Category	Power Outage / Interruption to Energy Supply
What was said?	Does not have a Community Energy Plan or Sustainability Plan. There are no renewable energy installations other than a hydro dam. Participants identified Municipal Hall for installation of alternative heat/power
Who will lead?	CAO
Who to engage?	Nothing Specified
What municipal plans to leverage?	RMA has adopted a Climate Change Local Action Plan or create Community Energy Plan
Potential next steps	<ul style="list-style-type: none"> Identify locations to study feasibility of renewable energy systems. Conduct or contract study to determine technical and financial feasibility of systems. Can apply for support from FCM GMF for studies. Install renewable energy systems, where viable
Timeframe	Short
Priority	High
Cost	Nothing Specified

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
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Recommendation	Create a task force, committee, or working group, to oversee progress and advance climate adaptation measures; to engage community stakeholders, enable collaboration, knowledge exchange, and accountability. Involve local stakeholders (industry, power utilities, community associations, local government, emergency management, school, care facility, insurance provider)
Category	Coordination and Planning
What was said?	Should start monthly, and then quarterly in future years; involve staff, emergency medical services (EMS) providers, council, and other regional stakeholders.
Who will lead?	CAO
Who to engage?	all listed stakeholders + RMA EMO
What municipal plans to leverage?	Incorporate into Development Plan and Zoning Bylaw amendments
Potential next steps	<ul style="list-style-type: none"> Establish committee or task force (Council directive), or assign these actions to existing committee e.g. Environment or EMO Committees. Appoint Chair, who will develop a schedule of meetings, engage committee/task force members, facilitate meetings, provide oversight
Timeframe	Ongoing, over long term
Priority	Mid
Cost	Low

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NOTES:

Recommendation	Designate a lead / coordinator, who can report to Council
Category	Coordination and Planning
What was said?	nobody is currently responsible for resilience planning / reporting
Who will lead?	CAO
Who to engage?	Nothing Specified
What municipal plans to leverage?	Annual Operating Plan and long term Strategic Plan
Potential next steps	<ul style="list-style-type: none"> • Appoint Chair / Coordinator • Schedule quarterly / annual updates for Council
Timeframe	Mid
Priority	Low to Mid
Cost	Mid

	Yr-2020	Yr 2021	Yr 2022
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Recommendation	Ensure council understands when to reach out to Provincial EMO, and levels of responsibility
Category	Coordination and Planning
What was said?	Participants noted: next election is in 3 years (do this at that time)
Who will lead?	CAO / Council
Who to engage?	LERCG, Council members
What municipal plans to leverage?	EM Plan
Potential next steps	<ul style="list-style-type: none"> ● Schedule annual updates for Council ● CAO to brief each new Council, invite EMO (every 4 years) ● Collect updates from each Department, on progress toward implementing the recommendations in this report, annually.
Timeframe	Short to Mid
Priority	Mid
Cost	Low

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Recommendation	Update Asset Management Plan to consider climate risk, and consider the cumulative impact of failure/interruption on providing essential municipal services to the community. Incorporate recommendations from this assessment. Consider using the renewed MCIP Municipal Asset Management Program (FCM).
Category	Coordination and Planning
What was said?	Does not have asset management plan that considers future climate risk. Participants noted: making progress on policy and strategy, it is a requirement of FCM funding
Who will lead?	CAO
Who to engage?	EOC Team
What municipal plans to leverage?	Asset Management Plan
Potential next steps	<ul style="list-style-type: none"> ● Update Asset Management plan to include climate risk factors ● Prioritize replacement, upgrades, etc, adapting for future climate risk
Timeframe	Long
Priority	Mid
Cost	Nothing Specified

	Yr-2020	Yr 2021	Yr 2022
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Recommendation	Ensure the community has implemented measures to reduce the risk of local flooding, such as ensuring that storm sewage drains and systems are well maintained, and separated to the degree possible, raising lift stations, as well as upgrading culverts for 100 year flood/water levels.
Category	Freeze-Thaw Cycles
What was said?	The community does not have separated stormwater and sewer systems and it is unclear if it can handle the 1 in 100-year flood event. Unclear if any culverts need to be upgraded. Participants identified opportunities to improve drainage on Maple Creek, and along Provincial Trunk Highway 59, north of Provincial Trunk. There is risk to lift stations with significant rainfall and snowmelt, and no back-up.
Who will lead?	CAO with support from Public Works
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified
Potential next steps	<ul style="list-style-type: none"> ● Conduct drainage assessment ● Prioritize upgrades ● Access funding / obtain council approval - Possible to direct Gas Tax to critical infrastructure improvements
Timeframe	Mid
Priority	Mid
Cost	High

	Yr-2020	Yr 2021	Yr 2022
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Recommendation	Prepare/Finalize Climate Change Adaptation Plan, incorporate recommendations from this assessment.
Category	Coordination and Planning
What was said?	Does not have climate adaptation plan. Since the workshop, RMA has adopted a Climate Change Local Action Plan
Who will lead?	CAO
Who to engage?	Province, Community Planning
What municipal plans to leverage?	RMA has adopted a Climate Change Local Action Plan
Potential next steps	<ul style="list-style-type: none"> ● Conduct flood risk assessment ● Study technical/financial feasibility of adaptation measures ● Apply for funding / council approval for measures
Timeframe	Mid
Priority	Low
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
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Recommendation	Update Land Use Plan to consider climate hazards (zoning), incorporate recommendations from this assessment. Ensure disaster risk assessments are incorporated into all relevant local development planning on a consistent basis. Consider using the Risk-based Land-use Guide developed by Federal Government
Category	Coordination and Planning
What was said?	Participants noted: Have a preliminary draft of land use plan, may need to consider future climate risk. Does not have climate adaptation plan.
Who will lead?	CAO, with support of planners
Who to engage?	Planning District
What municipal plans to leverage?	Amend Municipal Development Plan and Zoning Bylaw
Potential next steps	<ul style="list-style-type: none"> ● Obtain updated flood risk maps. Conduct study for 1 in 200 year flood levels ● Municipal Plan Review, land use and building code bylaw amendments ● Implement codes/regulations, notify developers, use permit process ● Consider providing incentives e.g. high efficiency, flood proofed buildings could be reimbursed permit fees.
Timeframe	Short
Priority	Low
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
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* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Ensure that hazard/risk assessment, climate change plan, emergency plan, asset plan, etc reference and leverage each other.
Category	Coordination and Planning
What was said?	Nothing Specified
Who will lead?	CAO
Who to engage?	all departments, CAO, economic development, public works, MEC, Fire Chief
What municipal plans to leverage?	Nothing Specified
Potential next steps	<ul style="list-style-type: none"> • Complete climate adaptation plan, integrate recommendations from this report • Ensure staff responsible for each plan (asset management, land use, EM) integrate climate considerations and consult each other.
Timeframe	Mid
Priority	Low
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Ensure training, or professional development opportunities, are accessible to staff in order to develop capacities, knowledge, skills, for emergency preparedness, disaster risk reduction and climate change adaptation, as well as recovering from extreme events.
Category	Coordination and Planning
What was said?	Nothing Specified
Who will lead?	CAO
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified
Potential next steps	Request council to approve ICS training for more municipal staff / provide directive to other Departments
Timeframe	Short
Priority	Low
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Use ECCC's new Climate Change Report / Portal to stay up to date with climate projections and hazards,
Category	Coordination and Planning
What was said?	Nothing Specified
Who will lead?	Any staff
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified
Potential next steps	<ul style="list-style-type: none"> ● Access ECCCs Climate Change Report and Services ● Create data dictionary - of existing and needed data sets / maps ● Request or download additional GIS data: environmental, energy, etc ● Work with / advocate for provincial support
Timeframe	Short
Priority	Low
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Ensure community officials check frequently with weather forecasting agencies such as Environment Canada and monitor conditions that may lead to flooding.
Category	Weather Warnings
What was said?	Nothing Specified
Who will lead?	CAO with support from Public Works
Who to engage?	Nothing Specified (suggest both Council, Staff, MEC)
What municipal plans to leverage?	Nothing Specified
Potential next steps	<ul style="list-style-type: none"> • Check regular forecasts, and monitor impending storms closely • Ensure forecasts are used for preparedness and public awareness
Timeframe	Short
Priority	Nothing Specified
Cost	Mid

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Install or subscribe to energy monitoring and management systems for all municipal facilities/assets, to analyse and identify measures to lower peak demand and energy usage, thus reducing energy costs while minimizing potential reductions/interruptions to services. This can include for example reducing non-essential power usage (e.g., turn-off unnecessary appliances, limit heavy usage to non-peak hours, adjusting HVAC, efficiency etc).
Category	Power Outage / Interruption to Energy Supply
What was said?	Participants noted: This is an action in the Climate Change Action Plan, MB Hydro supports via new agency Efficiency MB
Who will lead?	CAO
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified
Potential next steps	<ul style="list-style-type: none"> ● Run reports (energy use, costs), expand monitoring if needed ● Adjust power use / demand, through technology and operation improvements ● Apply for incentives, FCM GMF for building retrofits
Timeframe	Short to Mid
Priority	Nothing Specified
Cost	Nothing Specified
Additional Resources	

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

3.2 EMO / Municipal Emergency Coordinator

Recommendation	Obtain copies of EM Plans from local schools, hospitals, nursing homes. Engage in task force/ committee/working group.
Category	Coordination and Planning
What was said?	Need to coordinate municipal EM plans with schools and nursing homes;
Who will lead?	MEC / LERGG
Who to engage?	LERCG, Council members
What municipal plans to leverage?	annex in EM Plan
Potential next steps	<ul style="list-style-type: none"> ● Contact local partners ● Discuss EM plans and expectations ● Identify information sharing needs (including EM Plans and hazardous materials, if available)
Timeframe	Short
Priority	High
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Obtain copies of EM Plans from local industry. Engage in task force/ committee/working group
Category	Coordination and Planning
What was said?	Nothing Specified
Who will lead?	MEC / LERGG
Who to engage?	LERCG, Council members
What municipal plans to leverage?	annex in EM Plan
Potential next steps	<ul style="list-style-type: none"> ● Contact local partners ● Discuss EM plans and expectations ● Identify information sharing needs (including EM Plans and hazardous materials, if available)
Timeframe	Short
Priority	High
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Obtain / designate buses that can be used to transport disabled, elderly, etc, to shelters; if not, request assistance from neighboring community or provincial EMO
Category	Coordination and Planning
What was said?	Participants noted: can rent two buses, MOU in place (Two Rivers Bus Company)
Who will lead?	MEC / LERGG
Who to engage?	LERCG, Council members
What municipal plans to leverage?	annex in EM Plan
Potential next steps	<ul style="list-style-type: none"> ● Assess local capacity ● Negotiate with neighbouring communities
Timeframe	Short
Priority	Mid to High
Cost	Mid

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Ensure community-based fire exercises have taken place in the community-at-large (e.g., table-top or full-scale exercises).
Category	Brush, Bush and Grass Fires; Wildland / Urban Interface Fires; Forest Fires
What was said?	Nothing Specified
Who will lead?	MEC with support from Fire Chief
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest EM Plan)
Potential next steps	<ul style="list-style-type: none"> ● Identify exercise scenarios or table top topics ● Invite internal and external stakeholders to participate ● Hold hazard-specific exercises or table top discussions ● Summarize outcomes / Lessons learned and potential actions
Timeframe	Short
Priority	High
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Ensure all critical municipal facilities and services (e.g., Emergency Operations Centre, Lift Stations/Water Treatment, Emergency Shelters, etc) have access to mobile or stationary back-up. Consider multiple energy sources: diesel generators (mobile), diesel or natural gas (stationary), and renewable energy sources that may compliment.
Category	Power Outage / Interruption to Energy Supply
What was said?	City Hall, Public Works, EMO and one emergency shelter have back-up power. Water treatment has back-up. One emergency shelter does not have back-up power and it is unclear if schools, nursing homes, communication towers, animal shelters, or bank outlets have back-up power.
Who will lead?	MEC, with support of Public Works/Engineering
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified
Potential next steps	<ul style="list-style-type: none"> ● Identify and prioritize facilities needed back-up power ● Study to size back-up power correctly. ● Access funding / obtain Council approval on budget. ● Implement back-up power systems
Timeframe	Short to Mid
Priority	High
Cost	High

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

Recommendation	Ensure community-based hazardous material spill exercises have taken place in the community-at-large (e.g., table-top or full-scale exercises). Consider hazardous material spills involving land, rail, or in-situ.
Category	ALL Hazardous Material Spills (on site, road, rail, marine)
What was said?	Nothing Specified
Who will lead?	Fire Department with support from MEC
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest EM Plan)
Potential next steps	<ul style="list-style-type: none"> ● Invite internal and external stakeholders to participate ● Hold hazard-specific exercises or table top discussions ● Summarize outcomes / Lessons learned and potential actions
Timeframe	Mid
Priority	High
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Ensure community plans are in place to check on vulnerable populations during a heat wave, especially the elderly and poor.
Category	Heat Wave
What was said?	The Municipality does not have a voluntary registry of vulnerable persons. Could promote buddy system - neighbors check on neighbors; If a registry was in place there could be an expectation the RMA has to check on everyone.
Who will lead?	Nothing Specified
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest EM Plan)
Potential next steps	<ul style="list-style-type: none"> • Designate cooling centers (e.g Mall and Harbour Station) in the community, and ensure back-up power • Formalize contingency plans for cooling centers and water distribution - e.g. Secure standing purchase agreements and preferential access for EMO. • Work with Corporate Services on public education / communications (see communications strategy). Consult Health Canada Heat Alert Response System guidelines and messaging.
Timeframe	Short
Priority	Mid
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

Recommendation	<ul style="list-style-type: none"> • Ensure community-based power outage exercises have taken place in schools and the community-at-large (e.g., table-top or full-scale exercises). • Work with local and provincial EMO to design training / exercises. Focus on key hazards identified in this assessment. • Exercise once annually (minimum), for different hazard types
Category	Coordination and Planning
What was said?	Nothing Specified
Who will lead?	MEC
Who to engage?	Municipal staff
What municipal plans to leverage?	Nothing Specified (suggest EM Plan)
Potential next steps	<ul style="list-style-type: none"> • Identify exercise scenarios or table top topics • Invite internal and external stakeholders to participate • Hold hazard-specific exercises or table top discussions • Summarize outcomes / Lessons learned and potential actions
Timeframe	Short
Priority	Mid
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Update EMO Plan to consider climate hazards and risk, and how to respond. Incorporate recommendations from this assessment.
Category	Coordination and Planning
What was said?	Emergency Management (EM) Plan doesn't consider future climate risk. Participants noted: Guided by provincial template
Who will lead?	MEC
Who to engage?	CAO
What municipal plans to leverage?	EM Plan
Potential next steps	<ul style="list-style-type: none"> ● Review Climate Risk and Vulnerability Assessment and Recommendations. ● Update the EM plan to take into account projected climate change impacts. ● Update the plan to formalize disaster evacuation routes (communicate to the public on a case-by-case basis) ● Engage with task force as needed
Timeframe	Mid
Priority	Mid
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

Recommendation	Ensure community-based exercises have taken place in schools and the community-at-large (e.g., table-top or full-scale exercises), specific to each Hazard type
Category	ALL climate related hazards
What was said?	The RMA has an Emergency Response Plan updated and exercised in 2018 and considers the impact of prolonged power outages. May not be exercised for each hazard type.
Who will lead?	MEC
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest EM Plan)
Potential next steps	<ul style="list-style-type: none"> ● Identify exercise scenarios or table top topics ● Invite internal and external stakeholders to participate ● Hold hazard-specific exercises or table top discussions ● Summarize outcomes / Lessons learned and potential actions
Timeframe	Low to Mid
Priority	Mid
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

Recommendation	If there is an extended heat wave, ensure plans are in place to allow residents to evacuate to a designated shelter with air-conditioned or cool temperatures
Category	Heat Wave
What was said?	There are no designated cooling centers in the community. Participants noted: we would promote community halls and schools (if there is power), or take advantage of cooling properties of lake
Who will lead?	MEC
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest EM Plan)
Potential next steps	<ul style="list-style-type: none"> • Designate cooling centers (e.g Mall and Harbour Station) in the community, and ensure back-up power • Formalize contingency plans for cooling centers and water distribution - e.g. Secure standing purchase agreements and preferential access for EMO. • Work with Corporate Services on public education / communications (see communications strategy). Consult Health Canada Heat Alert Response System guidelines and messaging.
Timeframe	Mid
Priority	Low to Mid
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
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Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

Recommendation	Ensure alternative/secondary evacuation routes, for isolated neighborhoods,
Category	ALL Hydrological Hazards: Local Flooding, Rain Storm Flood, Snow Melt Flood
What was said?	Nothing Specified
Who will lead?	MEC with support from Public Works
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest EM Plan)
Potential next steps	<ul style="list-style-type: none"> ● Access funding / get support from Council, if needed ● Work with task force to study the impact of climate hazards (e.g. flooding) on transportation routes and alternate routing options. ● Update the Evacuation Plan accordingly ● Work with Corporate Services, to conduct public education
Timeframe	Short
Priority	Nothing Specified
Cost	Not identified

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

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Recommendation	<ul style="list-style-type: none"> • Ensure the Fire Department has trained Hazardous Material Teams available for deployment. • Ensure fire departments have trained firefighters to respond to hazardous material spills and have sufficient personal protective equipment (PPE) for all fire fighters.
Category	ALL Hazardous Material Spills (on site, road, rail, marine)
What was said?	Might need to rely on EMO or neighboring communities
Who will lead?	Fire Department with support from MEC
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest EM Plan)
Potential next steps	<ul style="list-style-type: none"> • Assess current capacity • Negotiate with neighbouring communities or partners
Timeframe	Long
Priority	Low
Cost	High

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
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Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

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Recommendation	Ensure utilities are communicating vulnerabilities and adaptation measures being taken to harden the system, and include the municipality as part of the conversation (including around back-up for critical services and around future energy infrastructure and Distributed Energy Resources).
Category	Power Outage / Interruption to Energy Supply
What was said?	Participants noted: via account manager. Municipality should also communicate to MB Hydro, about which facilities or lift stations need prioritization for restoration, before an event occurs.
Who will lead?	EMO
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified
Potential next steps	Discuss with utilities, identify municipal services that need prioritization for restoration.
Timeframe	Nothing Specified
Priority	Nothing Specified
Cost	Nothing Specified

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

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3.3 Planning

Recommendation	Implement better building codes and/or adopt updates to National Building Code which specifically reduce risk for new buildings and retrofits (2019-2025).
Category	Coordination and Planning
What was said?	Need to ensure adoption of new codes, as they are released (Federal/Provincial) - wait until province adopts 2015 code.
Who will lead?	Building inspector
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest Building Code bylaw)
Potential next steps	<ul style="list-style-type: none"> • Work with task force/committee, identify needs associated with adoption of new Codes, and refine timeline for training, adopting codes, and implementing / enforcing them. • Consult/Educate Developers and the Public
Timeframe	Short
Priority	High
Cost	Nothing Specified
Additional Resources	<p>For examples of better building codes, see http://snbsc-planning.com/wp-content/uploads/2019/04/climate-pamphletweb.pdf</p> <p>For more details on the National Building Code which are coming, see article: https://www.cbc.ca/news/canada/canada-building-code-climate-change-resilience-1.5092732</p>

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

Recommendation	Identify zones to discourage or encourage development in Land Use Plan, Zoning, or Official Plan, and notify builders of restrictions.
Category	ALL Hydrological Hazards: Local Flooding, Rain Storm Flood, Snow Melt Flood
What was said?	Participants identified areas to discourage development: Area South and East of Poplar Bay; Area immediately north of MB-304 between Provincial Trunk Highway 59 and Road 44 East; Area between Provincial Trunk Highway 59 and Lakeshore Rd; Area between Grand Marais and Lester Beach. Participants identified areas to encourage development: Area bordering Winnipeg River (including Powerview Pine Falls, St-Georges, and Silver Falls)
Who will lead?	Nothing Specified (suggest Planning department)
Who to engage?	Nothing Specified (suggest Council to approve updates to plan, zoning, etc)
What municipal plans to leverage?	Nothing Specified
Potential next steps	<ul style="list-style-type: none"> ● Obtain updated flood risk maps. Conduct study for 1 in 200 year flood levels ● Municipal Plan Review, land use and building code bylaw amendments ● Implement codes/regulations, notify developers, use permit process ● Consider providing incentives e.g. high efficiency, flood proofed buildings could be reimbursed permit fees.
Timeframe	Short
Priority	Mid to High
Cost	Nothing Specified

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

Recommendation	To increase traffic safety ensure there are visible fixed message signs, and raised reflective pavement markers on critical roads where possible, with critical lights having back-up (e.g. solar/storage)
Category	Planning
What was said?	Participants noted: RMA has mobile electronic signs, is considering solar crosswalk in St-George near the school
Who will lead?	Planning
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified
Potential next steps	<ul style="list-style-type: none"> Identify locations where signs, markers, or lights may be needed for increased safety on roads and crossings. Budget for improvements
Timeframe	Mid to Long
Priority	Low to Mid
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

3.4 Public Works

Recommendation	<ul style="list-style-type: none"> • Ensure the community has implemented measures to reduce the risk of local flooding, such as ensuring that storm sewage drains and systems are well maintained, and separated to the degree possible. • Ensure the community has updated old and worn out pipes, or pipes made from gray cast iron to prevent pipeline failure in the future.
Category	ALL Hydrological Hazards: Local Flooding, Rain Storm Flood, Snow Melt Flood
What was said?	Participants noted: The community does not have separated stormwater and sewer systems (except in one area) and it is unable to handle the 1 in 100-year flood event. There is risk to lift stations with significant rainfall and snowmelt, and no back-up power.
Who will lead?	Public Works
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest Asset Plan)
Potential next steps	<ul style="list-style-type: none"> • Conduct drainage assessment • Prioritize upgrades • Access funding / obtain council approval - Possible to direct Gas Tax to critical infrastructure improvements
Timeframe	Long
Priority	Low
Cost	High

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

3.5 Regional Health Authority

Recommendation	Ensure there is a warning system in place to notify residents and emergency personnel of potential heat waves. Consider creating Heat Alert Response System, using Health Canada guidelines.
Category	Heat Wave
What was said?	Early warning centres are not well resourced and adequately staffed. Use this method to communicate to public
Who will lead?	Regional Health Authority with support from EDO for Comms
Who to engage?	Nothing Specified
What municipal plans to leverage?	Nothing Specified (suggest EM Plan)
Potential next steps	<ul style="list-style-type: none"> • Designate cooling centers (e.g Mall and Harbour Station) in the community, and ensure back-up power • Formalize contingency plans for cooling centers and water distribution - e.g. Secure standing purchase agreements and preferential access for EMO. • Work on public education / communications (see communications strategy). Consult Health Canada Heat Alert Response System guidelines and messaging
Timeframe	Short to Mid
Priority	Mid
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

3.6 Communications

This section contains all the recommendations that pertain to external and internal communications regarding climate change, community resilience, and emergency preparedness. To improve community resilience to the impact of climate change, sound communication is critically important across all municipal departments and emergency services, external stakeholders and the public. This section is divided into two parts:

- The Public Education Strategy, or External Communication, presents specific public messaging and recommendations for all hazard types.
- The Internal Communications recommendations presents recommendations for all hazard types that strengthen the internal capacity of municipal staff to efficiently coordinate across all departments, and with emergency response organisations.

External Communications:

Recommendation	Establish monthly, quarterly or annual updates to key stakeholders and the Public
Category	Communications
What was said?	Participants noted: annual updates
Who will lead?	CAO
Who to engage?	Nothing Specified (suggest: Website, Social Media, Media, Public)
What municipal plans to leverage?	Nothing Specified (suggest: create communications strategy)
Potential next steps	<ul style="list-style-type: none"> • Schedule quarterly updates for stakeholders, annual for the public • Task force to prepare updates (with input from Department Heads)
Timeframe	Short
Priority	Low
Cost	Low

	Yr-2020	Yr 2021	Yr 2022
Funding ☐ Yes ☐ No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

Recommendation	Develop an ongoing public education and outreach strategy to increase resilience to climate hazards in the community
Category	Communication
What was said?	(see table below)
Who will lead?	EDO and MEC
Who to engage?	Not identified (suggest: Website, Social Media, Media, Public)
What municipal plans to leverage?	(create) Communications Strategy
Potential next steps	<ul style="list-style-type: none"> ● Consider implementing a combination of activities, clear and simple messaging, and a variety of communication channels, to inform and educate the public and vulnerable populations (see Table 4 and 5 below) ● Consult Task Force / all Departments, on messaging ● Develop communications material / content ● Conduct activities on a quarterly or annual basis
Timeframe	Short
Priority	High
Cost	Low to Mid

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
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Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

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The table below presents some tips to develop an effective education communications plan. It can be tailored to the needs of your community.

Table 4: Tips for an effective public education communications plan

Activities	<ul style="list-style-type: none"> ● Plan annual resilience day activity (during open house) ● Engage other community organizations (e.g. cottage associations) ● Educate citizens on fire risk reduction measures, restrictions ● Ensure communication plan for promoting preparedness (72 to 96 hours) and alerting the public of hazards, how to prepare, where to shelter or when to evacuate, as well as how you will keep them informed ● Identify muster points based on hazard type, communicate to citizens ● Provide seasonal updates and guidance in newsletter
Messaging	<ul style="list-style-type: none"> ● Provide clear, simple, or tailored messaging for different audiences (e.g. residents, businesses) / by neighborhood ● Ensure public knows where to get town’s information ● Incorporate specific messaging based on hazards in your community (see table below)
Channels / medium	<p>Explore the use of various channels to communicate with the public:</p> <ul style="list-style-type: none"> ● Website ● Newsletter ● Notices ● social media, ad ● open house. <p>Councillors to meet with cottage association</p>

The table below presents the key messaging the municipality should focus on in its disaster preparedness communications to the public. They are tailored to the most frequent hazards occurring in the community and were selected by participants in the second workshop.

Table 5: Key messages by hazard type for external communications

Hazards	Hazard-related recommendations	Participant’s Comments
Storms, Cold Weather, and Ice Storms	Encourage residents to have winter tires and winter emergency kits (including rock salt, shovels, blankets, food and water) in their vehicles	
	Ensure most homes have well insulated walls, attics and pipes and roofs are in good condition	
	Encourage residents to help with breaking up ice and snow near drainage.	

Heat Waves	Educate residents about heat waves and how to recognize the warning symptoms of heat exhaustion and how best to keep cool
Windstorms	<p>Encourage residents to have designated areas of refuge in their homes</p> <p>Inform residents of disaster evacuation routes</p> <p>Encourage residents to prepare for high winds and flooding by: covering windows with storm shutters or plywood, reinforcing garage doors, clearing rain gutters and downspouts, securing boats to land or storing them on land and removing potential windborne missiles such as barbecues and patio furniture. Educate the public about storm safety and know to stay indoors and away from windows, skylights and glass doors and avoid contact with plumbing, corded electrical equipment, concrete floors and walls if there is lightning along with the storm</p>
Hailstorms	<p>Encourage airport operators to prepare for hailstorms by putting planes under cover</p> <p>Encourage car dealers to prepare for hailstorms by putting vehicles under cover</p> <p>Encourage farmers to check regularly with weather and storm forecasting agencies such as Environment Canada</p> <p>Encourage farmers to prepare for hailstorms by putting vehicles under cover, protecting greenhouses and bringing in animals wherever possible</p> <p>Encourage residents to prepare for hailstorms by putting vehicles under cover</p> <p>Educate the public about storm safety and know to stay indoors and away from windows, skylights and glass doors and avoid contact with plumbing, corded electrical equipment, concrete floors and walls if there is lightning along with the storm</p>
Hydrological Hazards: Local Flooding, Rain Storm or Snow Melt Flood	Encourage residents and businesses to have back-water valves and sump pumps installed with back-up power.

	Encourage businesses to have backup generators in place and ready to be used. Educate on use of generators.	
	Encourage residents to have heating sources that do not require power and/or have alternate power sources (e.g., generator)	
Power Outage / Interruption to Energy Supply	Inform residents of what to avoid (e.g. using propane, bbq inside), and to turn off all appliances during restoration/cold start of grid. Educate on use of generators.	
	Encourage all farmers who have essential power needs (e.g., greenhouses) have backup power supplies.	
	Encourage all residents who have essential power needs (e.g., on a respirator) have backup power supplies.	
Brush, Bush and Grass Fires; Wildland / Urban Interface Fires;	Ensure Encourage residents have home fire evacuation plans and have tested them.	Participants noted: it is a challenge to modify behavior
	Encourage residents abutting forest land, to have shovels, rakes, axes, garden hoses, sprinklers and roof ladders to assist in suppressing brush, bush and grass fires, wildland/urban interface fires.	
	Educate residents regarding FireSmart principles	

Internal Communications:

Recommendation	Establish monthly, quarterly or annual updates to Council, all Staff.
Category	Communications
What was said?	Participants noted: all departments and CAO already report to council every 2 weeks. Updates could be made at that time
Who will lead?	EDO (Economic Development Officer) is responsible for comms
Who to engage?	Nothing Specified
What municipal plans to leverage?	Communications strategy
Potential next steps	<ul style="list-style-type: none"> ● Engage task force members on quarterly (minimum) basis, to update on progress with selected recommendations / actions. ● Identify challenges and opportunities, resource needs ● Enable cross-department collaboration ● Enable collaboration with external stakeholders ● Prepare annual updates for Council
Timeframe	Short
Priority	High
Cost	Nothing Specified

	Yr-2020	Yr 2021	Yr 2022
A study <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Stakeholders Engagement <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress <input type="checkbox"/> Completed
Funding <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:	<input type="checkbox"/> Pending <input type="checkbox"/> Secured. Source:
Implementation	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed	<input type="checkbox"/> Pending <input type="checkbox"/> In progress*: <input type="checkbox"/> Completed

* Add level of completion: 25% 50% 75%

NOTES:

4.0 Budget and Funding Considerations

Workshop participants did not have time to discuss in depth funding resources and budget options available to them to implement the recommendations detailed in the previous section. Securing funding and a budget is crucial to the viability of some climate adaptation and emergency management measures.

Participants in the first and second workshops noted that municipal financial capacities are limited, and that investment from the federal and provincial levels of government is needed to support local projects and initiatives.

Recommendation. The municipality is invited to collect internal information to answer the following questions:

- Which financial resources have been explored in the past?
- Which are being explored currently?
- Which could be explored to support the actions and strategies identified below?

It may be challenging to secure funding, especially when competing with other municipal priorities. The table below presents different strategies to secure financial resources for municipalities. These funding sources are usually available for plans, studies, pilot projects and/or capital projects. They usually require matching funding.

Table 6: Strategies to secure financial resources

Sources	Description
Budget	Create budget item/fund for adaptation to support adaptation measures
Internal financing sources	<ul style="list-style-type: none"> ● Property taxes, tax levies ● Tax Increment Financing, Local Improvement Charges ● User fees (on water, power and natural gas distribution system, waste, ect.) ● Development Cost Charges (DCCs) ● Green bonds
Local Incentives and Rebates	<ul style="list-style-type: none"> ● Development Cost Charge reductions ● Local Improvement Charge financing (LIC) or Property Assessed Clean Energy (PACE) programs ● Fee rebates/credits (on water and energy bills); local economic incentives for investing in disaster risk reduction for households and businesses, and new developments (e.g. tax holidays for businesses, faster permitting for developments meeting certain adaptation criteria)

New accounting/ decision-making tools	<ul style="list-style-type: none"> ● Consider natural asset management approach - full cost accounting and valuation of natural assets ● Estimate avoided cost when presenting business case for adaptation measures ● Combine funding with Gas Tax revenue ● Reinvest efficiency savings into low cost adaptation measures, community engagement, etc. ● Update the long term financial plan to include considerations of climate change mitigation and adaptation
Institutional grants and external sources of funding	<p>Scan and submit funding applications to</p> <ul style="list-style-type: none"> ● Federal agencies and governments <ul style="list-style-type: none"> ○ NRCan ○ Environment and Climate Change (ECC) ○ Infrastructure Canada programs ● FCM programs, including: <ul style="list-style-type: none"> ○ Green Municipal Fund ○ Municipalities for Climate Innovations Program ○ Municipal Asset Management Programs ● Provincial programs and agencies
Loans	<ul style="list-style-type: none"> ● FCM low-interest loan (GMF) ● Municipal green bonds
Leverage private investments	<ul style="list-style-type: none"> ● Engage private sector, to partner and financially support adaptation measures for infrastructure that supports their operations and/or immediate community ● Ensure local Chamber of Commerce or others support efforts of small enterprises for business continuity during and after disasters
Economy of scales and synergies at the local level	<ul style="list-style-type: none"> ● Leverage existing initiatives or project by expanding / adapting their scope and collaborating with other departments (thinking beyond silos) ● Collaborate with neighbouring municipalities ● When a measure involves several communities, cost-share (e.g. procurement of generators, building sea walls, etc.)

FCM and ICLEI recently published a toolkit called [On the money: Financing tools for local climate action](#), that explains how your municipality can leverage private and community investors to help you take action on climate change in your community. This toolkit includes tips on how to harness people power through group purchasing and community owned renewable power, break capital barriers with local improvements and energy performance contracts, and create a funding cycle with green revolving funds and green bonds.

The two following handbooks provide helpful, on-the-ground solutions to secure funding for energy resilient infrastructure that may be relevant to your community:

- [Bridgewater Financing Mechanism Scoping Study](#) (2019)
- [Community Energy Investment Strategy for Waterloo Region](#) (2018)

5.0 Monitoring and Reporting Progress

QUEST strongly recommends that the Chief Administrative Officer reviews each recommendation and confirms, or assigns when needed, the following:

- A Priority
- A Lead Department
- A Lead Staff
- A Cost

In the short term, QUEST also recommends to create a committee, or to leverage an existing committee, in order to integrate the recommendations into relevant municipal documents and strategies as well as to monitor and report on their implementation.

To assist in this task, QUEST added an Action Tracking Table below each recommendation table. The purpose of these tables are twofold :

- **Monitor progress internally.** By creating an interactive document, lead staff can update and comment on progress made in implementing selected priority actions on a yearly-basis over the next three years; and
- **Report back to NRCan.** This project being funded by NRCan, QUEST and each participating municipality has to report back annually on the project impact over the next three years. The Tracking Tables provide an easy way to collect information for NRCan.

These tracking tables are a tool to collect information about progress on conducting survey, securing funding, engaging stakeholders, and implementation.

The use of the Tracking Tables is effective only if the municipality sets up a reporting process at the CAO level, or as part of established task force or committee, to ensure information is collected yearly from all Lead Departments and Lead staff. This process can be integrated in existing annual review process.

6.0 Conclusion

This report is a living document prepared with the intent to be shared among identified shareholders and updated annually by using the tracking tables for each recommendation. Along with the Vulnerability and Resilience Assessment Report (delivered in Fall 2019), this report intends to inform the work of the Rural Municipality of Alexander on climate adaptation, resilient planning, and emergency preparedness.

The next recommended steps the municipality can take are:

- To have CAO review responsible department for each recommendation, and assign a specific lead staff person for each recommendation. The Department in charge of implementing recommendations has not always been identified for recommendations selected by workshop participants.
- Continue integrating climate projections and climate hazard into the reviews of all municipal plans and bylaws.
- Continue working closely with energy utilities to build a resilient grid.
- To continue building momentum by conducting an Energy Mapping workshop and developing a Community Energy Plan. Community energy planning is recognized across Canada as an effective pathway to Smart Energy Communities. It provides a platform for multiple stakeholder groups to convene, coordinate, and implement innovative community energy projects and programs, resulting in more energy efficient, resilient and vibrant communities.

QUEST team has sound expertise and records in these areas. QUEST specializes in the development of energy mapping workshops focused on educating and inspiring participants to take an integrated, systems-thinking approach to community energy planning. QUEST will be delighted to continue working with the Rural Municipality of Alexander on these initiatives.

The primary goals of the project were threefold. First, to increase participants' understanding of resilient community and policy. Second, to inform the municipality and utilities' action and initiative on climate adaptation and emergency management. Finally, to foster collaboration among various stakeholders, including municipal staff and energy utilities to align asset management and planning, and emergency responses. The methodology and approach used by QUEST has proven effective in bringing together diverse stakeholder groups and tapping into participants' knowledge to prepare this second report.

QUEST has appreciated working with the Rural Municipality of Alexander municipal staff, local stakeholders, and energy utilities. QUEST team, would like to thank each of the workshop participants for their time and valuable insights. QUEST team hopes they found the workshops informative and impactful to incorporate resilience in their day-to-activity.

All the lessons learned will be compiled by QUEST into a final public Lessons Learned report. This lessons learned report will present key challenges Canadian communities and utilities are facing when building a resilient community and adapting energy infrastructure to a changing climate. It will also emphasize observed good practice and opportunities. This report will be shared with other municipalities across Canada to help them become more resilient to climate hazards.

Appendix 1 - Tables from Workshop #2

Sent as a separate document.

Appendix 2 - Assessment report

Sent as a separate document.

Appendix 3 - Additional resources

Climate change data

ECCC Climate Change Data portal: <http://www.canadaccdp.ca/>

Climate Data for a Resilient Canada: <https://climatedata.ca/>

Infrastructure and asset management planning

[Combatting Canada's Rising Flood Costs: Natural infrastructure is an underutilized option](#)

Insurance Bureau of Canada, 2018. This report provides guidance to those considering or opting for a natural infrastructure solution. The natural infrastructure implementation framework that is being introduced provides such a structure, and it is consistent with the natural infrastructure preservation commitments Canada has made under the Paris Agreement, the United Nations' Sendai Framework for Disaster Risk Reduction and the Pan-Canadian Framework on Clean Growth and Climate Change.

[Public Infrastructure Engineering Vulnerability Committee \(PIEVC\) Protocol, Engineers Canada.](#)

The Protocol systematically reviews historical climate information and projects the nature, severity and probability of future climate changes and events. It also establishes the adaptive capacity of an individual infrastructure as determined by its design, operation and maintenance. It includes an estimate of the severity of climate impacts on the components of the infrastructure (i.e. deterioration, damage or destruction) to enable the identification of higher risk components and the nature of the threat from the climate change impact. This information can be used to make informed engineering judgments on what components require adaptation as well as how to adapt them e.g. design adjustments, changes to operational or maintenance procedures.

Land-use planning

[Risk-based Land-use Guide: Safe use of land based on hazard risk assessment](#), NRCan, 2015. This guide explains three key actions intended to assist municipal staff determine whether land use proposals will be safe for their intended use. It explains: 1) how to integrate hazard risk

management into existing land-use management instruments; 2) how to determine if the hazard risk of a land-use proposal is acceptable; 3) how to consider reducing the risk to tolerable and acceptable levels.

Emergency response

[Heat Alert and Response Systems to Protect Health: Best Practices Guidebook](#). Government of Canada. The guidebook provides an overview of health risks from extreme heat and offers evidence-based strategies for alerting health authorities and the public when hazardous conditions arise. It is intended for use by policymakers, planners and service providers involved in protecting citizens from extreme heat events. The Guidebook is designed to help develop interventions tailored to the needs of a specific community.

Building codes and standards

[Infrastructure Canada's Climate-Resilient Buildings and Core Public Infrastructure Initiative](#). With \$42.5 million in financial support from Infrastructure Canada, and in support of the Pan-Canadian Framework on Clean Growth and Climate Change, the National Research Council Canada (NRC) is undertaking ground-breaking work to integrate climate resiliency into building and infrastructure design, guides, and codes. This initiative is intended to develop capacity in Canada's construction industries to adapt to the increasing demands on our built infrastructure attributed to climate change. The work undertaken by the NRC will contribute to an infrastructure landscape that can keep Canadian communities safer from extreme weather and the effects of climate change.

[Building for climate change A quick guide for homeowners and builders](#). Southwest New Brunswick Service Commission. This handbook will focus on building and landscaping approaches to address four key threats: wildfire, flood, extreme precipitation, extreme wind.

Funding and budget

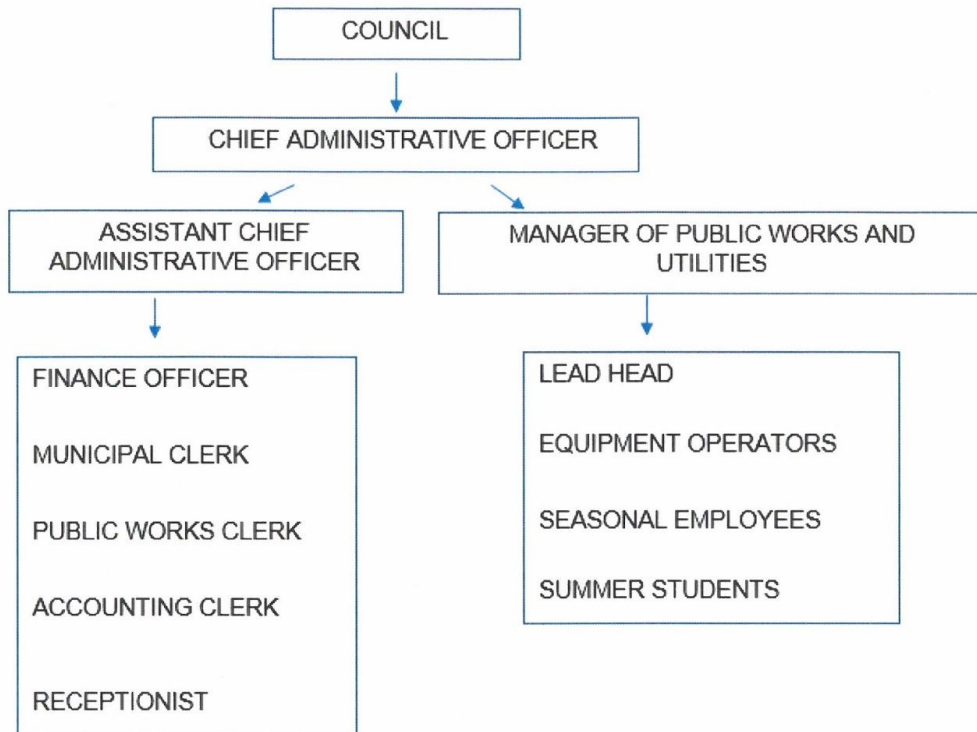
[On the money: Financing tools for local climate action](#), FCM and ICLEI (2018). The report explains how your municipality can leverage private and community investors to help you take action on climate change in your community. This toolkit includes tips on how to harness people power through group purchasing and community owned renewable power, break capital barriers with local improvements and energy performance contracts, and create a funding cycle with green revolving funds and green bonds.

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Appendix 4 - RMA's organizational chart

II. Organization Chart:



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