



AMANB RESILIENCY PLAYBOOK FOR NEW BRUNSWICK MUNICIPALITIES



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Resiliency Planning for Municipalities

You've heard about climate adaptation, and you know you are supposed to prepare for emergencies. Did you know you can do both at the same time by putting a resiliency lens on the work of the municipality?

Resiliency is the ability to recover quickly from difficulties. This can be in reference to cleaning up following a storm surge or flood, or recovery after a disaster like an explosion in your downtown. Putting a resiliency lens on the work of the municipality can reduce the risk of a disaster happening in the first place, minimise the impact when a disaster does happen, and facilitate the recovery post-event.

The Association of Municipal Administrators of New Brunswick has prioritised resiliency in its training efforts since 2014. This playbook was designed to help you, the municipal managers and councillors, quickly identify the issues, tools, and resources available to help before, during, and after an event to help your community be more resilient, now and into the future.

What issue puts your community at the most risk?

Every community is exposed to risk, whether climate or human/technology related. For example, if you are located on an exposed coast, storm surge may be your biggest concern, or if you have a rail line, perhaps it is the possibility of a derailment of hazardous materials.

Through a series of workshops and meetings with municipalities throughout New Brunswick from 2015-2017, the following hazards and vulnerabilities have been identified as the highest concern for New Brunswick municipalities:

Key Hazards of Most Concern:

- Hydrological (e.g. flooding, storm surge, ice jam, erosion)
- Atmospheric (e.g. blizzard, ice storm, freezing rain, extreme weather)
- Power and Water Outages
- Material Spills / Accidents (e.g. along Trans Canada Highway, along rail lines, from local industry)

Key Vulnerabilities

- No Back-Up for Warming Centers, Senior Centers
- Flood Risk Zones, Undersized culverts, Buildings and Infrastructure (e.g. water treatment) at risk
- Access Roads (or lack of secondary routes)
- Regional Communications

Think about your own municipality, your geography, your citizens, and consider what the biggest concerns would be for your area.

New Brunswick Municipalities Taking Action

No matter the size of the concern, some municipalities have taken some action to help alleviate the risk. The main strengths identified in some areas are:

- Mutual Agreements
- Shelters
- Alerting System
- Primary/secondary routes
- EOC, EMP, Contact Trees



In spite of these strengths, there are many areas still in need of improvement in New Brunswick.



Key Areas for Improvement / Adaptation:

- Risk based land use
- Building inspection
- Flood risk reduction
- Generators / BackUp
- Infrastructure improvements
- Erosion control
- Others.

Consider where your municipality fits. Do you have back-up generators for a community warming shelter? Do you have secondary routes out of town in case the primary route is inaccessible? Are your planning and development practises preventing construction in flood-prone areas? All of these components contribute to increased resiliency over time.

Key Actors / Roles

Municipalities are not alone in the effort to increase resiliency. The provincial government has supported the collaboration of their Emergency Management Organisation with the AMANB to help increase resiliency awareness of communities. The Department of Environment and Local Government funds resiliency work, and other departments such as Transportation and Infrastructure are also involved.

Energy utilities, such as NB Power and municipal power corporations, are actively working to reduce exposure to risk by improving energy distribution infrastructure and maintaining agreements with neighbouring utilities for disaster response and back-up generation.

There are also non-governmental organisations involved in resiliency, from environmental groups working with municipalities on climate adaptation planning, to groups such as the Red Cross who will evaluate the suitability of municipal infrastructure for use as warming centres as well as help take care of the human component of an emergency.

During an event, individuals and corporations are also quick to help out. However, preparing for disasters, and making decisions to change practices to reduce future risk, requires support. Citizens and corporations can play a significant role in supporting their municipal councils to make resiliency-focussed changes.

So, What do we do Next?

There are many things that your municipality can do to increase resiliency.

First, there are a few things you must have in place:

- **An Emergency Measures Plan**
- **A Municipal Plan**

Both of these documents can be designed with resiliency in mind. The EM Plan can include guidance for post-event activities to reduce future risk of a similar event, and the municipal plan's policies can provide an overarching commitment to reducing risk and increasing resilience throughout the entire community.

By involving the public when it is time to update these plans, they can serve as tools to help your citizens better prepare and plan for resiliency as well.

The effort to reduce your municipality's risk need not be overwhelming. There are tools, techniques, and organisations at your disposal.

Climate Change Adaptation Guide : Contact the New Brunswick Climate Change Secretariat at http://www2.gnb.ca/content/gnb/en/contacts/dept_renderer.139.201003.201020.html

NB EMO Regional Emergency Plan Template:
http://www2.gnb.ca/content/dam/gnb/Departments/ps-sp/pdf/emo/regional_emergency_response_plan-2016.pdf

In addition to a Municipal Plan and EMO plan, municipalities affect a number of areas that can impact resiliency:

Land Use Planning; Municipal Infrastructure; Building Code improvement; Water and Sewerage; Road Maintenance and Transportation; Waste Management; Emergency Services.

Here are some ideas for adaptation in each of these areas that other communities have focused on,:

Land Use Planning	Modify your zoning by-laws to limit or stop development in areas where there is risk from water damage, either on the coast or in areas where there is a greater risk of flooding due to heavy rains or melts.
	Encourage natural growth of plants along sloping areas, as this will slow erosion during heavy rainfall events.
	Rehabilitate wetlands and wet areas, because these can act as sponges to lessen water damage.
	Maintain stream buffers
Municipal Infrastructure	Plan to maintain, build and protect road infrastructure with climate change in mind, because flooding and water runoff can do great damage to roadways.
	Ensure culverts and stormwater infrastructure will be able to accommodate higher rainfall events and flooding.
Building Code Improvement	Install erosion-protection measures, such as barriers or berms, as needed.
	Address flood risks by flood-proofing basements.
	Develop policies to require backflow prevention valves, so that sewage does not enter buildings during episodes of flooding.
	Risk assessment: do you need a by-law regarding first floor habitation in buildings already located in existing flood zones?
Water and Sewerage	Flooding can also damage sewerage and water systems underneath your roadways.
	Maintain and design new systems to accommodate increased floodwaters.
	Examine your existing water and sewerage infrastructure. Can it be moved out of a known flood zone? If not, it will be important to ensure manholes are high enough, and backflow prevention valves are installed in buildings.
	Reduce the amount of runoff overloading your systems by encouraging rain barrel use, landscaping that buffers runoff, engineered wetland areas, reduced asphalt use in urban areas, etc.
	If your municipal or well water has increased salt content due to saltwater infiltration (this can happen through the groundwater or over land, following a storm surge on the coast), you will have to explore the causes, and address them (possible solutions: relocation of wells; regulation of pumping of wells, to reduce saltwater being drawn in).
	Implement water conservation if your local freshwater stores no longer meet your needs, especially during summer drought conditions.
Road Maintenance and Transportation	Ensure Primary and Secondary Access and Evacuation routes
	Ensure transportation options for: seniors, patients, low income, etc
	Ensure transportation of essential goods / supplies
	Inventory sources for buses, trucks, heavy equipment
Emergency Services	Ensure that you have an Emergency Plan for your municipality. If not, contact the Department of Public Safety NB (www2.gnb.ca/content/gnb/en/departments/public_safety/emo.html). See also www2.gnb.ca/content/gnb/en/departments/elg/environment/content/climate_change/content/changing_climate.html .
	Do a mock emergency field exercise, to test and improve your emergency plan.
	Flooding and other emergencies do not necessarily respect municipal boundaries. If you haven't already done so, get to know your neighbouring municipalities and LSD's. Work with them on your regional approach to sharing resources and emergency planning.

Possible Actions

1. Encourage Council to declare that resiliency is a priority for the community, and that all future activities that affect land use and citizen well being will be carried out with a resiliency lens.
2. Form a resiliency committee, whether citizen-led or Council-led, to champion the effort.
3. Host community-wide workshops to gather input and promote awareness. The AMANB has run a number of table-top exercises in conjunction with regional EM co-ordinators that have been very effective at allowing multi-stakeholder groups quickly identify risks and vulnerabilities of their communities.
4. Use the local knowledge gathered through the consultation process to build a climate adaptation and resiliency plan.
5. Update the Emergency Plan with climate change considerations.
6. Identify the resources needed to implement the plans, including proposing a budget and funding sources.
7. Implement and exercise the plan with the community, not just the EM professionals, so that people know what to do and where to go in case of an emergency.
8. Communicate, communicate, communicate. A key vulnerability in NB is regional communication. This includes communicating to citizens before something happens so they know what the expectations are, where warming centres are, who to contact, and what to do afterward. It also includes communications between various groups who respond during emergencies, and to citizens to explain why certain decisions or investments are being made by Council to reduce the municipality's risk to future events.

No matter the stage of your municipality, even small decisions can be a step forward.

Take action, and your community will move toward a more resilient future.

Resource List

Local

NB Department of Environment and Local Government:

<http://www2.gnb.ca/content/gnb/en/departments/elg.html>

to find local Adaptation Case Studies, Provincial Climate Change Action Plan, and New Brunswick's Flood Risk Reduction Strategy.

Local Government, Sustainability and Climate Change: A Resource for Elected Municipal Officials in New Brunswick:

<http://atlanticadaptation.ca/en/islandora/object/acasa%3A566/datastream/OBJ/view>

NBEMO: http://www2.gnb.ca/content/gnb/en/departments/jps/public_safety/content/emo.html

NB Flood Watch: http://www2.gnb.ca/content/gnb/en/news/public_alerts/river_watch.html

GeoNB Flood Maps: <http://www.snb.ca/geonb1/e/apps/apps-E.asp>

Institut de recherche sur les zones côtières, inc. : http://www.irzc.umcs.ca/flash_content/index.html

Also visit AMANB's **Resilience Webpage** (http://energysmartnb.ca/?page_id=401)

Regional

Savoir s'adapter aux changements climatiques, published in 2010 by the Québec government in collaboration with Ouranos can be ordered online:

<http://www.publicationsduquebec.gouv.qc.ca/fre/products> Type the title or reference # 978-2-923292-03-8.

Atlantic Climate Adaptation Solutions Association (ACASA) – <https://atlanticadaptation.ca/>

National

JIBC's Rural Disaster Resilience Portal: hazard and resilience assessment/reporting tools (free):

<https://rdrp.jibc.ca/>

ICLEI Canada's Building Adaptive and Resilient Communities—(BARC) Program::

<http://www.icleicanada.org/programs/adaptation/barc>

Climate Change Adaptation Community of Practice (Canada): <https://www.ccadaptation.ca>

FCM-Federation of Canadian Municipalities:

☑ Adaptation resources: <http://www.fcm.ca/home/issues/environment/climate-change-adaptation.htm>
and various reports: <http://www.fcm.ca/home/programs/partners-for-climate-protection/program-resources/municipal-reports.htm>

Natural Resources Canada's "Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation" - update to 2008 science assessment report - Visit:

<http://www.nrcan.gc.ca/environment/resources/publications/impacts->

[adaptation/reports/assessments/2014/16309](#)

Health Canada Resources for Heat-Event planning: <http://www.hc-sc.gc.ca/ewh-semt/climat/adapt/heat-chaleur-eng.php> and <http://www.hc-sc.gc.ca/ewh-semt/pubs/climat/response-intervention/index-eng.php>

Engineers Canada's PIEVC Protocol for infrastructure climate risk assessment: Visit: <https://pievc.ca/>

Canada Climate Change Data Portal (University of Regina) <http://canadaccdp.ca>

CRHNet—Canadian Risk and Hazards (Knowledge and Practice) Network <http://www.crhnet.ca/>

IBC—Insurance Bureau of Canada: (www.ibc.ca)

To find additional climate change adaptation resources, Visit: www.adaptationlibrary.ca

International

UN ISDR: Resilient Cities:

- ☐ A Self-Assessment Guide for Local Governments and Handbook for Local Elected Officials, and other toolkit resources: <http://www.unisdr.org/campaign/resilientcities/home/toolkit>
- ☐ Self-Assessment Form: <http://www.unisdr.org/applications/hfa/assets/lgsat/documents/LGSAT-Offline-Reporting-form.doc>

Funding

FCM's Green Municipal Fund: Visit <http://www.fcm.ca/home/programs/green-municipal-fund/what-we-fund.htm>