

Building a Flood Risk Reduction Strategy for New Brunswick

**Report on the Stakeholder Workshop,
January 28, 2014**

March 6, 2014

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Introduction

In the November, 2012 Speech from the Throne, the Government of New Brunswick made a commitment to commence the development a comprehensive flood risk reduction strategy for the benefit of all New Brunswickers. The goals of such a strategy include:

- Increased public safety and avoidance of personal hardships,
- Reduced flood damage to properties, infrastructure and the environment,
- Increased community resilience,
- Cost savings for taxpayers and property owners, and
- Less uncertainty about flood risk, leading to better decisions.

An interdepartmental working group was subsequently established, comprised of representatives from the Department of Environment and Local Government, the Department of Transportation and Infrastructure, and the Department of Public Safety/Emergency Measures Organization. On January 28, 2014, the working group hosted a stakeholder workshop in Fredericton. There were 38 participants including representatives from universities, local governments, emergency responders, public interest groups, the federal government and the private sector. Four potential objectives for the strategy were presented, along with a list of 11 potential actions.

Participants were divided into 7 break-out groups, and asked to address the following questions of each Objective:

- 1) Is the objective worthwhile (necessary, important)?
- 2) Are there key actions that in your opinion are missing in relation to this objective?
- 3) Who should be leading the actions? What role should there be for players other than government?
- 4) Are there any other comments the participants would like to make?

Each break-out group was facilitated by a representative of one of the Departments comprising the interdepartmental working group, under the overall direction of an external facilitator.

This document summarizes the views expressed by the workshop attendees, as obtained from their written comments (provided during the break-out sessions) and verbal comments (recorded during the break-out sessions, by designated note-takers assigned to each group).

Based on the breadth of the discussion and the level of participant involvement, it is apparent that the participants are already attuned to the need for a flood risk reduction strategy. It was not a question of whether or not to prepare a strategy but rather, how soon and in what way. Many participants were ready to provide their views on specific details of timing, implementation and content of the Action Items. As a result, the numerous comments and insights that were provided at this workshop will not only be of use in finalizing the strategy, but will also be of valuable assistance in shaping and informing its implementation. Detailed comments are listed in the following pages.

What we Heard

Objective 1: Accurate Flood Hazard Identification for the Public

Accurate identification of locations where future floods are likely to occur.

Draft Actions

1. *Update and add to New Brunswick's existing set of flood hazard maps.*
 - *Adopt appropriate technical mapping standards*
 - *Acquire necessary data*
 - *Calibrate completed mapping*
 - *Establish renewal cycle to keep the mapping current*
2. *Engage local communities in the flood hazard mapping process.*
 - *Partner with other jurisdictions, educational institutions, technical experts and local communities*

Summary of Discussion from Breakout Groups

1) Is the objective worthwhile (necessary, important)?

There appeared to be widespread agreement that Objective 1 is worthwhile. This opinion was expressed using words and phrases such as: “*obviously*”; “*a key initiative*”; “*of course*”; “*absolutely necessary*”; “*essential*”; “*the basis for all that follows*”; “*extremely important*”; “*yes, yes, yes*”; “*a must*”; “*economically and politically responsible*”; “*a good measurable objective.*”

2) Are there key actions that in your opinion are missing in relation to this objective?

For presentation purposes the comments received from participants have been separated into two groups: 1) Descriptions of missing action items that should be explicitly included in the strategy document, including calls for re-wording or clarification of the actions that were presented; and 2) Statements about specific features that should be addressed as part of the implementation details of the draft actions.

The above classification was made recognizing that there is some overlap between the two categories. It is also important to note that the order in which the responses are listed is not intended to represent a ranking or prioritization.

Missing Actions or Required Clarification of the Draft Actions

In general, these comments reflect a desire that more information be included in the strategy about issues such as the mapping standards, mapping priorities, timing, implementation methods, and funding:

- A prioritization of what areas should be mapped
- A clear time frame and plan for completing the required mapping
- An estimate of the amount and source of the required funding
- A statement on how the hazard maps are to be used and implemented locally
- A description of the required level of accuracy (as preliminary guidance to developing the mapping standard)
- The proposed actions and implementation process should be discussed publically and agreed to before making a decision to proceed

Communication, information sharing, and education were seen by many as vital components of this objective, including:

- How to interpret the maps
- A description of their purpose and value
- What government plans to do with them
- Clear public messaging to be developed and released at the same time as the maps

It was noted that there is a particular need to host training sessions for local councils and mayors so they understand what is being done and why. As noted under Objective 4, participants felt that effective collaboration, education and engagement should be integral to all objectives and is not really a stand-alone Objective.

Some participants viewed the flood hazard mapping initiative as an opportunity to manage/mitigate floods and investigate and highlight their causes, rather than just identify the limits of flooding. For example, the models used to generate the maps could be used to investigate and document the relationships between changing land cover (land development) and run-off, and the benefits of retaining forests and wetlands. Human influences on flood levels could be documented.

Implementation Details

These comments touched on a variety of technical and administrative details related primarily to the production and distribution of flood hazard maps:

- Identification of a map renewal cycle
- Assessment of best available, affordable mapping technologies

- Ensure that the maps are accompanied by appropriate background information (disclaimers, limitations, method of analysis, how to interpret results, etc.)
- Mapping should be province-wide (available in every community)
- Use consistent, province-wide standards and quality led by a multidisciplinary mapping team (avoid local political pressure to “shift the line”)
- Make mapping available freely to all, on the GeoNB website and through Service New Brunswick
- No new mapping until provincial technical standards are created
- The maps should identify how long the flooding is likely to persist and show the depth of flooding (e.g. colour coding)
- Socioeconomic data should be included on the maps (to show consequences as well as hazard)
- Mapping standards and specifications should be made available to private sector consultants
- Map floods from small rivers as well as large ones
- Establish flooding intensity zones rather than flood lines, (similar to the coastal policy)

Some participants provided additional insights into the types of information and data collection networks that will be required to support the preparation of updated flood hazard maps, along with strategies for ensuring that the necessary information is available and shared:

- Environmental monitoring networks (province-wide, not piecemeal)
- High resolution LiDAR digital mapping for land use, topography, etc.
- Long term climate and flow data
- Local historical knowledge about flooding to help calibrate the maps
- Pay attention to the information sharing process (it doesn’t just happen. Need formal training) programs to ensure accurate sharing of information
- “Crowd sourcing” (citizen science supported by training)
- An inventory of culverts and bridges (this data can’t be obtained from LiDAR).

3) Who should be leading the actions? What role should there be for players other than government?

Participants expressed a wide diversity of opinions on this topic, not only for this objective, but for each of the other objectives as well. Many permutations and combinations of actors and roles were expressed. A key source of the diversity is the belief of some, that actions should be driven from the “top down” (a province-wide, uniform approach) as compared to others who expressed the need for a “bottom up,” locally driven process, shaped by local realities and priorities. A related dichotomy is the relative emphasis put on uniformity versus diversity in the implementation details and process. Despite this, there were a number of common threads and themes as summarized below. Note that the comments presented here also apply to Objectives 2, 3 and 4.

- Participation of a variety of groups, agencies and individuals is required, all at the same table, at the same time

- Many players from a variety of sectors and interests have something to bring to the table (e.g. skills, interpersonal connections, local knowledge, dollars, etc.)
- Cooperation/collaboration and openness between the different players is essential
- Need to combine and use all available resources
- Need to balance local interests versus provincial responsibility and accountability
- Government doesn't need to run everything, but has some legislated responsibilities
- Potential role of local governments as key contacts with local stakeholders
- The actions need local managers
- Involve organizations that have direct communication with property owners
- Need to tap into the expertise of individuals
- Province has a key role as a coordinator, resource supplier and standard setter (to ensure fairness and consistency)
- Early adopters and "champions" have an important role in leading the actions (lead by example)
- Emergency responders can be a "voice of reason" in local communities
- First Nations have a role (e.g. traditional knowledge of waterways, informing their own communities)
- There are potential opportunities for co-leadership
- Involvement of academia can lend credibility to the actions
- The entities most affected by flooding (including those with financial liability) should have a key role
- Regional service commissions have the ability to help municipalities work together
- It is important to involve the private sector and professional associations (knowledge, leadership, data and other resources)
- There is an extra responsibility placed on those with skills, knowledge and authority to make things happen and influence behavior
- There is a potential role for the Federal government (legislation, dollars and expertise)
- There is also a role for other jurisdictions (provinces) as sources of information and experience. An Atlantic regional collaboration offers potential advantages
- There are advantages in involving players with a regional (watershed) focus

4) Are there any other comments the participants would like to make?

A variety of additional comments were received as part of the discussion:

- Objective 1 is very important but government should also move forward concurrently on the other objectives
- The creation of flood hazard maps will take a lot of dollars and other resources
- If new maps are created and used, there must be confidence in the predicted flood levels and frequencies. Given climate change, how accurate can they be?
- There is a degree of urgency to this task. Start with whatever data is available. Don't wait until perfect or complete data is available

- Involving communities early in the process is very important so there are no surprises (stakeholder groups, focus groups). The mapping should be iterative and inclusive of as many people as possible. The best results will be achieved if this objective is addressed collaboratively (technical collaboration and interpersonal relationships)
- This initiative will create tension between private interest (developers) and public interests (public safety). Political considerations should not be allowed to trump scientific or technical considerations/results. Political will must be strong and widespread
- Use of provincial mapping standards will keep the initiative from being bogged down in local politics
- This initiative should be policy driven, supported by science, and focused on the areas where it is needed
- Cost of map production could be shared (e.g. if maps are also used as part of other initiatives such as wetland mapping/management)
- Once the flood mapping has been created, the Province will have an obligation to disclose it
- Homeowners worry about the potential effect of disclosure on their property values
- Some municipalities fear the potential liability associated with flood hazard identification

Objective 2: Proactive Community Planning and Land Use Management

Fair and equitable planning to manage flood risk for future development.

Draft Actions

3. *Develop a provincial policy to guide development and activities in flood hazard areas along with supporting information for communities.*
4. *Make sure that flood risk is addressed when the province funds or approves development and activities.*
5. *Promote design and engineering standards for storm water management based on the latest available climate data.*

Summary of Discussion from Breakout Groups

1) Is the objective worthwhile (necessary, important)?

There was broad general agreement that this Objective is worthwhile. This opinion was expressed using words and phrases such as: “*necessary*”; “*mandatory*”; “*highly important*”; “*absolutely critical*”; “*very important*”; “*absolutely worthwhile*”; “*an imperative*”; “*essential*”.

Some support for this Objective was conditional: 1) “*Provided that territorial jurisdictions are properly defined*”; 2) “*If the planning framework is applied across the board (e.g. so one municipality can’t attract development at the expense of another)*”; 3) “*If approached from a regional perspective (will make it more effective)*”; 4) “*Yes, provided that flood hazard identification comes first*”; 5) “*the same rules must apply to everyone*”

Others suggested that the overall objective is too vague and should be more clearly articulated.

2) Are there key actions that in your opinion are missing in relation to this objective?

See introductory notes from Objective 1, Question 2.

Missing Actions or Required Clarification of the Draft Actions

Some of the comments reflect a desire for the Province to use the strategy as a vehicle to more clearly articulate its vision as to how land use in flood hazard areas will ultimately be regulated or administered.

Various other technical, administrative, and legislative issues were also raised:

Provincial Leadership

- The province should be forthright at this time in articulating its interests (its preferred approach)
- Provincial guidance is lacking. The Province should commit to establishing a planning policy and describe the role of municipalities in implementing provincial policy
- The specific types of tools for analysis and decision-making should be identified (by-laws, etc.) along with describing who will provide them and who will receive them
- Need to state a proposed timeline for implementation

Legislative Issues

- Actions should include removing legal barriers that impede creative planning solutions
- Actions should reflect a concurrent need to re-organize and revamp municipal plans through municipal and rural planning
- This Objective should be addressed in conjunction with an update of the Community Planning Act and Municipalities Act (need to change laws, not have a policy)
- The local authority to make and enforce the required decisions should be established or clarified

Land Use Management Framework

- Develop guidelines for regional planning that include flood risk planning
- Need mandatory local and regional flood risk reduction plans and climate change resilience planning

Development Review and Approval

- An Environmental Impact Assessment perspective is missing. Potential changes to flooding as a result of development should be considered as an environmental impact. Potential impact of climate on proposed projects should also be considered

Other Considerations

- The use of the term “addressed” in the 4th draft action item is not strong enough (too vague)
- Need a research plan for identifying appropriate protective measures
- Should examine how well the existing flood-related by-laws are working
- Would the Provincial Planning Policy include a guide with examples for planners (e.g. zoning by-laws in flood plains)?
- The types of targeted infrastructure should be described
- The sources of funding for implementation should be identified
- Develop a definition for “latest available climate data”

Implementation Details

Some comments focused on the relative merits of imposing mandatory requirements versus guidelines, and the dichotomy between local flexibility versus uniform, province wide standards. Various technical and administrative issues were also raised including design standards, risk-based decisions, financial considerations, and potential changes to the existing legislative and administrative components of community planning and building approvals:

Land Use Management Framework

- Develop firm, mandatory province wide standards (a consistent, province-wide approach articulating minimum requirements) supported by corresponding municipal by-laws
- Municipalities should be free to choose as long as they achieve a minimum standard set by the Province. Municipalities need flexible guidelines. One size does not fit all
- Put an emphasis on preventing new development on flood-prone land
- The policy should allow municipalities to say something other than “no” to proposed developments (i.e. an ability to say “yes” with conditions)
- Use Watershed scale planning to guide development (consider Ontario’s Conservation Authority model)
- Consider a policy whereby the Province purchases flood-prone land
- Need to include unincorporated areas somehow (same policies and guidance as municipalities)
- No public funding if a proposed development does not plan for flooding
- A long term planning horizon should be used (50 to 100 years)
- Flood management policies should be regularly reviewed and updated (renewal cycle), not just the maps themselves
- There should be some “grandfathering” of existing properties but there should also be limits on financial compensation for flood damage. Also financial incentives for floodproofing (Efficiency NB model)

Design Standards and Building Codes

- Develop design standards that encourage the use of natural systems (e.g. wetlands) for storm water management. Green infrastructure/natural features (vegetated buffers, tree retention, etc.) should be considered first before using engineered infrastructure
- Existing best management practices are already available for storm water management (controls to reduce run-off) and should be adopted
- Develop design/engineering standards for Provincial infrastructure (roads, etc.)

Development Review and Approval

- There is a need to coordinate development review and approvals at the different levels of government and across agencies. Remove approval redundancies between provincial and municipal levels (e.g. delegation of certain approvals)
- Those who build in flood areas should have to sign a waiver (no public liability, no damage compensation)
- If funding decisions are to be used to influence municipal behavior then it is necessary to develop a set of objective criteria for determining what gets funded
- Allow no more building permits in flood hazard areas
- Require a predictive assessment of climate change impacts relative to proposed developments
- Need a building regulation/modified zoning regulations. Building Code would change depending on the risk,(e.g. no daycare in a basement)
- Direct compatible uses to flood prone areas (e.g. recreation/ parks/ farmland/ temporary uses)

Other Considerations

- There should be a risk assessment to provide decision support based on local realities. Assessing and quantifying the risk (scenarios, risk analysis) would help in the development of appropriate policies
- Those who increase flooding should bear the cost
- There must be funding for structural mitigation (sand farming or replenishment, rock walls, etc.)
- Learn from the communities where actions have already been taken

3) Who should be leading the actions? What role should there be for players other than government?

See notes from Objective 1, Question 3.

4) Are there any other comments the participants would like to make?

Participants provided a number of comments on other issues related to this objective:

- There is some urgency for providing guidance to those who will soon be building in flood hazard areas. Time is of the essence. Delay will be very costly. Once knowledge of flood potential is available, failure to act may be a source of liability
- Government needs to prepare for legal challenges to any restrictions it may impose
- Education (e.g. workshops) has an important role to play. There is a lack of understanding as to what the various potential tools that could be included as part of this initiative actually mean
- Increased standards mean increased costs. Funding must accompany the increased standard. Funding sources need to be predictable and sustainable. Some form of cost sharing is required

- Different regions/municipalities are at different levels of understanding regarding flooding. This must be acknowledged
- All areas at risk need a plan and this could be done via the RSCs
- The rural planning process needs to focus more on working with stakeholders
- Achieving this objective will take provincial leadership and political will
- If property values in flood hazard areas decline, more vulnerable (e.g. lower income) people could move to flood hazard areas over time
- Need an appropriate and fair property taxation system (possibly equal in rural and urban areas)
- This initiative needs long term commitment from senior policy-makers (not ad hoc actions)
- Beware of the flood damage spiral - feeling of security promotes additional development which causes greater loss during an event which then causes the construction of additional protection measures which increases the feeling of security
- Do we have the resources to enforce this policy?

DRAFT

Objective 3: Informed Mitigation of Existing Flood Risk

Reduced risk for people, buildings and infrastructure already located in flood hazard areas.

Draft Actions

6. *Provide guidance on how to “flood-proof” public and private property and infrastructure.*
7. *Engage regions and municipalities to ensure that flood contingency plans are prepared and practiced.*
8. *Make enhanced flood hazard/forecasting products available to assist in emergency planning efforts.*
9. *Investigate the feasibility of extending river flood forecasting beyond the St. John River.*

Summary of Discussion from Breakout Groups

1) Is the objective worthwhile (necessary, important)?

There was broad general agreement that this Objective is worthwhile, as expressed using words and phrases such as: “Yes”; “Essential”; “Very important”; “Necessary”; “fundamental from a landowner perspective”; “an important tool to reduce flood impact”; “no choice”; “of course”; logical extension of the first two objectives.

Some support for this Objective was conditional: 1) “Yes but expand to future mitigation as well”; 2) “governments have a responsibility to assist”; 3) “yes, but mitigation should be addressed within the broader context of adaptation”; 4) “yes, but the Objective does not go far enough”

2) Are there key actions that in your opinion are missing in relation to this objective?

See introductory notes from Objective 1, Question 2.

Missing Actions or Required Clarification of the Draft Actions

The comments focused on a variety of issues such as the scope and definition of mitigation (including “retreat”), available tools, and various other technical and administrative considerations:

- A relocation plan (retreat policy) should be developed to identify areas where “in place” mitigation is not feasible or desirable. Sometimes the best response to a hazard is to relocate vulnerable buildings and infrastructure rather than protecting it in place. One associated action could be an “after flood” assessment that would be used to help determine when retreat is necessary. (Some participants noted that the retreat option should be used only for those who are willing to relocate)
- More work needs to be done to define what is meant by mitigation: Is it avoiding costs by flood-proofing (narrow focus) or does it also include mitigating the floods themselves (broader focus)? Rather than just “floodproofing” we need a broader definition: “reduce impacts from floods”
- Need to address mitigation measures other than protection and floodproofing ; e.g. a) A system of financial incentives and disincentives to help drive mitigation should be developed, (e.g. remove of all financial “bail out” programs so financial liability rests with the property owner); b) Storm water management to reduce run-off; c) Increased use of green infrastructure (e.g. wetlands) as part of storm water management ; d) Regular surveys/inspections of drainage systems to identify and remove blockages; e) Development of head pond management and operational/management standards for privately owned dams as a means of reducing potential for flooding during spring melt, extreme run-off events (Provincial dam management committee?)
- Management of the St. John River head ponds should be done in accordance with the Energy Utilities Board, and there should be a requirement to provide a management plan for hydroelectric facilities
- In addition to physical flood-proofing measures, part of mitigation is considering all the implications of continuing to live in flood hazard areas (e.g. safe access, public safety)
- The term “floodproofing” might imply something that can’t actually be achieved. The risk can be reduced but not eliminated. At some point the law of diminishing returns must be acknowledged.
- The required mitigation should be linked to risk (the financial cost of mitigation should not exceed the benefits). The province must establish these guidelines.
- Risk profiles for different land uses and locations should be shared with all decision-makers so that informed decisions can be made about mitigation and other actions
- There should be an opportunity to accept certain identified risks and outcomes where mitigation is not a viable option. Risk acceptance should be part of the overall strategy
- Developing a description of “where we are now” with respect to emergency planning
- An assessment/ identification of the resources (dollars) that will be needed to flood-proof infrastructure owned by the government of New Brunswick should be completed
- Specify whether the actions under this objective will be policy/guideline based, or legislated
- Actions should include mandatory flood contingency plans with enforcement
- Government needs to be more prescriptive than just issuing flood-proofing “guidance” (need “requirements”)

- Require that all communities must have an “all hazards” emergency plan and evacuation centres (educate the decision-makers/teams (know the risks) and educate citizens)
- Efforts should be made to develop and implement flood insurance
- Include erosion mitigation in the Strategy
- Will this objective respond to address flooding in areas other than mapped flood hazard areas (e.g. overflowing municipal ditches, high water table, etc.)?
- Need to clarify the meaning of the actions (currently too vague and high level)

Implementation Details

These comments focused primarily on specific flood forecasting and flood warning and mitigation tools:

Flood Forecasting and Warning Tools and Approaches

- An enhanced ability to forecast weather as a prerequisite to enhanced or expanded flood forecasting, also real time water level monitoring (there is not a sufficient hydrographic network)
- Flood forecasting should be in “real time” rather than daily reports (daily is not frequent enough for ice jams)
- Share flood forecasts in a timely manner with the community as a whole, not just emergency responders
- Enhanced flood forecasting in coastal areas is needed
- Informed mitigation must involve communicating predicted flood elevations using detailed LiDAR mapping so landowners know how their properties might be affected
- The focus should not just be on large scale flooding (coastal and rivers). Should also look at localized community drainage concerns (ditches, high water table, etc.)
- Create a single provincial office for all flood forecasting and related monitoring
- Use local water level benchmarks and stakeout of flood hazard areas on the ground, river cams, yardsticks on pillars, water level sensors on bridges, etc.
- Use a system of identification numbers for infrastructure (shown on maps and painted onto the structures)
- Should have a system attached to the maps so people can register with SNB and receive messages/news about flooding, by email
- Water level warnings should be available on GeoNB electronic mapping
- Use of a sentinel risk profiler or similar software to assess risk and help ensure prompt notification of emergency situations (plus technical support)
- Consider a “Semi-automated” warning system for smaller rivers and regions
- Incorporate best management practices from other jurisdictions

Other Considerations

- Solutions (mitigation) should not push flood risk onto adjacent properties (need guidelines)
- This objective should be accompanied by a formal communication plan to determine how the information will be shared (website, brochures, etc.)
- There should be support and guidance for property owners and developers (e.g. innovative methods and materials for floodproofing)
- Link floodproofing with the building inspection process (ability to issue “stop work” orders)
- There should be a way to require mitigation on one property to protect an adjacent, affected property
- The scope of the exercise should include all of the population
- Identify local capacity to respond to various types of floods (capacity is limited in small communities)
- A “user pay” model should be adopted (role for industrial/developer funding of required mitigation)
- Provide flood information for each property via the land gazette/PID Numbers (Disclosure of risk)
- Update building codes to include flood proofing
- Need up to date emergency (contingency) plans
- Establish standards and templates for identifying mitigation measures.

3) Who should be leading the actions? What role should there be for players other than government?

See notes from Objective 1, Question 3.

4) Are there any other comments the participants would like to make?

Participants provided a number of comments on other issues related to this objective:

- With regard to flood-proofing guidance, we don't need to start from scratch. There is a lot of good information already available (e.g. at the municipal level in New Brunswick, as well as from other jurisdictions)
- Funding is an important issue
- It is not reasonable to require homeowners to raise foundations and fill in basements
- Regional plans are necessary. Other plans must mesh with these
- EMO plans should include Local Service Districts
- Any decisions that are made in connection with this objective must be fully informed
- Mitigation should include both structural and non-structural actions
- We should not lose sight of the need to reduce climate change (not just adapt)
- We speak often of flooding and adaptation but it is also necessary to include other related issues in the conversation such as erosion, deforestation, etc.

Objective 4: Effective Education, Engagement and Collaboration

Greater public awareness about flooding and a greater degree of engagement and collaboration in managing flood risk.

Draft Actions

- 10. Improve and build on existing tools for education, communication, collaboration and engagement*
- 11. Provide support, analysis tools, and guidance to help communities implement community-based flood risk reduction plans*

Summary of Discussion from Breakout Groups

1) Is the objective worthwhile (necessary, important)?

There appeared to be broad general agreement that this Objective is worthwhile. This opinion was expressed using words and phrases such as: “Yes”; “very important”; “essential”; “much needed”; “very meaningful”; “a continuation of the previous objectives” .

Some participants cautioned that: 1) “This is not really a separate objective. It should be an integral part of the other three.” (Objective 4 should be the means by which the other objectives are achieved); 2) “This may not really be an objective. It should be re-framed and re-named”; 3) the phrase: “Full Disclosure” should be added to the title of this Objective”; 4) “It should be acknowledged that Engagement and Education are two separate processes”; 5) “The Objective is missing a phrase: “raising awareness.”

2) Are there key actions that in your opinion are missing in relation to this objective?

See introductory notes from Objective 1, Question 2.

Missing Actions or Required Clarification of the Draft Actions

Comments included:

- Clarify the meaning of the actions (currently too vague and high level)
- Define the actual process to be followed, because it is very important
- Identify all necessary sub-actions and the required steps

- Identify actions that will drive a shift from a “limited resources” mind set to an “assets and opportunities” mindset
- Develop a comprehensive, coordinated collaboration, communication and engagement plan (e.g. a province-wide network to facilitate and efficient, province-wide education plan). Besides EMO emergency response plans, no clear overarching communication strategy currently exists
- Identify funding strategies
- Actions should include development of a provincial emergency warning system.

It was noted by some participants that the desired outcomes should be broader and more ambitious: i.e. changed perceptions and a paradigm shift. The question that should be asked on the streets in local communities is “What are **we** going to do about flooding?” This kind of mentality (personal responsibility/local responsibility) should be a desired outcome of this Objective. Adaptation must be part of our day-to-day decision-making and culture. Learn to live with flooding as part of our environment.

Implementation Details

Comments addressed issues such as tools and approaches for training, education and information sharing, messaging strategies, communication planning, and ways to organize resources to achieve the objective:

- Provide training and professional support to those who must develop the tools and do the work, e.g. targeted education of local/municipal officials (a training module given by experts)
- Use the approvals process as a tool and opportunity for landowner education
- Integrate some of the necessary public education into school curriculum. Also make flood-proofing part of construction trade training
- Allow for multi-stakeholder working groups, conversations, networking and relationship-building as tools for engagement (to complement the technological information)
- Develop tool kits, including visual tools, maps and simple interpretive methods for flood hazard (green light, yellow light, red light)
- Public service announcements and meetings using non-traditional media and methods
- Additional information on GeoNB website. Don’t just show the maps, but explain how the flood levels were obtained and what they mean
- Place more emphasis on coastal flood hazards
- Specific information about “how bad was the last flood” should be released
- Education on economic and public safety benefits to help communities implement green infrastructure
- Enhanced on-line hazard mapping with an interactive property database (disclosure of risk)
- A climate change task force and monitoring office to serve the whole province
- Regular surveys/inspections of drainage systems to identify and remove blockages and take other preventative action

- Provide a common point of access and communication (web-based)
- Provide a way to share the results of Environmental Trust Fund (ETF) studies
- Crowd sourcing (citizen science) as a means of obtaining monitoring data and building awareness
- Make GeoNB easier to use (hard to find specific PID Numbers)
- It is evident that the roles and responsibilities of various players are largely unknown. This should be addressed as part of the actions
- This is an on-going rather than one time activity. Tool, ideas and actions must be refreshed on a regular basis
- This objective should be aimed at everyone, not just people in flood hazard areas (e.g. all taxpayers need to be on-side)
- A consistent message is needed that treats all residents equally and touches all audiences regardless of their level of technical knowledge. Tell citizens how they can contribute (both positively and negatively)
- Maintain a climate change collaborative (Environmental Network)
- Manage expectations (the strategy will not eliminate flooding or solve all flood-related problems, government will not and cannot pay for everything: by outs, compensation, etc.)
- Education should include a wetlands component
- Need to identify the best strategy for garnering the most attention and interest
- Community engagement rather than consultation. The engagement process must be iterative (engage many times with a goal of increasing participation and spreading “ownership”)

3) Who should be leading the actions? What role should there be for players other than government?

See notes from Objective 1, Question 3.

4) Are there any other comments the participants would like to make?

Participants provided a number of comments and insights on other issues related to this objective:

- This will be the most important and most time-consuming objective
- An informed public is more likely to be engaged and participate in identifying solutions
- It is important to create a synergy to act rather than an expectation of compensation
- If collaboration, education and engagement are not part of the strategy as a whole then it may fail or become “politically hijacked”
- We should act now
- It will be particularly challenging to engage vulnerable populations most impacted by flooding (e.g. elderly, trailer parks, low income rental properties, some First Nations)
- It will be important to identify a communication strategy that includes timelines, specific actions and outcomes (applies to all other objectives as well)

- There examples already in New Brunswick communities of organizational structures that would support the implementation of this initiative. They should be examined and considered
- No matter what tools are used, they will be more effective if they come close on the heels of a flood
- This Objective applies to all hazards, not just flood risk
- This Objective must be based on full access to all relevant information in a form that is understandable
- All tools must be based on accurate information
- It is important to separate “engagement” from “communication”

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Appendix 1: Stakeholder Workshop: Development of NB's Flood Risk Reduction Strategy

Date: January 28, 2014

Time: 8:30am – 4:30pm, *Registration 8:15 to 8:30.*

Location: Fredericton Inn, Fredericton

Meeting Purpose:

1. To inform key stakeholders of the Province's intentions to develop a Flood Risk Reduction Strategy for NB.
2. To obtain feedback from key stakeholders and inform development of Objectives, Challenges, Actions and Outcomes for inclusion in the Flood Risk Reduction Strategy.

Agenda

8:30 Meeting Start

- Welcome
- Opening remarks
- Participant introductions
- Review agenda and meeting objectives
- Presentation: Overview of NB Flood Risk Reduction Strategy: Direction, Scope, & Intent.
- Presentation: Summary of Analysis and Research to Support Strategy Development

10:30-10:45 Break

- Presentation: General overview of proposed structure of the Strategy (Objectives, Challenges, Actions and Outcomes).
- Presentation: Detailed overview of Objective 1 (Challenges, Actions and Outcomes)
- Breakout Group Discussion Objective 1 (Challenges, Actions and Outcomes)

12:00 to 1:00 Lunch

- Presentation: Detailed overview of Objective 2 (Challenges, Actions and Outcomes)
- Breakout Group Discussion Objective 2 (Challenges, Actions and Outcomes)
- Presentation: Detailed overview of Objective 3 (Challenges, Actions and Outcomes)
- Breakout Group Discussion Objective 3 (Challenges, Actions and Outcomes)

2:45-3:00 Break

- Presentation: Detailed overview of Objective 4 (Challenges, Actions and Outcomes)
- Breakout Group Discussion Objective 4 (Challenges, Actions and Outcomes)
- Opportunity to identify outstanding Issues and questions
- Next steps

4:30 Meeting End

Appendix 2: Backgrounder

Building a Flood Risk Reduction Strategy for New Brunswick: Backgrounder for Stakeholder Workshop

A. Context

A History of Flooding

- Coastal and inland flooding are among the most significant hazards facing Canadians today. This is particularly true in New Brunswick, where historical and current settlement patterns follow ocean coastlines and inland waterways and many communities have been established in areas that are subject to periodic flooding. New Brunswick has a long history of flooding affecting human settlement, with events of varying severity reported as long ago as 1696.

Increasing Costs

- Over the past five years New Brunswick has experienced a three-fold increase in the number of disaster financial assistance claims triggered by flooding compared to previous 5 years.
- The cost of New Brunswick's floods from 2008 to 2012 exceeded \$100 million, and recurring costs are expected to continue to rise as the frequency and magnitude of severe weather increases.
- The Province has incurred approximately \$28 million in infrastructure repairs as a result of flooding for the period of April 2008 to the summer of 2011.
- When the costs of disrupted businesses and transportation, and the intangible costs of human anxiety and suffering are added in, it's a significant cost.

Facing the Future

- A changing climate, existing and on-going development in flood hazard areas and the lack of availability of flood insurance for residential properties in Canada, means that the costs of flood damage and resultant individual and taxpayer liability will continue to rise unless actions are taken to manage flood risk.

The Benefits of Being Proactive

- Research undertaken in both Canada and the United States has indicated that proactive management of flood risk yields long-term benefits that far exceed their costs.

B. The Current Initiative: A Flood Risk Reduction Strategy for New Brunswick

Building a Strategy

- Recognizing the above realities, Government made a commitment in the November 2012 Speech from the Throne to commence the development a comprehensive flood risk reduction strategy for the benefit of all New Brunswickers.
- The Department of Environment and Local Government (DELG), in consultation with an inter-departmental GNB working group, has been leading the development of a Provincial flood risk reduction strategy that will address both inland and coastal flooding in New Brunswick.

- The working group met several times during 2013 and has conducted extensive background research, resulting in the development of a set of goals, objectives, potential actions and desired outcomes that collectively represent the draft outline of a comprehensive flood risk reduction strategy.

Strategy Goals

- The overall goals of this strategy include:
 1. Increasing public safety and avoiding personal hardships;
 2. Reducing flood damage to properties, infrastructure and the environment;
 3. Increasing community resilience;
 4. Achieving cost savings for the taxpayers of New Brunswick; and
 5. Reducing uncertainty about flood risk, leading to better decisions by governments and individuals.

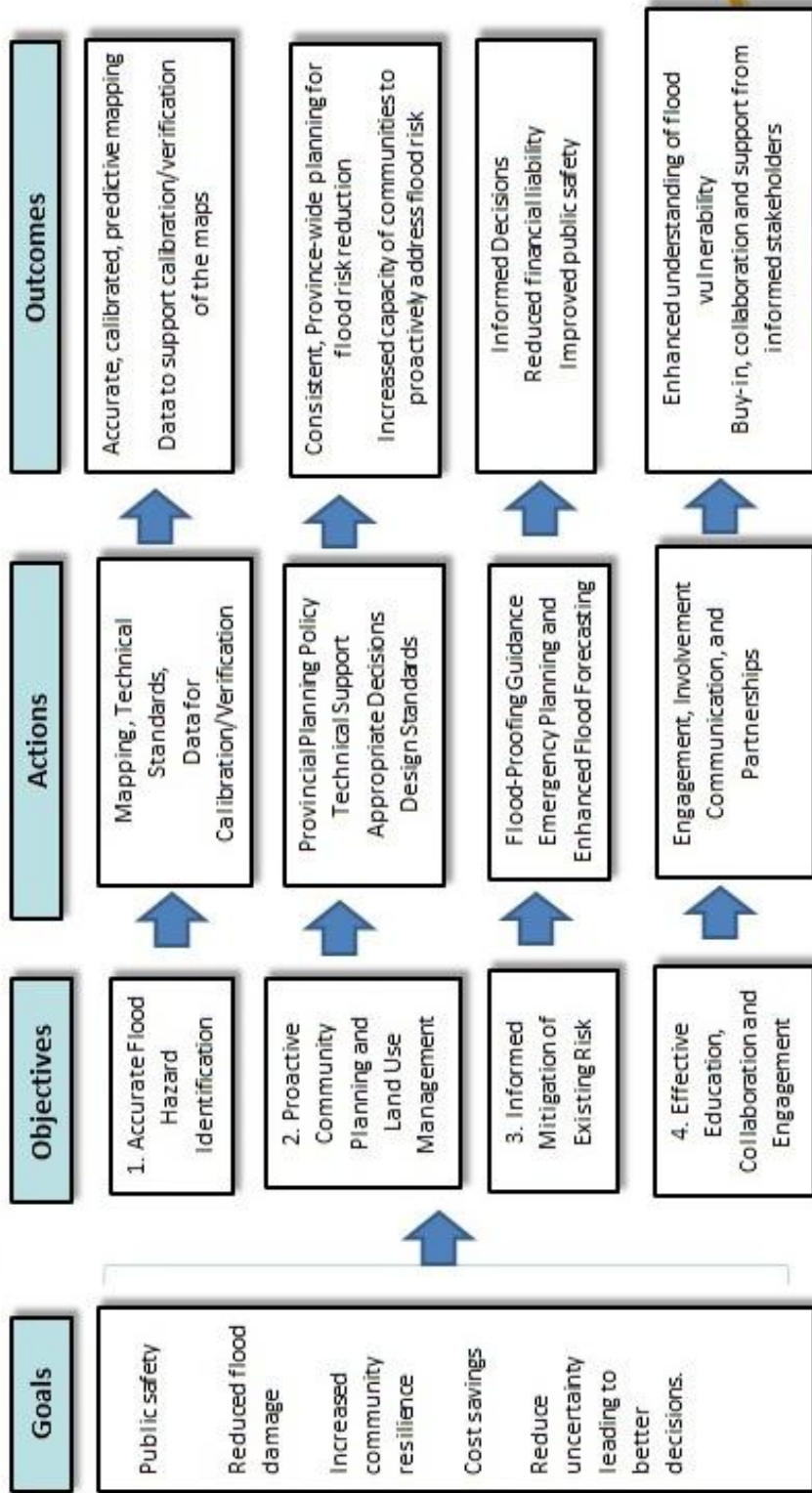
Strategy Objectives

- Supporting the Goals are four key Objectives:
 1. Accurate Flood Hazard Identification for the Public: *Accurate identification of locations where future floods are likely to occur;*
 2. Proactive Community Planning and Land Use Management: *Fair and equitable planning to manage flood risk for future development;*
 3. Informed Mitigation of Existing Risk: *Reduced risk for people, buildings and infrastructure already located in flood hazard areas; and*
 4. Effective Education, Engagement and Collaboration: *Greater public awareness about flooding and a greater degree of engagement and collaboration in managing flood risk.*

Challenges and Opportunities

- New Brunswick's flood risk reduction strategy must acknowledge and respond to a number of challenges and opportunities including:
 - Incomplete and outdated flood hazard mapping;
 - Significant existing development along rivers and coastlines;
 - Inconsistent and incomplete local planning response to flood risk;
 - Residential flood insurance is unavailable in Canada;
 - People and businesses are looking for information and tools to help address flood risk;
 - Variable knowledge about flood risk among individuals, communities and businesses;
 - Variable responses to flood risk by individuals, communities and businesses;
 - Technical complexity regarding flood risk and potential solutions and a need to communicate these clearly to the public;
 - A need to build public support for the steps that must be taken; and
 - Constrained resources for strategy implementation.

Draft Framework: New Brunswick Flood Risk Reduction Strategy



Appendix 3: List of Attendees

Name	Affiliation
Melanie Aube	institute de reserche shippigan
Nassir El-Jabi	Université de Moncton
Onil Comeau	Société des Estuaires et du Littoral
Wilfred Roussel	Mayor, Le Goulet
Jacques Doiron	Enforcement Officer, City of Edmundston
Sabine Dietz	EOS Energy, Sackville
Rheal Daigle	R.J. Daigle Enviro
Manon Losier	Directrice de la commission de l'Environnement, Tracadie Sheila
Elaine Aucoin	Director of Environmental Planning and Management, City of Moncton
David Lieske	Mount Alison University
Stephanie Merrill	Conservation Council of New Brunswick
Marcello Battilana	Manager Growth and Community Services , City of Fredericton
Ben Whalen	Deputy Mayor Sussex Corner
Dan Harrington	Regional Service Commission 10
Emily Phillips	Mount Alison University
Frank Johnston	Green Light, Grand Falls
Kim Reeder	Quoddy Futures, Charlotte County
Harley Hunt	Councillor, Sussex Corner
Paul Burns	New Brunswick Real Estate Association
Tracey Wade	Regional Service Commission 7
Tim Ambery	Falls Brook Centre
Melony McCarthy	Public Safety Canada
Dan Dionne	Chief Administrative Officer, Village of Perth-Andover
Sean Morton	Emergency Measures Organization , St. George
Eric Arseneault	Fire Chief, City of Moncton
Chris Pitman	New Brunswick Real Estate Association
Mary Ann Coleman	New Brunswick Environmental Network
Ken Kinney	New Brunswick Department of Natural Resources
Raymond Murphy	New Brunswick Union of Municipalities
Bruce Jackson	Councillor, St. George, Eastern Charlotte Flood Relief Committee
Steve Olmstead	Insurance Bureau of Canada
Paul Arp	University of New Brunswick

Mark D'Arcy	Friends of the UNB Woodlot
A. Bruce Kinnie	Department of Agriculture, Aquaculture and Fisheries
Denis Roussel	Cities Association of NB
Dedric Grecian	The Association of New Brunswick Land Surveyors
Sebastien Doiron	Regional Service Commission 7

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Appendix 4: List of Presenters, Facilitators and Note Takers

Name	Affiliation
Speakers and Presenters	
Hon. Danny Soucy	Minister of Environment and Local Government
Lesley Rogers	Environment and Local Government
Jeff Hoyt	Environment and Local Government
Facilitator	
Marc Babineau	
Facilitators and Note Takers for Breakout Groups	
Lisa Munn	Public Safety
Chris Hand	Public Safety
Colette Lemieux	Environment and Local Government
Michelle Daigle	Environment and Local Government
Prativa Pradhan	Environment and Local Government
Robert Hughes	Environment and Local Government
Jason Hallett	Environment and Local Government
Nancy Lynch	Transportation and Infrastructure
Paul Jordan	Environment and Local Government
Lisa Harrity	Environment and Local Government
Darwin Curtis	Environment and Local Government
Kim Hughes	Environment and Local Government
Nelda Craig	Environment and Local Government
Chandra Clowater	Environment and Local Government
Martin Boulerice	Environment and Local Government
David Whyte	Environment and Local Government