



REPORT N° PRO2019-013

Date	03/06/2019
Submitted by	Brian Wilson
Subject	National Disaster Resilience Profile Project Proposal – Municipal Champion
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1) **NATURE/GOAL :**

To obtain council approval and direction in order to become a municipal partner in a grant application to Defence Research and Development Canada (DRDC), which would look to find ways to improve disaster resilience in municipalities across Canada. This grant application would include a request for funding from DRDC to pay for a term FTE position to oversee this project.

2) **DIRECTIVE/PREVIOUS POLICY :**

None.

3) **DEPARTMENT'S RECOMMENDATION :**

BE IT RESOLVED THAT Council directs the Director of Protective Services to proceed with working to have the City of Clarence-Rockland become the Lead Government Department of the joint proposal to DRDC to develop and improve the National Resilience Profile; and

BE IT ALSO RESOLVED THAT Council authorizes the Director of Protective Services to sign any related paperwork necessary to submit this project proposal; and

BE IT FURTHER RESOLVED THAT subject to the approval of the project proposal to DRDC, Council authorizes the administration to hire a term full-time position to oversee the research work and also to better improve disaster and emergency management and resilience for the City of Clarence-Rockland, which shall be fully funded by the grant.

QU'IL SOIT RÉSOLU QUE le conseil mandate le Directeur des services de la protection de continuer à travailler pour que la Cité de Clarence-Rockland devienne le palier gouvernemental responsable de la proposition conjointe de DRDC visant à développer et à améliorer le profil national de résilience; et

QU'IL SOIT ÉGALEMENT RÉSOLU QUE le conseil autorise le Directeur des services de la protection à signer tous les documents nécessaires à la soumission de cette proposition de projet; et

QU'IL SOIT FINALEMENT RÉSOLU QUE sujet à l'approbation par le RDDC du projet proposé, le Conseil autorise l'administration à embaucher un poste de durée déterminée à temps plein afin de superviser les travaux de recherche et d'améliorer davantage la gestion des catastrophes et des situations d'urgence et la résilience de la Cité de Clarence-Rockland, et ce, totalement financé par la subvention.

4) **BACKGROUND :**

Public Works and Government Services Canada has issued a call for proposals on behalf of Defence Research and Development Canada (DRDC), to invite bidders to submit innovative science and technology proposals in support of Canada's public safety (among other things).

During the recent flooding, the Director of Protective Services was approached by a representative from a company called Jacobs. This individual, Alan Rebane, is their Emergency Management & Disaster Resilience Business Practice Leader. Mr. Rebane has been working tirelessly on a proposal for consideration for funding from the Government of Canada to build and improve the National Resilience Profile and better inform various levels of government across Canada on strengths, weaknesses, opportunities and threats to their current disaster resilience.

One of the items in his proposal is to have a Lead Government Department who would be the key point of contact with DRDC in managing this research project. The proposal would require the Lead Government Department to manage the flow of funding from DRDC to the Lead Bidder (Jacobs) and to ensure that work is being completed on-time and satisfactorily by the Lead Bidder (and their partners). The project is anticipated to last 2.5 years. As most municipal governments do not have extra capacity for this work, this proposal would include a request for funding to hire a municipal full-time-employee (FTE) for the duration of the project. This employee would effectively function as a project oversight person, overseeing Jacobs, who would be working as the project manager.

The details of the proposal are outlined below:

Opportunity Timeline:

The RFP will be coming out in approximately 2 weeks (attached is the Draft RFP that was recently released with the RFI) with an end of June closing date. From there, DRDC will evaluate and announce winners 8 months after that with projects to commence 2 to 4 months afterwards. Further, given this long timeline, Jacobs is actively seeking interim funding to start things off earlier.

Stream, Theme and Challenge (DRDC is investing over \$22M in innovative solutions to current problems):

Stream A

Public Safety and Security - Smart Communities and Systems

The introduction of smart technologies (artificial intelligence (AI), Internet of Things (IoT), automated learning systems, robotics, data analytics, broadband communications, and connected, driverless vehicles) into public safety and security systems and into urban, rural, or remote, isolated communities can be rapid, complex, non-systematic. The convergence of these technologies coupled with multiple dynamic factors introduced by an ever changing threat, hazard and risk landscape presents significant challenges for public safety and security. Keeping pace with these changes is necessary for society to exploit the benefits of the new technologies while countering the vulnerabilities these same technologies are introducing or exacerbating. The core challenge is to optimize the utility of these inexorable technology advancements in a manner that is coherent, safe, secure, and preserves the privacy of individuals in deployed safety or security systems.

For this CFP, in Stream A, DRDC is looking for novel ideas and innovative solutions to S&T Challenges under the themes of mitigating the impact of climate change, mitigating national security risks and protecting and connecting safety and security professionals.

THEME 1: Mitigating the Safety and Security Impact of Climate Change

The implications of the gradual warming of the planet and changes in hydrological cycles include an increase in the number and severity of extreme weather events and natural disasters, new vectors for diseases, changes in sea ice, and melting permafrost in the Canadian North. In this call, DRDC will seek innovative solutions to identify and mitigate the impact of these changes on the safety and security of Canadians.

S&T Challenge:

Develop scalable tools, methodologies, and novel S&T solutions for risk reduction and mitigation at the individual, family, community, regional, and national level, which consider disasters of all types and include geographical, economic, cultural, and social factors, and which aim to inform disaster risk reduction initiatives with considerations of cost-effective mitigation, climate adaptation, and smart recovery or re-building, in alignment with the Sendai Framework for Disaster Risk Reduction (DRR) requirements.

Updated Project Overview:

National Disaster Resilience Profile (Considers All-Hazards including Climate Change plus general chronic stressors and impacts on the: population, built environment, natural environment and economy. As this is for the DRDC Canadian Safety and Security Program we are choosing to use the title of Disaster Resilience as they have that as a priority area.)

The goal of this project is to develop a GIS-based Canadian disaster resilience profile tool leveraging the existing UN Office for Disaster Risk Reduction (UNDRR's) Disaster Resilience Scorecard methodology and spreadsheet tool, the Rural Disaster Resilience Planning tool and a map-based tabletop exercise and to use that tool during the conduct of 30 small to medium sized communities across Canada. After the disaster resilience assessments are conducted, a resilience enhancement project planning and prioritization workshop will be conducted with each participating community resulting in an evidence-based resilience enhancement plan. The Canadian Disaster Resilience Profile will be developed using local assessment data from 30 communities across Canada: 12 of which participated already participated in the QUEST-led Community Resilience Project and 18 of which will be from the ICLR-led Cities Adapt to Extreme Weather, Extreme Heat and Extreme Rainfall Project. The project takes an all-hazards risk assessment approach with consideration given to climate change and the impacts to the population, built environment, natural environment, and the economy.

The project will build on existing methods and tools that have been used during the conduct of 12 community-level Resilience Assessments (see overview below), extend those tools based on the current literature and knowledge to incorporate Disaster Recovery Planning and broader chronic stress aspects of Resilience (i.e. social inequity, high unemployment, high crime rates, youth engagement, etc.). The 100 Resilient Cities City Resilience Index will be used to augment the resilience assessment methodology of large cities. Further, an aggregation scheme will be developed to enable anonymized regional, P/T and National Resilience profiles and will support DRR reporting requirements related to the Sendai Framework. The National Resilience Profile will be an enduring capability for Canada with the Institute for Catastrophic Loss Reduction as the custodian into the future.

Outcomes:

1. Secure (controlled access to Emergency Management and planning related community members only) online GIS-based tool with pan-Canadian aggregated (regional) disaster risk

- reduction information via Public Safety Canada's National Emergency Management System;
2. Participation by communities will lead to engagement of disaster risk reduction stakeholders in that community and the establishment of a national network;
 3. A National resilience Assessment Methodology that is tailored to both small and medium sized communities as well as large cities.
 4. Participating communities receive local disaster resilience assessment reports which they can use to inform mitigation and adaptation decision-making;
 5. System will allow for additional communities to participate after project completion thereby providing a better and better approximation of disaster resilience across Canada;
 6. Federal Government will obtain a better understanding of the state of disaster resilience across Canada which will allow for targeted disaster risk policies and funding programs aimed at increasing disaster resiliency at the local level.
 7. Federal Government will have resilience information as input to for International Sendai Framework reporting requirements.

Project Phases (2/3 Year Duration)

Phase 1 – Project Initiation - 1 Month

Introductory Web Conference (All Project Participants)

Project Overview

Information Sharing Requirements (plan is for controlled access and for aggregation of individual community scorecard information up to regional and national levels)

Community Knowledge Sharing

Update Project Plan

Phase 2 - Review and Update Disaster Resilience Assessment Methodology

Update DRR Scorecard (UN tool) for Canadian Context and Sendai Framework Reporting Requirements - 8 Months

Adapt 100 Resilient Cities - City Resilience Index Methodology for Canadian Context

Phase 3 - Resilience Data Collection – 2 Years

QUEST Project Communities (12 communities that participated in the 2018/2019 QUEST resiliency assessment project – see overview below)

- Develop Simplified Survey (based on previous level of engagement)

- Execute Survey
- 2 Hour Web Conference to discuss results for each community

ICLR QUEST-led Project: Municipalities & Utilities Partnering for Community Resilience (18 Communities)

- Develop Pre-workshop material
- Communities review pre-workshop material
- 1-Day Disaster Resilience Scorecard workshop at each participating community
- Post-Workshop 2-hour Web Conference to discuss results for each community

Assess Resilience at Four Large Cites using CRI

Phase 4 - GIS-based National Disaster Resilience Profile Tool Development – 6 Months

1. Design
2. Development and Information Upload
3. Testing
4. Deployment
5. Documentation
 - User Guide
 - Final Report

Final Presentation (Via Web Conference Call)

Phase 5 – Reporting – 6 Months

Project Partners

The project has attracted participation from a broad range of groups who are interested in developing this national capability. Project partners are:

1. Jacobs (Lead Bidder)

Role: writing proposal, project management, software development (aggregating results for national GIS data layer to ID how Canada is doing with resilience planning), facilitation (French), report writing.

2. City of Clarence-Rockland (Lead Government Department)

Role: Contracting, Methodology and question review of tools, in-kind contribution, workshop participation, contracting with DRDC.

3. QUEST (Not-for-profit Organization)

Role: Engagement, communications, facilitation and Methodology development. Municipal Partner Liaison.

4. Institute for Catastrophic Loss Reduction (Not-for-profit Organization)

Role: Methodology and question review of tools, have access to historical disaster data, literature review, business analysis. Home for tool and data in the future.

5. Atlantic Council (Not-for-profit Organization)

Role: 100 RC transitioned funding to the Atlantic Council. Methodology development review, resources and possibly \$ and in-kind.

6. Vancouver, Calgary, Toronto and Montreal?

7. Other Communities (Participating Communities) - leverage 12 existing communities from QUEST Project and 12 communities from ICLR Project.

8. NRCan - advisory role and possibly \$ and in-kind

Co-Investment:

The aim is to get in-kind labour and cash support from the partners because the CSSP evaluators will look more favourably on proposals with multiple partners that are co-investing.

QUEST-led Project: Municipalities & Utilities Partnering for Community Resilience Project Description

Purpose

QUEST will support 12 municipalities through the Municipalities and Utilities Partnering for Community Resilience initiative in 2018 and 2019. The initiative will offer a climate resilience implementation readiness survey and develop a vulnerability/risk assessment and risk reduction strategies based on an intensive and interactive two-day charrette process, and include peer-to-peer learning and information exchange.

On completion of the two-day workshop charrette, participating municipalities will receive the following:

- A completed vulnerability risk/assessment.
- Risk reduction strategy with a focus on the impact of energy and an approach to working with local utilities.
- An action plan for the implementation of the risk reduction strategy.

- Access to a network of municipalities from across Canada that are actively working with their utilities to respond to the impacts of climate change.

The information and reports can be used by a municipality to meet their provincial adaptation requirements and support access to infrastructure funding.

Overview

An increasing number of municipalities across Canada are faced with similar climate change impacts, such as flooding and extreme weather, and are working to reduce the risks from a loss of power. Whether urban, rural, remote, coastal or an interior community, more people, property, and infrastructure are at risk, especially water and wastewater systems, transportation systems, energy systems, health care systems and emergency response capability.

Almost 90 percent of Canadian natural gas, thermal and electric utility distributors have been significantly impacted by a weather event in the past decade. Despite concerns that climate-related events like high winds, heavy rains, ice storms, extended extreme cold weather, heat waves and storm surges are threatening the reliability and resiliency of Canadian energy distribution services, there remains limited tools and assessment processes to help local governments and utilities effectively plan together to reduce risk, respond to emergencies, maximize limited funding, and reduce overall costs to residents and businesses.

QUEST is best known for its work to advance Smart Energy Communities in Canada, which not only reduce greenhouse gas emissions (GHGs) but also help improve resilience at a local level. Smart Energy Communities, for example, plan energy services and infrastructure in a way that mitigates risk (of failure) from flood events, ice storms, etc., while providing ancillary power and heat in communities during prolonged power outages, which could help prevent outages altogether.

Through the initiative, QUEST aims to improve climate change resilience at a local level, by helping participating municipalities develop vulnerability/risk assessments and risk reduction strategies, to advance specific climate adaptation measures for reducing impacts to municipal infrastructure, utilities that service them, and the community at large.

Developed over the course of two daylong workshop charrettes, the risk assessment and strategy will be informed through:

- Community consultation (including local municipal champions, staff, and utility partners);
- The use of existing tools such as the
 - 10 Essentials for Resilient Cities,
 - Rural Disaster Resilience Portal and,
 - Climate Infrastructure Risk Assessment Protocol; and,
 - An interactive map-based exercise.

The learnings of the workshop charrettes and the assessment and strategy will be enhanced through two webinars, and a series of consultations and phone interviews.

The initiative will contribute to climate change resilience at a regional level.

The peer to peer exchange will ensure best practices are shared between municipalities/jurisdictions. For instance, through the two webinars, QUEST will provide an opportunity for sharing approaches and learning about relevant tools. Guidance developed through this project will be shared regionally through municipal associations/conferences and will help improve resilience and reliability of energy distribution grids at a regional level.

The initiative will also contribute to climate change resilience at a national level.

The results and lessons learned will be compiled into a guide, tentatively titled Municipalities and Utilities Partnering for Community Resilience. The results will be shared through QUEST's Municipal Working Groups across Canada, via its listserve, newsletters, website, and events.

Commitment by a Participating Municipality

Participating municipalities will be expected to contribute approximately \$5,000 of in-kind contributions. Contributions can include:

- Staff or Council time allocated to participate in the workshops,
- Access to workshop or meeting rooms space,
- Provision of refreshments and/or meals during workshops, and,
- Other contributions and donations made by the participating municipality.

Participating Municipalities

- Town of Cochrane, AB
- Town of Devon, AB
- Town of Okotoks, AB
- Rural Municipality of Alexander, MB

- Dauphin, MB
- Town of Woodstock, NB
- City of Campbellton, NB
- City of Saint John, NB
- Ville de Tracadie, NB
- City of Charlottetown, PE
- Town of Montague, PE
- City of Summerside, PE

ICLR – Cities Adapt to Extreme Weather, Extreme Heat and Extreme Rainfall Project Description

Local governments are taking action to reduce the risk to Canadians from extreme weather. Cities adapt to extreme weather: Celebrating local leadership is the third book by the Institute for Catastrophic Loss Reduction extolling local governments adapting to climate change and building more resilient communities. The three books include a total of 60 case studies describing local action in Canada that is consistent with best practices for climate resilience as identified by the Institute. The Institute is pleased to share these narratives praising successful local action. These communities are demonstrating their commitment to 'get ahead' of the risk damage from severe weather and climate change by building back better in recovery or through proactive investments in anticipation of future risks.

- Craig Snodgrass, Mayor of High River, reports "We went through hell in 2013. We had a 'build back better' mentality and now we are the most well protected community in Canada for flood risk."
- Linda Hepner, Mayor of Surrey advises "By getting ahead of the issue [coastal flooding] and setting direction now for where we want to be in 100 years, we are positioning Surrey to make smarter investments in the protection of residential neighbourhoods, businesses, significant habitat areas and provincially critical infrastructure."
- Montreal is the first community in Canada to establish a resilience office, appoint a Chief Resilience Officer, and, in 2018, publish a City Resilience Strategy. Mayor Valérie Plante said that "our strategy will enable the population, institutions, businesses and systems to react and resist more effectively and efficiently to unforeseen events."
- Josie Osborne, Mayor of Tofino, said "A prepared community is one that can take care of itself, and that starts in our homes and schools by educating children and families about emergency preparedness and response."
- Marianne Tiessen Bell, Mayor of Perth-Andover, reports that following devastating flooding in 2012, homes at risk were relocated or flood-proofed, and "If the flooding cannot be prevented, then all of the businesses need to move away from the river."

- Following a fatal avalanche in 1999, Kangiqsualujjuaq introduced regulations to prohibit new construction within 100 metres of the bottom of any steep slopes, and all homes and businesses in the new exclusion zone were relocated or demolished.
- The District of North Vancouver has won international awards for its disaster risk reduction efforts, including its pioneering use, since 2005, of risk tolerance criteria to guide its landslide, wildfire, flood and earthquake risk reduction strategy.
- Fort Nelson First Nation launched an innovative pilot study in 2017 to use drones to develop a FireSmart wildfire damage reduction plan for every building in the community.
- Victoriaville introduced financial incentives in 2011 for homeowners and builders to promote sustainable homes, including incentives to install hurricane clips, window shutters, high performance windows, and other risk reduction for new and existing homes.

Cities adapt to extreme weather also recognizes actions in Brampton, Dufferin County, Fort McMurray, Kamloops, Kingston, Moncton, Perth County, Percé, Prince Albert, Richmond and Vancouver.

Cities adapt to extreme weather: Celebrating local leadership was written by Paul Kovacs, Sophie Guilbault, Leila Darwish and Mikaela Comella. The report builds on previous Institute reports – Cities adapt to extreme rainfall and Cities adapt to extreme heat. These communities are leading the way in Canada with risk reduction action that other communities should consider.

Paul Kovacs, Executive Director of the Institute for Catastrophic Loss Reduction said "Extreme rainfall, heat and weather will increasingly affect many communities as a result of climate change. The Institute is excited to identify and celebrate actions that have been implemented by community leaders across Canada to successfully adapt to climate risks. The identified actions are consistent with the Institute's views about best practices to reduce the risk of loss and damage from extreme events. We are confident that similar actions will benefit most communities. Damage due to extreme weather is rising across Canada, and most of these losses are preventable through the application of research by the Institute and others. This report puts a spotlight on local officials that demonstrate leadership through their actions to build a more resilience society adapted to cope with extreme weather risks."

5) **DISCUSSION :**

Jacobs is looking for a municipal government to become the Lead Government Department for oversight of this project. Jacobs is proposing to include a funding request of \$250,000 to cover the cost

of a term, full-time employee, to be hired by the Lead Government Department to oversee this project, for the duration of the 2.5 year project.

It is anticipated that there will be some time availability with this funded position, which could be utilized to better improve disaster and emergency planning, preparation, and resilience for the City of Clarence-Rockland.

This opportunity also allows the City of Clarence-Rockland to take a leadership role in mapping and identifying resilience weaknesses, and thereby develop plans and strategies to improve our own resilience.

If the proposal is not accepted by DRDC, there would not be anyone hired, and therefore no cost incurred by the City. If the proposal is accepted, the City would then look to hire someone who would be responsible for oversight of the project. This position would be a term position, fully paid for within the funding of the project. If the funding is insufficient for a full-time position, the City will explore hiring a term part-time person to fulfill these requirements, with the ultimate intention to ensure that there is no financial outlay from the City.

6) **CONSULTATION:**

None.

7) **RECOMMENDATIONS OR COMMENTS FROM COMMITTEE/ OTHER DEPARTMENTS :**

None.

8) **FINANCIAL IMPACT (expenses/material/etc.):**

This project would be fully funded by the federal government. There would be some administrative tasks (processing funds, issuing payment, hiring of the project oversight person, etc.) which are expected to be absorbed within the existing municipal structure.

9) **LEGAL IMPLICATIONS :**

None.

10) **RISK MANAGEMENT :**

None.

11) **STRATEGIC IMPLICATIONS :**

This project allows the City of Clarence-Rockland to take a leadership role in identifying resilience weaknesses, and also be seen on the regional, provincial, and federal levels as an active partner towards improving disaster and emergency resilience.

12) **SUPPORTING DOCUMENTS:**

DRDC Innovation Call for Proposals