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The Road to Recovery.

The City of Calgary and the 2013 Flood



REPORT JULY 2015

The Road to Recovery: The City of Calgary and the 2013 Flood

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Preface

The Road to Recovery: The City of Calgary and the 2013 Flood provides an impartial assessment of The City of Calgary Recovery Operations Centre and its handling of the 2013 flood recovery efforts.

The report draws upon an analysis of recovery documentation provided by municipal officials, a review of secondary literature and media coverage, and expert interviews with over three dozen City of Calgary and external officials, many of whom held critical positions across the affected region.

The report reviews the five priority areas outlined in The City of Calgary's 2013 Flood Recovery Framework and identifies 10 lessons learned and 7 recommendations to improve future planning efforts and recovery operations.

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EXECUTIVE SUMMARY

The Road to Recovery: The City of Calgary and the 2013 Flood

At a Glance

- The City's timely, structured, and outcome-focused approach to flood recovery was crucial in getting Calgary back on its feet.
- Lessons learned include the value of the Recovery Operations Centre and the Flood Recovery Framework, the importance of key recovery metrics and performance indicators, and the need to include community actors and external stakeholders.
- Recommendations include the building of a skills inventory for recovery purposes, ensuring proper knowledge management practices are in place, and enhancing situational awareness of vulnerable populations.

In late 2014, The City of Calgary asked The Conference Board of Canada to conduct an independent review of the overall performance of its Recovery Operations Centre (ROC) following the Southern Alberta floods of 2013. This report follows a previous assessment that the Board conducted for the Calgary Emergency Management Agency (CEMA), and it should ideally be read in conjunction with that document.¹

Our research approach for this report was based on an analysis of recovery documentation provided by City of Calgary officials, a review of secondary literature and media coverage on the flood recovery, and interviews with over three dozen City of Calgary staff and external officials.

Our review identifies the following lessons learned:

1. Starting recovery right away and matching recovery intensity to response efforts proved invaluable. The pre-flood training and preparedness of The City's Administrative Leadership Team by CEMA, supported by the ROC Resource and Response Manual,² was key to setting Calgary on the right path after the flood. Despite some issues surrounding confusing lines of authority, co-locating the Emergency Operations Centre (EOC) and the ROC during initial recovery provided great benefits in terms of line-of-sight communications and coordination.
2. The appointment of a recovery director and the resulting work of the ROC Task Force to develop the 2013 Flood Recovery Framework³ were of critical importance in enabling effective program management and progress-tracking through the identification of key metrics, performance

1 Vroegop, *Forewarned and Forearmed*.

2 Please note that this document is not publicly available.

3 The City of Calgary, *Flood Recovery Operations Centre*.

Starting recovery right away and matching recovery intensity to response efforts proved invaluable.

indicators, and deliverables. By working collaboratively toward clearly defined and measurable goals, the ROC created a fiscally responsible and accountable environment that insulated the process from criticism and supported The Corporation during the audit process.

3. The ROC was essential for centralized communications, building relationships internally and with significant external stakeholders, and establishing a common operational picture for decision-makers, similar to CEMA's EOC for emergency response. As a trusted voice on recovery, the ROC coordinated a timely and accountable approach to recovery, enabled by metrics that allowed for transparent progress-reporting through quarterly reports to City Council.
4. A lesson learned in response that resonates in long-term recovery is the importance of bringing in outside voices for sharing information and addressing how municipal authorities can help the not-for-profit sector in building a stronger community focus on recovery. The harnessing and channelling of the power of communities and community partners through the Emergency Preparedness Initiative Calgary (EPIC) is a valuable example of this.
5. After a massive emergency, there is a need to quickly adapt policies to reflect new realities. The Government of Alberta issued new building codes (STANDATA) structured to ensure compliance of new development or repair to flood mitigation standards. The City of Calgary's expedient changing of land-use policy ensured that resilience considerations were included in new build forms to offer better protection against future flooding. Hosting open houses and meetings in the impacted neighbourhoods was a best practice to advise impacted citizens of these types of changes.
6. The City of Calgary put all infrastructure recovery projects through a prioritization process to determine what would be funded and repaired, and in which order. This approach was used in concert with the 2014 budget finalization process and can be identified as a lesson learned in managing the multitude of recovery projects from across The Corporation after a major emergency.

7. Through such campaigns as YYC is OPEN⁴ and events like the Calgary Business Recovery Expo, the Business Recovery Task Force was one of several important actors to advocate for the small and medium-sized business community and to offer a one-stop-shop approach for business owners. The collaborative corporate effort by several business units with non-governmental organizations has shown a distinct improvement since the initial flood response. This highlights the fact that recovery needs to be a whole-of-community effort that requires strong relationships beyond government.
8. Strong ROC leadership and working with an outcome-focused approach helped recovery and resilience projects move ahead where The City did not have full information on what would be recoverable through other funding sources. Focusing on outcomes and the benefits of strong leadership was first identified as a best practice in our review of CEMA and the emergency response. For recovery, the Fiscal Stability Reserve (FSR) is an important funding reserve that allows The City to bridge funding gaps for recovery and resilience projects.
9. From an insurance perspective, a municipality does not want to be seen as a bad risk after an emergency, but recovery is no time for secrecy or silo thinking. Transparency in assessing and documenting damage instills a level of confidence with insurers that facilitates building trusted relationships and resilience. The ROC's proactive stance on this is a lesson learned to help keep disaster insurance attainable and affordable in the future.
10. The lessons learned during the recovery of the 2013 flood will help validate, develop, and mature CEMA's ROC Resource and Response Manual. The next disaster may not come for years, may not be a flood, and may not be of the same magnitude. These lessons echo the value of a scalable recovery model, the all-hazards approach to emergency management embraced by CEMA, and the importance of maintaining expert knowledge by continuing to base training on best practices.

4 YYC = Airport code for the Calgary International Airport.

The next disaster may not come for years, may not be a flood, and may not be of the same magnitude.

Recommendations

1. Municipal employees with flood recovery-related roles need to be considered for more training when working in highly stressful environments that go beyond the demands of their regular jobs. The immense workloads and resulting levels of stress and fatigue reported by recovery officials and team members suggest that revisiting the business unit priorities as they pertain to staffing issues during recovery would be useful. This is particularly true for business units that are mandated to provide certain services, regardless of the circumstances.
2. The City of Calgary would benefit from a better understanding of which specialized skill sets are crucial in long-term recovery. Proceeding with the development of a cross-corporation skills inventory that can be used during emergency response and recovery is recommended. This will improve the ability to match immediate and longer-term requirements with available professional talent and can mitigate the loss of critical recovery expertise over time. Strengthening knowledge management practices can help build depth in essential skills and positions.
3. We recommend assigning a HR advisor to recovery with specific roles and responsibilities in supporting staff when joining or transitioning out of recovery work or other special projects. In addition, ensuring a seamless transfer following project completion would help with an easier transition for recovery staff. As The City of Calgary will surely face other emergencies in the future, there is great value in building a corporate culture that promotes the value of these challenging opportunities.
4. Our review shows that municipal external business continuity planning (e.g., how do we get public service delivery back to acceptable standards) was better than its internal equivalent (e.g., how do we make sure our employees are capable and equipped to do so). Despite the implementation of a corporate business continuity plan, officials identified a need for The City of Calgary to monitor varying levels of progress on this across different business units and identify strategies to address it.
5. Given that many resources for Calgary's vulnerable populations are located in the downtown core which is in the flood plain, there is an ongoing need to increase pre-event situational awareness about those

citizens who lack the ability to request assistance through regular channels, including their numbers, location, and specific needs. The Calgary Police Service, working with stakeholders such as CEMA and Community & Neighbourhood Services, is taking initial steps on this by implementing a voluntary vulnerable population registration database.

6. Our interviews revealed an opportunity to improve the capacity for tracking of spending, particularly early on during recovery, including the ability to maximize recovery from insurance and grant programs. Reassessing disaster event processes to ensure proper documentation and accurate reporting to Council was a recommendation in the recent Flood Recovery Expenditure Audit. An action plan with a completion date of June 30, 2015, has been implemented in the meantime.⁵
7. The City of Calgary would benefit from capitalizing on the recovery lessons learned and ensuring, just as in response, that City staff remain trained and ready to act in recovery roles for future events.

5 The City of Calgary, *Flood Recovery Expenditure Audit*, 13.

CHAPTER 1

Introduction

Chapter Summary

- *The Road to Recovery* provides an evaluation of The City of Calgary Recovery Operations Centre (ROC), predominantly from the perspective of municipal officials—from front-line workers to senior executives—who were involved with recovery operations after the 2013 flood.
- This report intends to capture the highlights of those lessons learned to inform and prepare better for future large-scale recovery activities. The report presents 10 lessons learned and 7 recommendations for consideration.
- The report follows on a previous assessment that we conducted for the Calgary Emergency Management Agency (CEMA), and it should ideally be read in conjunction with that document.

Scope

This report provides an evaluation of The City of Calgary Recovery Operations Centre (ROC), predominantly from the perspective of municipal officials—from front-line workers to senior executives—who were involved with recovery operations after the 2013 flood. The Calgary Emergency Management Agency (CEMA) played a vital role in setting the foundations for success in recovery through its Comprehensive Emergency Management Model as well as in the conceptualization and building of the the ROC Resource and Response Manual. The pre-planning work done by senior City of Calgary management and CEMA in developing, exercising, and validating the ROC manual, as well as making the decision to set up the ROC and start recovery as quickly as possible, was documented as a best practice in our 2014 CEMA review.¹

Building on the ROC manual, specific recovery objectives were identified in the 2013 Flood Recovery Framework (the Recovery Framework) approved by Council. The actualization of the ROC manual against the 2013 flood, and the objectives identified in the Recovery Framework, are the focus of this evaluation. The five recovery areas within the framework are:

- people
- housing and property
- services

¹ Vroegop, *Forewarned and Forearmed*, 58.

- infrastructure
- funding

The range of City projects and programs, as well as the number of people involved during the recovery, has been staggering. Given the impact of the flood and the intensity of overall recovery efforts, this report does not cover the response and early days of recovery after the flood, nor does it provide an exhaustive perspective on how Calgary bounced back from the disaster. Such a fully comprehensive assessment goes beyond the scope and time constraints of this report.

This review has a more targeted focus and concentrates on the ROC, how it facilitated longer-term recovery in a number of specific areas, and which lessons learned and recommendations can be identified. Indeed, as discussed in this report, the overall success of the recovery needs to be attributed to the entire municipal corporation as well as to the contributions of Calgary's citizens, private sector companies, and not-for-profit organizations, which were all crucial in getting Calgary on its feet again.

It should be acknowledged that in all but the most severe emergencies, recovery efforts fall to responsible business units and a ROC is not put in place. Emergencies, whether they be apartment fires or traffic accidents, occur on a daily basis. For such smaller events, recovery is never broken off as a separate organizational structure, but resides with the best-placed municipal stakeholder. However, recovering from the 2013 flood, which was the most expensive natural disaster in Canadian history, necessitated the involvement of a recovery operations centre. There was a strong need for a coordinated approach on many issues that spanned across The City of Calgary and the community. The issues include public health and wellness, infrastructure and property repair, business resumption, provision of municipal services, intergovernmental relationship development, reputation risk management, environmental stewardship and financial stability through insurance, city reserves, and disaster recovery programs.

The City of Calgary drew on the foundation for recovery in place with CEMA's Comprehensive Emergency Management Model and Recovery Manual.² However, the massive scope of the flood means that the learnings over the past two years have exceeded the issues identified in this foundational work. Long-term recovery has required dedicated recovery staff commitment, strategic leadership, detailed process development and documentation, transparent reporting, and complex problem-solving by subject matter experts. The intent of this report is to capture the highlights of those lessons learned to inform and prepare better for future large-scale recovery activities.

The geographical focus of this report reflects our mandate for the project and is limited to The City of Calgary. Calgary's overall experience during flood response and recovery was markedly different from that in other parts of Alberta. We are mindful of the destruction the floods caused in the greater province of Alberta and the continuing recovery efforts of those who are still feeling the impact of the flood to this day.

Methodology

The Conference Board of Canada has extensive experience in conducting research in the field of emergency management as well as in the preparation of program evaluations and performance reviews. This report follows the methodological approach of our 2014 assessment of CEMA's handling of the flood response.³ Following an initial literature review that included internal and external research, City of Calgary documentation, and a scan of media messaging, our team interviewed over three dozen officials, ranging from municipal and provincial staff to law enforcement and non-governmental organization (NGO) representatives. Our questions were specifically designed to enable officials to speak freely about their flood roles and responsibilities, as well as their reflections on lessons learned and outstanding challenges. The officials spoke to our researchers on the condition of strict

2 The City of Calgary, *Flood Recovery Operations*.

3 Vroegop, *Forewarned and Forearmed*.

anonymity under our privacy policy. Following the interview phase, we collected, synthesized, and analyzed key findings, leading to the lessons learned and recommendations included in this report.

The report is structured around the following chapters:

- Chapter 2—the ROC Governance and the 2013 Flood Recovery Framework
- Chapter 3—Psychosocial Recovery: City Employees and Citizens
- Chapter 4—Physical Recovery: Infrastructure, Housing and Property, and City Services
- Chapter 5—Financial Recovery: Funding Processes
- Chapter 6—Snapshot of Findings: Lessons Learned and Recommendations
- Chapter 7—Conclusion

Recovery Context

A snapshot of the impact of the 2013 flood can be seen in “Flood Impact Snapshot.” Some of the flood recovery projects can be seen in Exhibit 1.

Flood Impact Snapshot

- Approximately 80,000 people across 32 Calgary communities were evacuated.
 - Initial flood damage and cost estimates reached \$445 million.
 - Approximately 6,000 residences were touched by water and 4,000 businesses across Calgary were impacted.
 - The Municipal Infrastructure Recovery Program (MIRP) included 242 municipal infrastructure recovery projects as of March 2015.
-

Exhibit 1

Overview of Flood Recovery Projects



Source: The City of Calgary.

Recovering from major disasters is an incredibly complex task that can take years. Calgary has seen its share of disruptive events, and a comprehensive emergency management model has proven vital to overall resiliency. As of early 2015, neither The City of Calgary nor the Calgary community has fully recovered from the effects of the 2013 flood. Given the multi-year scope of many recovery projects, this is hardly surprising, even if for many unaffected Calgarians flood memories have begun to wane. On top of this, Calgary has experienced several emergency incidents and has gone through a period of political transition at both the municipal and provincial levels in the past 18 months.

Since the 2013 flood, Calgary has had a retiring, interim, and new city manager and fire chief, split CEMA out from the Calgary Fire Department as a separate business unit, held a municipal election four months after the crisis, and developed a new four-year business plan and budget. A

new premier was named, resulting in three by-elections in Calgary, and there are several new Members of the Legislative Assembly and cabinet ministers, including members representing areas that were directly impacted by the flood. On May 5, 2015, a provincial general election was held that resulted in a change in government which had impacts on the flood mitigation projects specifically.

In terms of emergencies, Calgary saw the largest early September snowfall prior to the equinox in over 130 years in 2014, dubbed “Snowtember,”⁴ and a major underground electrical fire in October 2014 that left large portions of the downtown core without power for five days.⁵ In some instances, these events impacted the speed of flood recovery projects as they required temporary redirection of resources.

Recovery typically has blurry timelines and can mean different things to different people. The Comprehensive Emergency Management Model that was developed by CEMA and adopted by City of Calgary Council includes response, recovery, rehabilitation, planning, and preparedness on a continuum where efforts overlap one another throughout and after an emergency event. Full recovery from a major disaster in both social and economic terms is a complex undertaking that is as hard to achieve as it is to define.⁶ The same can be said for the blurry lines that separate response from recovery efforts. From a local authority perspective, recovery includes those activities and programs designed to move The City and the community from post-crisis conditions to a level that is deemed acceptable by the organization. From a broader community restoration perspective, recovery can include a much wider spectrum of activities and programs implemented to restore the entire community to former levels, as well as the long-term psychosocial health of citizens and the economic health of businesses.⁷ Recovery activities are scalable

4 McMurray, “\$4M Price Tag.”

5 CBC News, *Downtown Calgary Fire*.

6 The City of Calgary, *City Manager’s Report to Priorities and Finance Committee*.

7 The City of Calgary, “CEMA Comprehensive Emergency Management Model.”

depending on the event, and can range from supporting a family as they re-enter their home after a small fire, to long-term, strategic recovery after a major disaster.

CEMA prepares for the full continuum of recovery scenarios on an ongoing basis and includes recovery training to mimic disasters, ranging from small events to major emergencies. This expertise was developed by studying disasters that have occurred in other major urban centres and the required recovery processes in those situations. In 2010, CEMA's ROC Resource and Response Manual was approved by the most senior municipal officials, known as the Administrative Leadership Team (ALT). This was an important factor given that ALT forms the ROC Steering Committee in the case of a major event or disaster requiring long-term strategic planning for the municipality regarding people, city services, communications, and city infrastructure.⁸ Training and exercise sessions are conducted annually by CEMA with ALT to orient and refresh members on their roles, responsibilities, relationship between the Emergency Operations Centre (EOC) and ROC, and to test strategies and resource impacts within various scenarios.

This forward thinking and the preparation of the ALT by CEMA was a critical aspect of the expedient establishment of the ROC and immediate strategic recovery action after the flood. The ROC was officially activated on June 22, 2013, with its Steering Committee naming a director of recovery to oversee the Flood Recovery Task Force in early July. Because of the flooding of the downtown Calgary Municipal Building, which is the City's main administrative and political base of operations, the ROC co-located within the EOC, which would remain operational until July 12, a full eight days after the state of local emergency was lifted. This meant that for nearly three weeks, both response and recovery were run out of the same building. Despite some concern over tasking issues, the mostly positive impact of the initial co-location of the ROC and CEMA proves that valuable lessons are often learned in the midst of a crisis. These and other aspects of the ROC's functioning will be discussed in Chapter 2.

8 Calgary Emergency Management Agency, *CEMA 2011 Annual Report*, 29.

CHAPTER 2

The ROC Governance and the 2013 Flood Recovery Framework

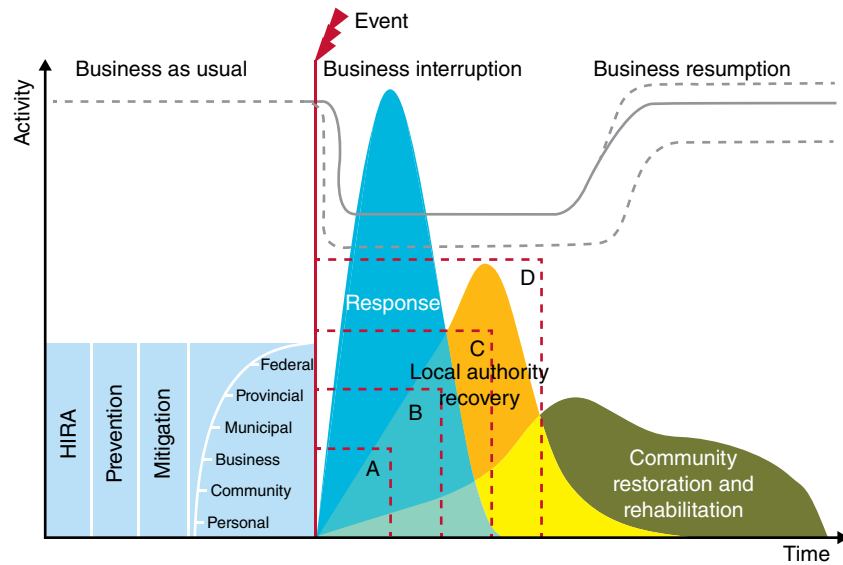
Chapter Summary

- Starting recovery right away and matching its intensity to response efforts was recognized pre-event by CEMA and proved invaluable during the early days of the flood.
- Despite some issues surrounding confusing lines of authority, stakeholders widely agree that co-locating the ROC and CEMA provided great benefits in terms of line-of-sight communications and coordination.
- The 2013 Flood Recovery Framework was of critical importance in enabling effective project and progress tracking through the identification of objectives, key metrics, performance indicators, deliverables, and timelines.
- The interdepartmental Flood Recovery Task Force ensured that the ROC Steering Committee executives had a direct communications channel into issues that involved multiple departments. The relationships that were forged between stakeholders before, during, and after the flood have already proven their worth during more recent incidents.
- A corporate coordinating effort around resiliency can further the successes identified through the learning from the flood event.

A key best practice is the need to start recovery right away and maintain the intensity of response following the early hours of a crisis. As illustrated in Exhibit 2, this outcome-focused approach forms part of the CEMA Comprehensive Emergency Management Model. This generally accepted principle ensures that response, local authority recovery, and community restoration and rehabilitation start off simultaneously, even if their levels of activity and time spans differ considerably.

Exhibit 2

CEMA Comprehensive Emergency Management Model



Source: The City of Calgary.

With a recovery director stepping into the role on the same day the state of local emergency ended, the ROC became Calgary's lead on coordinating recovery across The Corporation. Working in a true cross-corporation manner was easier said than done, as identifying roles and responsibilities, putting together a team of experts, and designing a recovery plan and framework all stripped valuable time from overall City response efforts that were still ongoing. In fact, tension between the requirements and time frames of response versus recovery was one of the original considerations that had kept the ROC at the Calgary Municipal Building, away from the EOC. However, it quickly became clear that having all stakeholders at the same location provided great benefits in terms of communication, enhancing situational awareness, and timely decision making.

Many officials shared examples during the interviews of being able to quickly cut across organizational silos despite the reality that—given that the EOC and the ROC would go to their respective staff for taskings—conflicting objectives and confusing lines of authority created some initial problems.¹ That said, the general ability to speed up decision-making and facilitate coordination through line-of-sight communications was a best practice that was first identified for CEMA in the EOC in our previous report and which equally applies to the ROC.² The strong relationships that were forged between stakeholders before, during, and after the flood have already proven valuable during more recent incidents.³

Following discussions with the ROC Steering Committee, which included the city manager, five general managers, the director of emergency management, the chief financial officer, representatives from Law, Customer Service & Communications, and the Mayor's Office, the ROC was set up with a dispersed (as opposed to a hierarchical) structure. This meant that the ultimate responsibility for specific

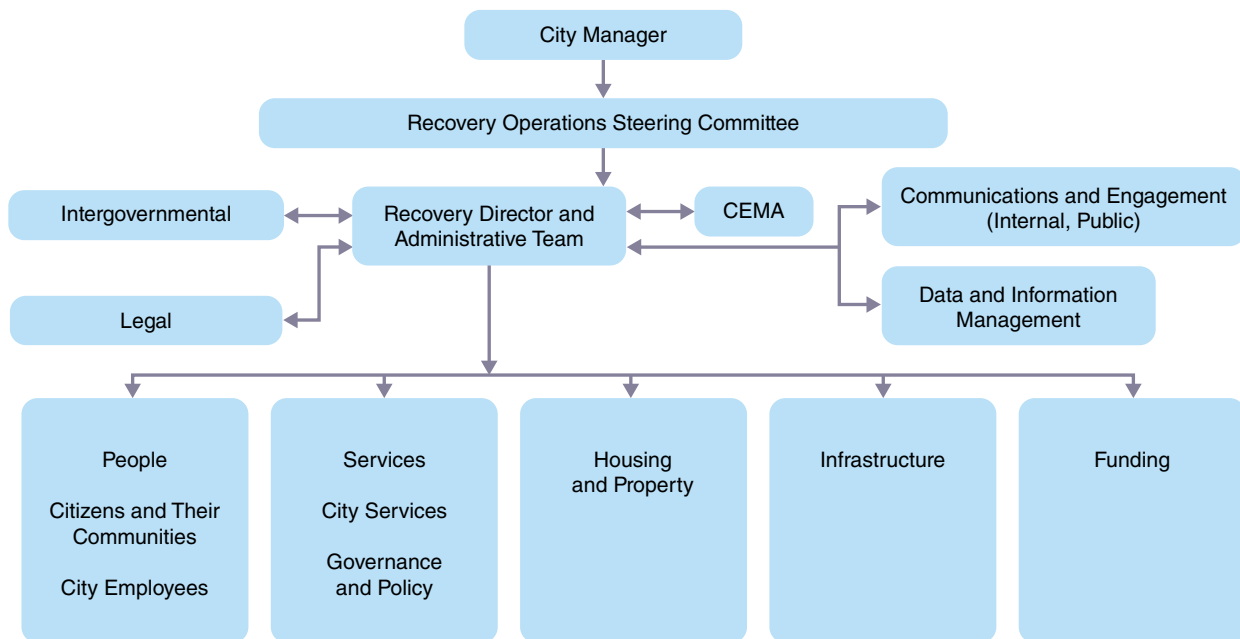
1 Interview #27. This also echoes one of the findings in our CEMA review. See Vroegop, *Forewarned and Forearmed*, 15.

2 Ibid., 58.

3 Interview #26.

recovery projects remained with the separate business units. Under the Steering Committee, a Flood Recovery Task Force was created, consisting of subject matter experts in their respective areas to enable timely discussion on current issues and project progress.⁴ (Also see Exhibit 3.) This not only ensured that senior executives on the Steering Committee had a direct communications channel into multi-faceted issues that involved multiple departments, it also helped allay the silo thinking that several interviewees reported was quite common under normal operations.⁵

Exhibit 3
How the ROC Fits Into the Larger Corporate Structure



Source: The City of Calgary.

4 These areas of expertise broadly overlap the five pillars of recovery identified in the framework—people, housing and property, services, infrastructure, and funding.

5 Interview #7.

Although it is not uncommon for crisis and common purpose to override bureaucratic red tape and silo thinking during emergencies, the challenge for the ROC was how to harness the remarkable energy and overall success of the response phase and incorporate other best practices to develop a well-coordinated, long-term recovery effort that involved a seemingly endless number of projects and variables. As one interviewee put it, “If responding to a flood is a sprint, recovering from it is a marathon.”⁶

The first order of business by the Task Force was to design a 2013 Flood Recovery Framework to determine key focus areas and objectives over an 18-month time frame. In broad terms, the Recovery Framework was designed to coordinate the identification and assessment of what needed to be fixed and subsequently facilitate and track the way in which The City went about that mammoth undertaking. Interviewees were in general agreement that the Recovery Framework and its five pillars—people, housing and property, services, infrastructure, and funding—played a crucial role in providing a foundational structure for recovery activities and in getting The City of Calgary and the community back on its feet. In more specific terms, the ROC governance structure and the Recovery Framework proved invaluable on three fronts.

Singing From the Same Song Sheet

Recovering from a flood that saw evacuations in 32 Calgary communities, affected 80,000 citizens, and resulted in initial damages to municipal infrastructure of approximately \$445 million, meant the involvement of a large variety of stakeholders. The interviews broadly supported the notion that the ROC Steering Committee was of vital importance in facilitating the ensuing coordinating effort. As resources are finite, taking a cross-corporation approach to recovery was crucial in preventing duplication of effort and enabling prioritization. It also meant that the senior officials who served on the Steering Committee all saw the same operating picture and became messengers for recovery in their

6 Interview #1.

respective departments. Just as it was for the EOC during the response phase, speaking with a common voice and tying in senior leadership through the Steering Committee was crucial to ensuring clarity of purpose and coordinating the prioritization of many projects and which available resources could be leveraged for this purpose.⁷ As a result, our review confirms that relationships between City departments are at an all-time high as a result of the work on flood recovery.

Some officials stated that the overall recovery effort would have benefited from establishing centralized communications through the ROC earlier on (as opposed to it residing with individual business units).⁸ This was felt particularly in communications at the corporate level and as it relates to psychosocial assistance for employees, (See also Chapter 3.) The ROC officials reported that centralizing communications earlier on was attempted and that it took some time for this need to become apparent or accepted by departments. This led to a situation where the ROC felt it had the responsibility for communications, but not the authority. It was several months before communications was brought under the ROC umbrella and centrally managed through the ROC office.

Keeping Recovery Front of Mind

The Recovery Framework was essential in communicating the long-term perspective to internal and external stakeholders and underlined the correlation between the impact of the flood's scope and the duration of recovery. Several interviewees admitted that this has been an uphill battle. The response and initial recovery phases were widely regarded as a success story and reflected in the Calgary Stampede Parade proceeding a mere day after the state of local emergency had been lifted.⁹ This was the result of the City's effective handling of the initial recovery and its collaboration with Stampede officials. However,

7 Interview #22.

8 Interview #2.

9 The state of local emergency was lifted on July 4, with the Calgary Stampede Parade proceeding as planned on July 5.

educating the thousands of unaffected Calgarians on the reality that it will be years until the books are closed on this disaster is an ongoing challenge. This is not entirely surprising, considering agencies such as Tourism Calgary and Calgary Economic Development have understandably focused their efforts on communicating that Calgary is open for business.¹⁰

The ROC communications effort made sure both politicians and the general public had easy access to the status of recovery efforts as well as to pertinent information surrounding preparations for the 2014 spring high water season.¹¹ This transparency and clearly delineated recovery timelines were also lauded in a 2014 analysis by an independent consulting firm.¹² In terms of internal communications, the senior level of authority embedded in the Steering Committee, supported by the Task Force, made sure the ROC had an effective information conduit to raise flood recovery-related issues with decision-makers and a public web presence to report on recovery progress, programs, and available services. The 2014 Flood Preparation website was a critical educational tool in explaining to Calgarians what The City was doing in terms of flood mitigation and how the public could prepare itself.

Facilitating Effective Tracking of Recovery Objectives

During the interviews, several officials noted that the Recovery Framework was of critical importance in enabling effective project and issue progress-tracking through the identification of key metrics, performance indicators, and deliverables. The ROC provided central coordination of project tracking as well as issue management, communication, and reporting. In the words of one interviewee, without

10 Interview #31.

11 This is exemplified by The City of Calgary's excellent online resources surrounding flood recovery. See www.calgary.ca/General/flood-recovery/Pages/RecoveryUpdates.aspx. Website changing after July 15 to www.calgary.ca/floodinfo.

12 Jacobs, *City of Calgary*, 2.

the ROC and Recovery Framework in place, “reporting would have been a nightmare.”¹³ By being transparent on the status of its recovery objectives, the ROC not only communicated a sense of control over the situation to the public, but also explained to Council and the provincial government the progress of objectives within the five pillars, current challenges, and continued recovery hurdles.

The ROC quarterly reports included information specific to the Municipal Infrastructure Recovery Program (MIRP) to date, and our analysis of interview findings underlines the cross-business unit coordination between program management, the finance team, and project managers to ensure maximum recovery of flood repair expenses. To date, the average recovery rate of return on submission to the provincial Disaster Recovery Program (DRP) funding is tracking around 99 per cent. This is largely thanks to the specific work of City staff on the DRP submission team whose expertise on the eligibility criteria and work on the development of submissions proved invaluable. (See also Chapter 5.)

As emphasized by several interviewees, the Recovery Framework helped create a fiscally responsible and accountable environment that insulated the process from direct criticism and supported The Corporation during the audit process. The ROC’s effectiveness in tracking, documenting, and communicating recovery progress supports the claim by an independent consulting firm in 2014 that several months after the flood, The City of Calgary was already three to six months ahead of other disaster-impacted communities in its overall recovery.¹⁴ Our review indicates this situation can be primarily attributed to a timely, coordinated recovery effort that was begun concurrently and matched the intensity of the flood response.

13 Interview #2.

14 Jacobs, *City of Calgary*, 2.

Resources for Recovery

The Steering Committee

Considering the magnitude of the flood recovery efforts and the amount of funds involved, it was essential for senior executives to not only stay abreast of developments from a corporate governance perspective, but also to have the metrics available to know project progress or lack thereof. In addition, the ROC Steering Committee was set up at the most senior level of City bureaucracy, thereby giving it the authority to speak with one voice, set direction, assign resources, and make decisions.¹⁵ Senior officials also typically felt well-prepared through scenario-based training by CEMA about how to transition from response to recovery, the ROC roles and responsibilities, and the need to start planning for recovery right away.¹⁶

As indicated earlier, interviewees were unanimous in confirming the value of the Steering Committee's level of authority and its usefulness in keeping the overall recovery efforts on track. This was facilitated by the ROC and its ability to provide useful metrics on which to base decision-making, ranging from financial figures on the recovery of damages through insurance to numbers on tonnage of flood debris taken in by Waste & Recycling Services.

That said, our interviews reveal some concern regarding the extent to which the Steering Committee used this authority in the early stages of recovery to make *timely* decisions and provide much-needed *strategic-level* leadership. It is important to note that this occurred predominantly prior to the approval of the Recovery Framework in September 2013, when the Steering Committee drew its mandate from the Municipal Emergency Plan (MEP) and the ROC manual. Some officials suggested the Steering Committee often became too tactical in its focus, was indecisive, or seemed uneasy with its role in prioritizing projects and making quick decisions on issues brought forward by the Task

15 Interview #4.

16 Interview #10.

Force. On building permits, for example, there was a need to quickly change City bylaws to ensure built form going forward would not have the same vulnerabilities. Building code amendments were provided through the issuance of STANDATA to provide measures for resiliency and to satisfy DRP requirements.¹⁷ While the Steering Committee was designed to maintain a “50,000-foot strategic perspective,” one official commented that its members at times appeared to prefer working at the “street level.”¹⁸

There are three factors that may help explain the apparent lack of timely and/or strategic decision-making by the Steering Committee during the early stages of recovery. First, some officials believed that information was not always offered to the Steering Committee with a clear indication of what was needed—be that decision, direction, or no action required for issues passed on for awareness. Second, the ambiguity surrounding the Steering Committee’s focus also reflects the unprecedented scope of the recovery, which meant that mandates had to be established quickly and at times inevitably gave way to a more trial-and-error approach to governance. The Steering Committee’s mandate as a timely, strategic decision-maker rather than tactical advisor was identified at mid-point in the recovery operations, which, in turn, led to revised processes being put in place to offset this. Third, staff changes at the senior municipal level also contributed to a lack of decision-making.

The Interdepartmental Flood Recovery Task Force

The Task Force was widely lauded during our interviews as an excellent information conduit and relationship builder that connected subject matter experts in a comprehensive range of flood recovery related areas. With a fluid, director-level membership that initially met twice a week and reported to the Steering Committee bi-weekly, the Task Force was run on the premise that its representatives had the authority to make decisions for their business unit. The Task Force convened at

17 Interview #26.

18 Interview #3.

the director level for approximately four months, after which it changed toward more management-level representation. This is not to suggest a lack of commitment from senior leaders. Directors attended the ROC meetings on a biweekly basis until the end of 2013 and attended the ROC presentations to City Council. Given that this was in addition to their regular duties, this reflects a significant commitment.

In addition to the Task Force, a Flood Issues Management Team was set up at the director level to address the broader cross-section issues that required attention, but were not direct recovery issues, such as 2014 high water season and spring melt preparation (i.e., recurring topics that formed part of regular business for CEMA, Water Resources, Communications, and Law).

The Task Force set-up of bringing together subject matter experts can be identified as a lesson learned that significantly cut down on time typically used up by back-and-forth communications between business units.¹⁹ In fact, with the planned disbanding of the Task Force in June 2015, several officials mentioned that no longer having the central point of contact might negatively affect unified communications, coordination, and reporting. Interviewees reported a similar negative impact after the disbanding of the provincial Flood Recovery Task Force in September 2014.²⁰

By using the Recovery Framework pillars, the Task Force became an effective cross-organizational platform for getting quick discussion and agreement on how to proceed with on-the-ground issues that touched a variety of stakeholders and for reporting back to Council through quarterly reports.²¹ One crucial benefit that the Task Force brought to the table, which was widely echoed during the interviews, was its contribution to effective project tracking and reporting through the Recovery Framework. With literally hundreds of projects across many business units, the Task Force ensured the right project management

19 Interview #4.

20 Interview #10.

21 These reports are available on The City of Calgary website at www.calgary.ca.

mechanisms were in place for coordinating financial reporting, maintaining public credibility, and communicating organizational accountability.

One concrete example of this was the use of Microsoft Project Server, which allowed for a more straightforward common reporting framework to track progress on flood repair projects within the MIRP. (See Table 1.)

Table 1
Snapshot of Active MIRP Projects as of March 2015

Project Identifiers				
Province-unique project number	Project/program name	Project departments	Business unit	Project description
Municipal Infrastructure Recovery Program Total				
Community Services and Protective Services (CS and PS)				
Animal and Bylaw Services Total				
I-FL2013-AB-001	Centre City team-building repairs	CS and PS	CS and PS animal and bylaw services	Repair and replace flood-damaged equipment in basement and garage.
Civic Partners Total				
I-FL2013-CP-001	Pumphouse Theatre	CS and PS	CS and PS civic partners	Pumphouse has its own insurance on infrastructure. City to complete structural review and geotechnical testing to determine damage to basement.
I-FL2013-CP-002	Talisman Centre	CS and PS	CS and PS civic partners	HVAC and other mechanical equipment damaged and requires replacement. Large-scale cleaning/sanitization of facility required. Estimated closure of some amenities six to nine months.
I-FL2013-CP-003	Calgary Zoo building	CS and PS	CS and PS civic partners	Extensive damage to buildings, elevators; electrical and technology equipment damaged.
I-FL2013-CP-004	Calgary Zoo clean-up	CS and PS	CS and PS civic partners	Extensive damage to lands.
I-FL2014-CP-005	Calgary Public Library, central	CS and PS	CS and PS civic partners	Basement flooded, contents destroyed. Alarm system damaged. Public washrooms, meeting rooms in basement need to be restored.

Source: The City of Calgary.

Before the adoption of this software platform in late 2013, many business units reported recovery progress based on their own internal metrics and spreadsheets, thereby lending further credibility to the assertion that The City of Calgary was quite silo-driven pre-flood and that in

Financial Breakdown

Spent 2013	Spent 2014	Budget 2015	Future years' budget	Total current project budget
\$101,180,298	\$92,208,418	\$168,390,707	\$47,867,000	\$409,646,423
\$46,153,955	\$25,992,515	\$50,368,066	\$21,947,000	\$144,461,536
\$0	\$5,619	\$244,381	\$0	\$250,000
	\$5,619	\$244,381		\$250,000
\$34,534,536	\$13,424,801	\$26,840,199	\$0	\$74,799,536
\$8,364		\$92,000		\$100,364
\$8,674,729	\$7,533,441	\$3,771,559		\$19,999,729
\$21,870,032	\$3,871,408	\$10,058,592		\$35,800,032
\$2,900,583	\$607,215	\$7,391,785		\$10,899,583
\$1,080,829	\$1,392,737	\$5,526,263		\$7,999,829

emergencies, necessity can be the mother of invention.²² Providing a reporting baseline through an effective project management approach and software assisted the Task Force in establishing a commonality of data, centralizing its collection, and simplifying it for use with Council and the general public.²³

One area for improvement that was singled out by interviewees is to clarify the lines of reporting for those attending the Task Force meetings. Following Task Force meetings, which were documented with agendas and minutes, the directors or designates attending the meetings did not always debrief all those involved in recovery in the department or business unit they represented, despite the fact that one department could have a wide range of recovery-related responsibilities.²⁴ This, in addition to a fluid Task Force membership, meant that some information fell through the cracks or some stakeholders felt left out.

Although this does not negate the onus being on attendees to keep themselves apprised, it is recommended that a clear understanding of who each Task Force member represents, their full scope of responsibilities in recovery, as well as the need to report back to their home departments, be formalized at the outset. This could take many forms, such as terms of reference for each member, training, or organizational charts and checklists to delineate responsibilities during recovery.

The Administrative Team

The ROC Task Force and Steering Committee were ultimately supported by a core team of recovery-dedicated staff: the recovery director, an administrative coordinator, an executive assistant and community liaison, one communications person (with two additional staff at the height of the recovery, preparedness, and anniversary efforts), two

22 Interview #7.

23 This took several forms, including the use of dashboarding. Interview #16.

24 Consider, for example, Community & Neighbourhood Services, which forms part of the same department as Parks. Interviews #5 and #6.

recovery planners, and one program manager of the MIRP. These individuals were singled out by many interviewees as crucial to the overall coordination of recovery efforts. Additionally, some business units identified full-time resources such as a finance team to support disaster recovery funding submissions, and a claims section dedicated to flood insurance processes. Long-term recovery and community restoration resulting from the flood is also reflected in several objectives identified in the 2015–18 Action Plan, such as flood hazard area policy completion, flood resilience strategy, corporate resilience framework, and business continuity implementation. Although the value of the administrative team was repeated in many interviews, some officials identified opportunities for improvement in staffing the ROC more quickly during the early phases of recovery and ensuring that it has an adequate budget. These concerns will be discussed further in Chapter 3.

The Importance of Outside Voices

The need to optimize information conduits to ensure the right municipal, private sector, and not-for-profit stakeholders are at the table was a recommendation in our 2014 CEMA report.²⁵ This not only facilitates the effective use of available resources, it can also bring in outside perspectives that challenge institutional thinking. One way in which an outside view was added to the discussion was through the independent Expert Management Panel on River Flood Mitigation. The panel included a range of Canadian and international subject matter experts and became an opportunity to request citizen participation in shaping future flood mitigation efforts.²⁶ (See Exhibit 4.) The progress on the 27 recommendations made by the panel in its June 2014 report will be reported to Council annually, thereby creating a mechanism to track progress in an open, transparent way and document lessons learned.²⁷

25 Vroegop, *Forewarned and Forearmed*.

26 Utilities & Environmental Protection was intending to establish this panel pre-flood. Following the flood, the ROC Steering Committee agreed to proceed and connected with the Mayor to give it a public profile. For the report, see Expert Management Panel on River Flood Mitigation, *Calgary's Flood Resilient Future*.

27 Interview #10.

Exhibit 4

Report From the Expert Management Panel on River Flood Mitigation, June 2014

CALGARY'S FLOOD RESILIENT FUTURE



Source: The City of Calgary.

In terms of having the right people at the table during recovery, our interviews confirmed an initial disconnect between response efforts and the wider not-for-profit community. During the recovery process significant improvements were made in this area, as exemplified by the creation of the Community Resiliency Table, recently renamed as the Emergency Preparedness Initiative Calgary (EPIC). This is an initiative of the Calgary Chamber of Voluntary Organizations (CCVO), supported by The City of Calgary and charitable organizations such as United Way, the Calgary Foundation, and the Canadian Red Cross. This collaborative initiative is aimed at building the capacity of not-for-profit organizations to provide continuity of services during emergencies and strengthening relationships between Calgary's not-for-profits and public sector response systems. Also see Chapter 3.

Interviewees widely agreed that having the ROC in place during recovery has been very useful in bringing in non-partisan experts to speak to (increasingly political) recovery issues. It has also been particularly useful in expanding the collaboration with the non-governmental organization (NGO) community to ensure recovery is carried out by a variety of organizations with a community focus.²⁸ Having the NGO community at the table enables the recovery by drawing on their varying perspectives and subject matter expertise.

Future Recovery Considerations

The ROC is set to close its doors in mid-2015, with remaining long-term recovery efforts spearheaded by various City business units. Many interviewees argued that the ROC functions as a well-placed educator for documenting and disseminating the lessons learned from the flood recovery work and that those within the ROC have developed valuable specialized skills and relationships. There was strong agreement that The City of Calgary needs to ensure the “home fire” keeps burning on the recovery lessons learned and takes a long-term resilience perspective that stresses the value of forward thinking.²⁹ Interviewees agreed on the importance of keeping the recovery lessons learned by the ROC front of mind to position Calgary and the wider community well for future recovery activities. In late 2014 as part of its Action Plan, City Council approved six full-time positions for the building of a corporate resilience framework. Even though additional details surrounding this initiative remain unclear at the time of writing, it is clear Calgary is taking seriously the need for long-term resiliency planning.

Given that resiliency is not a separate, stand-alone component to emergency management, it needs to be acknowledged that overall corporate resilience (e.g., the economic resilience of the entire city, and climate adaptability) is broader in scope than emergency events. As aptly stated by the Calgary Chamber of Commerce, “Resiliency does

28 The need for a community focus in recovery will be further discussed in Chapter 3.

29 Interview #11.

not mean being prepared for a single type of disaster, but rather having strategies in place to deal with the unexpected.”³⁰ This highlights the need for an overall coordinating effort through a corporate framework that goes beyond resilience as an exclusively recovery-focused concept. Such an approach can also further a better understanding of what resilience means in general since some interviewees argued that the term still means different things to different people and may be at risk of becoming a political buzzword

In this report, what is key is that the lessons learned from the flood recovery will be captured and used to inform future recovery process improvements at any scale. These lessons will also support future scenario training with the ALT and key members of The Corporation who may need to be prepared to act as recovery staff in a future event.

30 Calgary Chamber of Commerce, *Flood Resiliency*, 5.

CHAPTER 3

Psychosocial Recovery: City Employees and Citizens

Chapter Summary

- Our review supports the corporate initiative to create a skills inventory that can help deploy the right human capital for the right recovery task.
- As officials with highly specialized skills and trusted relationships will retire over the next few years, there is a requirement to identify those areas that are dependent on specific skills and ensure proper knowledge management practices are in place to capture recovery insights, deepen skills pools, and build future capacity.
- Interviewees mentioned that recovery was often “being run off the side of a desk.” The exhaustion felt by recovery officials suggests that revisiting the business plan regarding staffing issues during recovery would be useful. Reviewing on-boarding procedures and transitioning strategies as they relate to recovery or special projects can also be recommended.
- Fostering human capital and working with a community focus is key in bringing people together in recovery, growing local relationships, and building resilient neighbourhoods.

For municipal employees and citizens, the immediate impact of the flood varied widely and longer-term effects were not immediately obvious. Some people lost their homes, some could not get into work for days, but many other Calgarians were not directly affected. It is telling that the recent “Snowtember” event generated more 311 calls than the flood, even though the latter was approximately 10 times more costly.¹ In comparing these two events, the uneven distributional impact of the flood is important to note, especially given that full flood recovery will take a lot more time, resources, funds, and patience. Authorities will continually need to explain the longer-term funding decisions to all Calgarians, many of whom were never affected by the flood in the first place.

Employees

As discussed in Chapter 2, the ROC placed significant emphasis on defining the metrics that enabled project tracking along the road to full recovery. However, the fact that psychosocial recovery and mental health issues are more difficult to assess resonated in the variety of opinions captured during our interviews. Regardless of the metric that one considers, the latest figures are little cause for concern and do not raise red flags: sickness and accident numbers among municipal employees during recovery and requests for counselling services have not shown spikes. This raises an interesting discrepancy, particularly in light of the

1 Interview #8.

belief among several interviewees that the extremely long hours worked by many municipal employees during flood recovery may still negatively affect the workforce.²

In order to augment employee health in future recovery scenarios, four mental health and HR-related concerns can be raised for consideration.

1. Personal Resilience Under Stressful Circumstances

A significant portion of interviewees stated concern about the extent to which municipal employees were exposed to extremely stressful situations that were outside the scope and training requirements of their regular jobs. Examples here include inspectors who had to enforce new building regulations and mitigative requirements to satisfy DRP funding that often meant increased costs to affected citizens, staff present at highly emotional public meetings, or waste collection officials who dealt face-to-face with citizens who had lost everything.³ This underscores the notion that massive recovery efforts trigger the involvement of vast amounts of municipal staff. Our 2014 review noted as a best practice that The City of Calgary, particularly through CEMA, was well-prepared for the flood emergency as a result of planning and scenario-based training—not just for emergency responders, but also for non-emergency personnel and partners.⁴

However, although front-line emergency officials—through experience, planning, and training—will develop a level of preparedness to cope with trying circumstances, interviewees voiced concern that employees who normally provide non-emergency municipal services may not be as prepared. In addition, front-line responders rely on established protocols, such as critical incident debriefings and specialists to monitor for signs of exhaustion and post-traumatic stress.⁵ Also, wellness checks of staff

2 Interview #13.

3 Interviews #9, #10, #22, and #26.

4 Vroegop, *Forewarned and Forearmed*, 59.

5 Interview #18.

and emergency management practices are beneficial. This does not mean comprehensive emergency response training is recommended for all municipal employees, but developing a better understanding of which positions might be pulled into high-stress situations would be beneficial.⁶ Also, emergency management practices—such as mandatory stand-downs for personnel after a certain number of hours or days of work—might be considered for these employees.

2. Running Recovery Off the Side of Your Desk

Given that closing the books on the flood will be a multi-year process, human capital is crucial to ensuring long-term recovery. Interviewees argued that with the scope of the damage, it took a concerted effort before the full extent of recovery efforts became clear, even for those at the ROC. However, once they were pulled into recovery work, some officials found that their regular positions were not backfilled, leading either to work piling up for their return or the often-heard phrase that “recovery was being run off the side of a desk.”⁷ This feeling of a “double whammy” of work was aggravated by the notion that, in spite of exhausting schedules for years, recovery efforts went largely unnoticed in the public’s eye because of a relative lack of visibility and waning interest.⁸ Moreover, the political questioning of overtime pay and the decision not to host a recognition event out of sensitivity toward those who remained flood impacted left some staff feeling unappreciated.⁹

The levels of exhaustion felt by most interviewees, regardless of the stress experienced in their duties, suggest that revisiting the business plan as it pertains to staffing issues during emergencies and longer-term recovery would be useful. This is particularly true for those business

6 Interview #26.

7 Interviews #18 and #24.

8 One interviewee noted that Calgary’s largely successful flood response created the false belief that The City had fully recovered by the time the state of local emergency was ended and the Calgary Stampede began.

9 Interview #5.

units that are mandated to provide certain services regardless of the circumstances, since these officials felt caught between prioritizing things they had to do and things that could not wait.¹⁰

3. Specialized Skills and Knowledge Management

One provincial initiative that was designed to help mitigate the impact of recovery officials working extremely long hours was the Municipal Staffing Capacity Grant (MSCG). This program provided surge capacity to business units that required additional assistance during recovery efforts. Although this did alleviate some staffing pressures, one shortcoming was that it covered only incremental costs. In other words, The City could not get refunded for bringing someone in who was already on its payroll. Essentially, money was only recovered if the backfill resulted in net new hire. According to several officials, this practically meant that if a business unit required a skill set that was available only internally, it either ended up paying for the position or risked not having the best-placed person do the work.¹¹ The current lengthy recruitment processes also led some business units to forego hiring externally, resulting in the inability to use MSCG funds, which led to the lack of additional personnel to do the increased amount of work.

The main drawback of the MSCG as outlined above helps explain the sentiment shared by several interviewees that business units were often short on specialized skill sets, but not necessarily on staff.¹² A good practical example of this can be found in the Risk Management & Claims Division. As a team with highly specialized skills and trusted relationships with restoration companies and insurers, it could not relinquish tasks without slowing down the entire process to the point that the loss of a single subject matter expert would have had considerable consequences for the entire recovery effort.¹³ These single points of failure in the

10 An example here is probation services, which falls under Community & Neighbourhood Services. Interview #18.

11 Interview #12.

12 Interview #1.

13 Interview #27.

system illustrate not only how overworked certain municipal employees were, but it also reveals the fragility of the human side of recovery.¹⁴ To overcome this situation, those pressure points in the system need to be identified and the long-term nature of building specialized skills and experience needs to be acknowledged. Potential ways to alleviate this situation include building depth in those skills and teams that are crucial to disaster recovery and can take many forms, such as training and job shadowing.

As many senior officials who worked through the flood recovery will retire over the next few years, there is a requirement to both identify those areas that are heavily dependent on specific skills and ensure proper knowledge management practices are in place to capture flood recovery insights, deepen skills pools, and build capacity for the future.¹⁵ It should be noted that most of the officials who were interviewed for this review had years, often decades, of background experience in their respective fields, thereby reminding us that expertise takes a long time to replace. Also, in several cases The City relied on recovery staff who came out of retirement and were hired as consultants (paid for through the DRP) or staff (hired through the MSCG) to provide their support and expertise.

As such, this review strongly supports the recent corporate initiative to create a skills inventory that can assist in deploying the right human capital for the right tasks during an emergency or other service disruption.¹⁶ Other options that could be considered include improved succession planning and knowledge management training to better understand future needs and potential shortcomings in specialized skills. Taken together, this could help create an inventory of qualified individuals and diminish exposure to vulnerabilities that are created by not having the right people in the right spots when the municipality needs them most.

14 Interview #27.

15 Interview #2.

16 See The City of Calgary, *Recovery Operations Report to Priorities and Finance Committee*, 3.

4. Ramping Up, Standing Down, Moving On

Thanks to its Comprehensive Emergency Management Model as well as its planning, exercising, and validating of the ROC manual before the flood, CEMA was able to influence and contribute to establishing the ROC early on. At that time, the ALT convened as the ROC Steering Committee and began to determine initial recovery objectives and who would be assigned the work.

Many officials agreed that the ROC was very lean at the outset, had many people on loan from other business units, and could have been populated with staff resources from across the organization more quickly than what occurred. Considering the lack of precedent for an emergency of this scope, it is understandable that the lack of clearly delineated recovery roles and responsibilities initially made officials wary of assigning too many resources to the ROC in the middle of an ongoing response. Also, given the scope of the event, it naturally took some time for officials to absorb the full impact of the flood and change gears from response to recovery activities.

Most interviewees agreed that ramping up faster with a more robust staffing model would be the preferred way forward.¹⁷ A best practice in emergency management recovery is to staff up quickly and scale back as necessary, rather than start small and not be able to find more resources when they are needed. Our review confirms that ensuring adequate staffing levels for recovery purposes are put in place at an earlier stage can be strongly recommended. This could capture the roles and responsibilities needed across various types of disasters and dovetails with the importance of the skills inventory discussed earlier. It would also allow for flexibility in determining those officials who are best qualified to handle specific recovery events. As one interviewee rightly emphasized, the difference in required knowledge and skill set varies considerably, depending on whether a municipality suffers a flood, an epidemic, or a cyber attack.¹⁸

17 Interview #2.

18 Ibid.

Finally, reviewing on-boarding procedures and transitioning strategies as they relate to recovery or other special projects can also be recommended. Most staff involved with the ROC were approached for their position through known skills sets and personal relationships. Upon departure, these employees are relatively vulnerable because their business unit may have backfilled their position. In other cases, exempt non-union employees may also be asked to give up their base position and, with no clear direction or policy on this, they can feel left in the dark on future opportunities or career advancement.¹⁹ Assigning a HR advisor to recovery and having off-boarding procedures could help provide more support in transitioning out of recovery work. From a broader perspective, it would be useful for The City to establish specific HR protocols that apply to municipal staff, especially exempt (non-unionized) employees, when working on special projects.

Citizens

Providing Assistance and Focusing on Communities

In its efforts to understand, monitor, and support citizen well-being, the ROC was at the centre of a variety of efforts, including forecasting the number of displaced citizens, organizing and participating in community open houses, and offering information through websites and partners, such as the Canadian Red Cross and the Government of Alberta.²⁰ This community effort took many forms such as the 2014 Flood Preparation website, which showed what The City was doing to prepare and what citizens could do themselves; the central Flood Recovery website that showed progress on municipal recovery projects and available support programs; and a ROC-led one-year anniversary campaign that helped people commemorate. As part of the latter effort, the ROC-led targeted interviews with media helped City business units push out coordinated

19 Interview #6.

20 The City of Calgary, *Recovery Operations Report to Priorities and Finance Committee*, September 16, 2014, 2.

messages that added to the mostly positive media coverage surrounding 12 months of recovery, spring high water season preparations, and the one-year anniversary efforts.²¹

The coordination of all flood-related communications, led through the ROC in partnership with Customer Service & Communications, was essential in the preparation for the 2014 spring high water season, during which citizen anxiety increased noticeably. (See “2014 Spring High Water Season.”) The consistent, transparent information available through the ROC as a one-stop shop helped alleviate citizen concern and had considerable reach in the months leading up to the one-year anniversary.

2014 Spring High Water Season

- There were 60,000 visits to the flood preparation website.
- A total of 14,400 City-produced flood-related informational video views on YouTube.
- A total of 1,160 people subscribed to receive e-mail updates.
- About 6,000 citizens engaged in open houses and community meetings.
- In June 2014, 306 traditional and digital media articles reached 32 million readers.

Source: The City of Calgary.

One important side note is that these types of outreach campaigns require striking a balance between adequately informing citizens and over-saturating the message to the point of inadvertently contributing to public anxiety. This was also echoed in interviews with City partners who spoke of the need to balance communicating flood preparation messages without keeping potential visitors from coming to Calgary.²²

21 Interview #1. Figures showed that 82 per cent of media stories on the one-year anniversary were positive in tone.

22 Interview #31.

City of Calgary
Information Session.
Source: The City of Calgary



Financially, The City of Calgary offered assistance to citizens in the form of the Property Tax Relief Program, which cut the property tax bill for residential and non-residential property owners who lost the use of their property due to the flood. This program has provided relief to 709 applications over three years at a value of \$2.5 million.²³ Following internal debriefing sessions and with the program processes now in place, officials have recommended deploying this program earlier the next time a large-scale emergency occurs.

The City also partnered with the Canadian Red Cross to support single-family and semi-detached residential property owners by helping pay for permits to repair flood-damaged properties. An ancillary benefit of the partnership is the applicant being connected with a Canadian Red Cross case worker who can offer other related support such as financial and psychosocial assistance. Although numbers are increasing in the second quarter of 2015, the Flood Permit Grant Program has seen relatively little uptake thus far. This could suggest that the full extent of financial issues for home owners may take longer to manifest itself, or

²³ The City of Calgary, *Chief Financial Officer's Department Report to Combined Meeting of Council*, 2.

that citizens are delaying repairs until they have clarity on what might be covered by the provincial DRP or other funding streams such as insurance.²⁴ As such, the ROC asked Council to approve an extension to the Flood Permit Grant Program of one year until December 31, 2015. Because of the agreement that is now in place between The City and the Canadian Red Cross to support flood-impacted citizens through permits, this type of program can be expected to require less start-up time in future emergencies.

A valuable non-financial effort in supporting recovery and alleviating citizen anxiety is the introduction of Calgary Neighbour Day, which encourages citizens to use freely available block-party kits from The City to organize a variety of community-focused activities. This focus on the community underlines the importance of bringing people together in recovery, fostering local relationships, and building resilient neighbourhoods.²⁵ On a broader level, it also reflects a growing acknowledgement on the part of authorities about the role of community groups in identifying local recovery priorities and empowering citizens for self-recovery.

The need to develop a better framework for employing all available resources (be they volunteer, NGO, or private sector) was a major finding in our CEMA flood response review and builds on the notion that, particularly in large-scale emergencies, citizens should no longer exclusively rely on authorities for assistance.²⁶ This finding applies across the entire spectrum of emergency management activities.

The City of Calgary has worked to harness and channel the power of communities and community partners for recovery purposes. EPIC is a community-led disaster preparedness framework to support Calgary's not-for-profit sector to develop the tools it needs to effectively plan

24 The City of Calgary, *City Manager's Report to Priorities and Finance Committee*, 3. Note that by the end of 2014, nine households had registered with the Flood Permit Grant Program.

25 The Calgary Herald, "Check Out the Parties."

26 Vroegop, *Forewarned and Forearmed*.

emergency response and recovery activities. This initiative also has a focus on supporting vulnerable populations and is convened by CCVO, with support from a wide variety of stakeholders, such as The City of Calgary's Community & Neighbourhood Services (CNS), CEMA, the ROC, United Way of Calgary, the Canadian Red Cross, the Federation of Calgary Communities, and Alberta Health Services.²⁷

As another valuable point of contact to Calgary's communities, community leaders are being engaged by The City to attract "community facilitators" to attend and complete a **READYCALGARY** workshop on emergency management. Recognizing the value of citizen engagement and empowerment at the local level, this program has been developed by CEMA as a valuable resource for community leaders and citizens to share information on emergency preparedness, response, and recovery to build resilience.

The considerable dependency that vulnerable populations have on locally operating organizations emphasizes the importance of a community-based approach to recovery, particularly given that an estimated 30 per cent of NGOs do not have operating reserves.²⁸ The importance of local organizations and knowledge was also clear in other aspects of the recovery effort, such as housing. Several interviewees were critical of the provincial outsourcing of recovery to a private sector company. Examples given here included the misinformation that was generated by the company in attempting to find housing solutions for citizens who had applied to the DRP. Interviewees believed this was largely due to a lack of required specialist skills or a detailed understanding of the Calgary market.²⁹ The complications arising from the company's limited understanding of local housing issues was seen by many as confirming the value of local knowledge and working with a community focus.³⁰

27 Internal ROC documentation.

28 Interview #36.

29 Interviews #1 and #19.

30 The importance of the local authority is now also reflected in provincial documentation. See Government of Alberta, *Government of Alberta Flood Recovery Plan*, 6.

Our overall findings suggest that the ROC and The City of Calgary have acknowledged the importance assigned to developing well-calibrated information conduits between the municipal authority, the provincial government, communities, and the NGO sector. Interviewees widely agreed that significant progress has been made on this since the initial flood response.

Vulnerable Populations

Although disseminating flood information to affected citizens was generally a success as discussed earlier, one concern that surfaced during the interviews was the ROC's capacity to recognize and monitor those vulnerable parts of the population who lacked the ability to request assistance through regular channels. Not only is there a need for better tracking processes when it comes to vulnerable populations during recovery, but more importantly, it would be highly beneficial to have better situational awareness about their numbers, locations, and specific needs before a disaster happens.³¹ Calgary Police Services (CPS) has started a new program implementing a voluntary vulnerable population registration database that attempts to address the existing communication issues, and is working closely with CEMA, CNS, and a variety of other stakeholders, partners, and agencies. Several business units are also considering further avenues of collaboration with Alberta Health Services (AHS) to improve information-sharing and develop a process and tools for collecting data that can help address the specific needs of vulnerable populations.³²

It should be noted that the definitional understanding of vulnerable populations varies, with some interviewees pointing out that this needs clarifying and that Calgary should not get too focused on the flood context as different parts of the population might be vulnerable in

31 Interview #4.

32 Interview #4. Alberta Health Services is strongly involved with increasing agency capacity to monitor and improve citizens' psychosocial recovery, also through the Psychosocial Working Group, which it chairs.

different ways to different types of emergencies.³³ For the 2013 flood, Calgary's homeless population was by far the most impacted proportionately because virtually all resources for homeless people are located in the flood plain or downtown core and were evacuated or damaged. This put further pressure on existing resources and even organizations that were not directly impacted by the flood saw an increase in demand for their services. Overall, the increase in demand for family service shelters increased 400 per cent three months after the flood. Fresh Start Recovery, which offers residential and outpatient treatment for alcohol and drug addiction, saw its wait list increase by 30 per cent in the first six months after the flood.³⁴

When it comes to developing a holistic understanding of the needs of citizens during recovery, the value of knowing which parts of your populations are vulnerable to which types of emergency needs to be considered, as well as the vulnerabilities of the resources that support them. NGOs and charitable or volunteering organizations, which form a vital support mechanism for vulnerable populations, saw a fundraising shortfall following the flood. A May 2014 report by the Calgary Action Committee on Housing and Homelessness estimated a 30 to 70 per cent drop in fundraising revenue in the months after the flood as a result of cancelled fundraisers and public donations being diverted to flood recovery efforts.³⁵

The ROC Administrative Team promoted the importance of mental health by ongoing dialogue with—and information streaming to—residents directly, and through CNS and the Canadian Red Cross. This was also supported through the municipal website, which contained information on resources for citizens, such as open houses and programs. Another good example here is the Alberta Health Services mental health line, which was available for individuals who felt they needed assistance and which was one of the metrics that helped provide insight into the overall

33 Interview #32.

34 Calgary Chamber of Voluntary Organizations, *Prepare for the Future*, 9.

35 Calgary Action Committee, *Collaboration Stars*, 4.

state of psychosocial recovery. Additional efforts for the wider community include ongoing dialogue with AHS, open houses that enable direct contact with psychosocial support and DRP staff, and Canadian Red Cross partnership and outreach efforts. The ROC also mailed support information to more than 1,100 households in the most flood-impacted communities in early 2015 to follow up and as a reminder that help remains available to those in need.

The ROC's proactive stance and the absence of indicators that suggest considerable mental health issues exist among municipal employees and citizens are promising. At the same time, interviewees reported that the stigma around admitting to mental health issues should not be underestimated. They noted the need to continue lowering the threshold to get people talking about mental health following a major disaster.³⁶ This can take many forms and be as straightforward as offering informal conversations instead of using the heavy-handed "mental health session" label, thereby making it easier for both employees and citizens to voice their experiences or admit that they need help.³⁷ In the words of one interviewee, the onus cannot be exclusively on the individual employee to self-assess and flag major health concerns. Ideally, The City should also find a way to proactively reach out. Increased training for supervisors to recognize the effects of major emergencies on their staff is a possible option.³⁸

The way ahead on this is not straightforward, also because mental health and overall health programs are provincially mandated areas of responsibility. However, the interviews do underline the notion that mental health aspects of recovery are much harder to track than the rebuilding of physical infrastructure. Our interviews indicated that the ROC members are acutely aware of the innate limitations of mental health indicators and that ongoing vigilance on this issue is required by both municipal and provincial authorities.

36 Interview #36.

37 Ibid.

38 Interview #15.

As discussed above, the metrics used to assess psychosocial impacts on City employees and the general population do not provide cause for immediate concern. However, the physical exhaustion felt by many municipal employees paired with the fragility of the recovery system in terms of specialized skills, as well as the challenges of ensuring the psychosocial health of communities, all need to be considered in learning from the flood recovery and in preparing for future emergencies. For municipal employees, the aforementioned corporate skills inventory initiative as well as the recovery director's commitment to supporting the ROC staff transition (through, for example, exit interviews and career dialogues) show that concrete steps are being taken to support aspects of this. These initiatives need to be supported at senior municipal levels to ensure that The City can continue to draw on a qualified and motivated cadre of recovery professionals.

CHAPTER 4

Physical Recovery: Infrastructure, Housing and Property, and City Services

Chapter Summary

- The City of Calgary's prioritization process, which highlighted what would be funded and repaired, and the order in which this would happen, was done for all recovery projects by September 2013. This is a lesson learned that facilitates a structured approach to recovery, enables communicating progress, allows for ongoing project-tracking, and builds overall transparency.
- Strong progress has been made on using business continuity best practices identified in the 2013 flood during more recent emergencies, based on the City's approved Business Continuity Policy. However, officials identified a need to monitor possible uneven progress across business units and identify strategies to address this.
- Calgary has taken significant steps in assigning business recovery the urgency that it requires, particularly through collaborative efforts between The City and strong business advocates such as the Calgary Chamber of Commerce. Work across government levels and in collaboration with other partners and NGOs continues to play a fundamental role in Calgary's recovery.

Infrastructure

Assessing the levels of damage to municipal infrastructure was a huge task. The initial dilemma faced by municipal officials was that after the flood, citizens would rebuild before City and provincial building regulations and legislation could be changed to reflect the initial lessons learned. In other words, there was a need to change policy rapidly and effectively communicate the changes to the public. In addition, for municipal infrastructure, officials felt a pressure to focus either on speed (and rebuild as fast as possible) or take the time to fully assess the best way forward given the future risks to which Calgary might be exposed.¹ (See images on page 45.) This is a distinct dynamic of recovery that separates it from the initial response phase when speed is all-important.

In recovery, how to prioritize efforts and knowing where to be quick as opposed to taking a longer-term perspective is crucial. Water Services, for example, assessed many erosion sites that needed repair, but could not tackle all of them at once. It therefore chose to prioritize on the basis of public safety and proximity to population or critical infrastructure, such as electrical substations.² A formalized, four-category prioritization process, which highlighted what would be funded and repaired and the order in which this would happen, was done for all recovery and resiliency projects by September 2013. This was the result of a

1 Interview #26.

2 Interview #21.

coordinated effort between the ROC and Corporate Initiatives as part of the 2014 business plan and budget process and can be identified as a lesson learned that facilitates a structured approach to recovery.³

Riverbank Erosion and
Pathway Repair



3 This prioritization process for all recovery projects was conducted in concert with the 2014 budget finalization process.

For The City of Calgary, projects that began in 2013 mostly focused on short-term recovery and flood preparedness for 2014. Those that started in 2014 shifted focus to longer-term recovery, rebuilding, and resiliency.⁴ Examples of how resiliency components have been or are being built into new construction are the three pedestrian bridges crossing the Elbow River, flood gate improvements at the Glenmore Dam, and flood barrier enhancements at the Centre Street Bridge lower deck.⁵

The MIRP was established using a program management approach to facilitate a complete view of the work required to address damage, and to consolidate a consistent approach to budgeting and funding. A program manager was put in place within the ROC to oversee the complete infrastructure recovery progress, to act as a liaison between project managers, Finance, and ROC, and to elevate risks related to progress, budget, and funding to the ROC director.

As of March 2015, 242 projects were included in the MIRP, which covers the coordination of impact assessments, financial estimates, tracking progress of projects, and the required processes to recover costs from funding sources. (See Chart 1.) Of these, 52 per cent are complete or substantially complete and only 6 per cent of projects are pending or have not yet started. The City of Calgary website hosts a useful map that enables citizens to track flood recovery related projects in their neighbourhood by project type and approved budget.⁶

This transparent way of communicating recovery progress is appreciated by Calgarians, with the 2013 citizen satisfaction survey indicating that 95 per cent either somewhat or strongly agreed with the statement: “I am satisfied with the City’s flood recovery program—that is, the City’s long-term plan to restore and rebuild City services and infrastructure impacted by the flood.”⁷ The 2014 survey shows that 88 per cent are

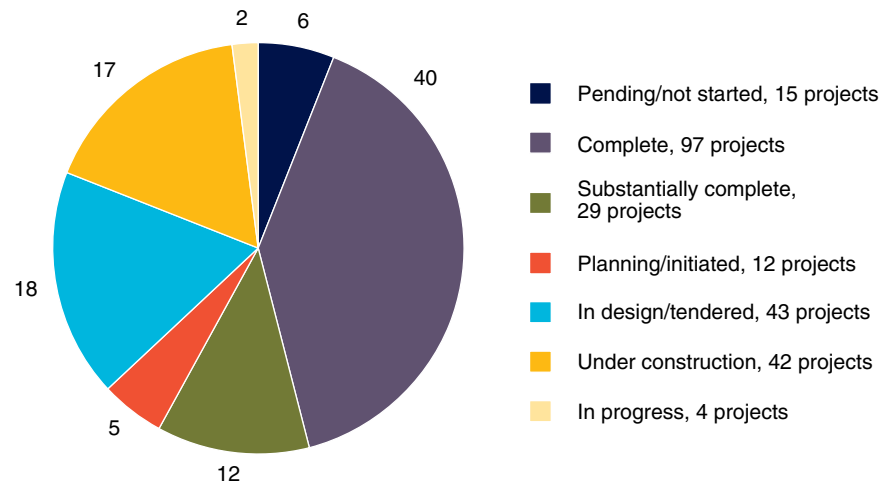
4 The City of Calgary, *Recovery Operation’s Report to Priorities and Finance Committee*, 6.

5 The City of Calgary, *City Manager’s Report to Priorities and Finance Committee*, 8.

6 The map can be seen on The City of Calgary Flood Recovery website at www.calgary.ca/floodinfo.

7 Ipsos Reid, *2013 Citizen Satisfaction Survey*, 69.

Chart 1
March 2015 Status of the MIRP Projects
 (per cent)



Source: The City of Calgary.

very or somewhat satisfied with the job The City is doing in providing protection from river flooding.⁸ In addition, 85 per cent of respondents consider protection from river flooding to be either very or somewhat important and only 8 per cent believe Calgary should be investing less on protection from river flooding.⁹

In the case of non-municipal infrastructure, building back in a more resilient fashion is being facilitated by provincial changes in legislation and building codes. For example, there is a requirement for electrical systems to be moved out of basements and onto higher areas if people with property within the floodway wish to remain eligible for future DRP funding.¹⁰ Interviewees indicated that they feel the general population, particularly those in low-lying, high-risk areas, have taken hard-learned resilience lessons to heart.

8 Ipsos Reid, *2014 Citizen Satisfaction Survey*, 36.

9 *Ibid.*, 29, 43.

10 Interview #9.

Housing and Property

One way in which the City, through the Building Regulations group, tracked impacted properties and articulated citizen recovery progress was by managing a dashboard related to permit activity and flood impacts to housing and private property. This was another example of how having well-defined metrics, and the ability to track progress made a significant contribution to keeping tabs on how Calgary was recovering as a whole. Undertaking the work to make one's home more resilient can mean higher repair costs, potentially causing citizens to hold off on renovations. Because of this "resilience lag," even under new bylaws and building codes, infrastructure may not immediately be more resilient. In the case of family homes, this will occur only when the owners make alterations. For businesses, resilience-building commitments, such as moving to off-site data management, can show a similar lag as some may prefer to wait until the end of the life cycle of their current equipment.¹¹

Disasters are costly, and the flood was no exception for the Calgary community. The ROC worked diligently to determine opportunities for reducing the financial stress of the flood on impacted property owners. An agreement was approved and put in place between The City of Calgary and the Canadian Red Cross to support flood-impacted citizens needing City permits to complete flood repairs. This partnership offered an opportunity for direct contact with flood-impacted property owners so that the Red Cross could provide additional support to them. This also enabled The City to monitor and track flood-related property repairs, including development and building permits and utility and service reconnections. This "pulse check" was also shared with the Province to round out the discussions and advocacy related to Citizen Disaster Recovery Program progress.

11 Interview #29.

The ROC also supported citizens in their property recovery through application to the Provincial Property Tax Relief Program and administration of the program for citizens. In total, 709 applications were submitted and \$2.5 million in property tax relief has been provided to citizens thus far.¹²

Although an internal identification of flood-impacted properties was conducted during the response, the management of this information after the response proved to be a challenge. The process was for applicants to self-identify that their permit applications were related to disaster recovery, which created some data-quality issues. This was especially true for any permits that were) applied for by third-party contractors, as opposed to the property owners. In addition, data quality became a concern when permits were applied for several months after the disaster.

The City has indicated that it is developing a system to flag potentially physically impacted properties immediately after a disaster through a rapid damage assessment, and/or self-assessment by the property owners. This will allow for City employees to provide citizens with a broader range of support, such as connecting them with internal and external resources that they may require during their recovery. Expediting assessment will also allow for quicker re-occupancy.¹³

At a more strategic level, and in light of the current economic situation triggered by falling oil prices, the prioritization of which resilience projects provide the best net benefits will only become more important and will require a continuing, transparent conversation. The ROC is supporting this work and its corporate knowledge can help balance these issues and provide sober second thoughts on the public debate going forward. This transfer of knowledge and relationships during the contraction of a recovery team also presents a challenge because it will take time for other municipal stakeholders to catch up with the expertise developed and lessons learned by ROC staff.

12 The City of Calgary, *Chief Financial Officer's Department Report to Combined Meeting of Council*, 2

13 Conversation with the ROC staff, May 4, 2015.

In the words of one interviewee, “There is enough money to recover, but not enough to be resilient against anything and everything.”¹⁴ This is a key point as bigger projects do not necessarily mean increased public safety; and just because there is risk, it does not automatically mean it should be mitigated at all costs. Tension exists here between two competing aspects. On the one hand, it requires guarding against the misguided perception that, because of the 2013 flood, another “1-in-100-year flood” is now less likely to strike Calgary. On the other hand, the risk of another flood does not negate the need to show the logic behind major investments.¹⁵

City Services: Internal Business Continuity

The flood recovery brought a renewed understanding of the importance of municipal business continuity and the use of technology to sustain a city’s productivity after large-scale disasters. With several municipal locations, including the administration and municipal buildings, closed to workers and the public for several weeks due to flood damage, making infrastructure more resilient became a central tenet of recovery operations. This incorporated technical changes to the buildings, such as removing generators and vital network systems from flood-prone areas and moving them to higher ground. As an example, The City lost 90 per cent of its landlines in the flood because the main telephone switching station was located in the administration building’s flooded basement. The flood recovery experience also shows a need to develop plans for relocating business or establishing temporary sites, since an estimated 30 per cent of departments did not have a designated back-up location.¹⁶

Considering the massive costs of shutting down government offices, interviewees spoke about the crucial ability to enable employees to continue working even when their offices were closed.¹⁷ This revealed

14 Interview #16.

15 Interview #25.

16 Interview #4.

17 Interview #15.

a difference in overall preparedness between separate business units. Some were well-prepared with fully updated employee contact lists, supplies at the office for stranded workers, electronic documents stored on cloud-based systems, and employee laptops that were kept at home.¹⁸ Others, however, reported a stronger dependence on the availability of physical work space and less flexibility to continue operations with employees unable to reach the office.

Cultural/business attitudes on working remotely have changed since the flood, with a significant number of interviewees indicating that it is now more widely accepted as an integral part of business continuity. During recent emergency events, such as Snowtember, many senior municipal officials encouraged employees to work from home, with the amount of remote access licences that enabled them to do so showing a noticeable increase.¹⁹ The City is also preparing to roll out an employee portal in 2015 that allows municipal workers to easily access and update their emergency contact information.²⁰

Working remotely is but one aspect of how technology can assist during recovery and it needs to form part of a larger business continuity plan. A City of Calgary Business Continuity Policy was developed by CEMA and approved by the ALT. Interviewees reported that significant progress has been made on using business continuity best practices that were identified in the flood during the 2014 Snowtember event and downtown electrical fire emergency. However, as business units begin or continue to put business continuity plans in place, progress across The Corporation has been uneven—with some business units making operational investments in, for example, software and licensing fees, or ensuring emergency contact information remains up-to-date, while others may not have. As such, monitoring the implementation of business continuity across The Corporation will become increasingly important.

18 Interview #23.

19 Interview #14.

20 Interview #13.

Interviewees supported the notion that external business continuity (or how business units planned to continue service delivery to citizens) was typically better than its internal equivalent.²¹ The service delivery perspective that many municipal employees work with helps account for this. The Information Technology (IT) group for example, had a strong understanding of how to restore phone services in the immediate recovery phase and the need to re-design the network over the longer term and “build back better.” However, as good a grip as it had on how to get its service delivery back up to standards, it lacked a similarly strong idea of how to help its 400 employees (or about 90 per cent of IT staff) who were displaced from their offices.²² Ensuring that those who are relied upon for service delivery can continue their work is crucial during recovery and exemplifies the value of developing solid internal business continuity practices and monitoring their uptake.

The City of Calgary should move ahead with the development of its cross-corporation workplace continuity plan that addresses uneven progress on this topic and ensures that it is not only focused on critical services during the immediate response, but also considers how to address lost productivity. CEMA supports this plan based on its efforts in improving business continuity over the previous years. The fact that 5.1 million work hours were lost overall in the community because of the flood shows the ongoing need for improving business continuity practices both within The City and in the broader community.²³

Supporting External Business

The importance of the external business community’s vitality extends beyond its economic function and also includes the larger roles that organizations often play in communities. However, with emergency responders focusing on saving lives in the initial response and the wider municipal government planning for the longer-term recovery of its

21 Interview #14.

22 Ibid.

23 Calgary Chamber of Commerce, *Calgary’s Flood Recovery Story*.

Mayor Naheed Nenshi and Tourism Calgary launch the “Our Doors are OPEN” Campaign

Source: The City of Calgary.



citizens, it is not surprising that business owners can feel left on their own.²⁴ The plight of small and medium-sized enterprises (SMEs) is of particular concern as they often rely on street traffic that may not reach them after an emergency, have a limited number of employees, and can incur substantial damages as a result of lost inventory.²⁵

Calgary’s oil and gas and telecommunications sectors played a significant role during the response and immediate recovery, particularly because of their access to heavy equipment and large pools of professionals with specialized skills (e.g., engineers) as well as their

24 Interview #30.

25 Calgary Chamber of Commerce, *Flood Resiliency*, 4.

general level of training in emergency preparedness and business continuity.²⁶ That said, some large multinationals indicated in the response phase that information- and resource-sharing conduits could be improved upon to optimally support municipal authorities.²⁷ The level of preparedness of these larger organizations stands in contrast with smaller businesses that had a harder time absorbing the immediate and longer-term shocks of the flood.

However, of the 4,000 directly impacted businesses, only a handful had not reopened by the end of 2013. Concerns still remain that smaller family businesses might have overstretched financially and could still go under over the longer term. This is where the “big tent” approach of the Calgary Business Recovery Task Force is of particular importance, especially given that a recent survey showed that 68 per cent of Calgary businesses experienced some form of business interruption over the last two years.²⁸ Co-chaired by Calgary Economic Development and the Calgary Chamber of Commerce in their first joint initiative, the task force involves a variety of partners such as Tourism Calgary, the Calgary Hotel Association, as well as universities and representatives of Calgary’s Business Revitalization Zones (BRZs).

Although the Calgary Business Recovery Task Force came together without specific government direction, the overall importance of the business context had been acknowledged before the flood by CEMA’s decision to include the Calgary Chamber of Commerce in the EOC. The crucial nature of having the business perspective was subsequently reflected by the quick embracing of the Calgary Business Recovery Task Force by municipal officials during recovery. This allowed these officials to primarily focus on citizens while organizations such as the Calgary Chamber of Commerce and Calgary Economic Development facilitated

26 Interview #4.

27 Our CEMA review recommended improving information-sharing protocols with the private sector, particularly with those in the oil and gas industry that can leverage heavy machinery for emergency response purposes. See Vroegop, *Forewarned and Forearmed*, v, 33.

28 Calgary Chamber of Commerce, *Flood Resiliency*, 5.

overall business recovery. Through such campaigns as YYC Is OPEN and events like the Calgary Business Recovery Expo, the Business Recovery Task Force was particularly important in communicating the needs of SMEs and in offering a one-stop recovery shop for business owners.²⁹

Understanding that SMEs had limited time to deal with red tape, apply for assistance, and attend multiple events while also running a business, partners such as Calgary Economic Development and the Chamber were critical in helping business owners to obtain the required information for recovering their businesses.³⁰ How Calgary businesses were getting back in the saddle was also being tracked by Tourism Calgary, which monitored short-term statistics on the numbers of closed businesses by working with BRZs at the community level. Since the flood, Tourism Calgary also developed a “destination health scorecard” that enables tracking developments in tourism, such as visitor experiences, website visits, airport passengers, and hotel occupancy rates, as part of its quarterly report.³¹

Recognizing that a lot of owners did not necessarily know where to turn for information or what they needed, the Chamber has built a valuable emergency contact database that, going forward, can be activated at the request of CEMA or when the EOC is opened. This facilitates communications with business owners through one or more selected channels (e.g., e-mail, text, Twitter).³² At a more general level, this acknowledges that making progress on business recovery and preparedness needs to happen with the time and financial constraints of the SME community in mind. The BRZs, which have direct contacts with business owners, are crucial in this regard and can provide the situational context on local priorities and needs. The

29 This one-stop-shop approach is a recovery lesson learned that is echoed by the ROC’s central role in communicating overall progress, as discussed in Chapter 2.

30 Calgary Chamber of Commerce, *Calgary Region Business Recovery Expo*.

31 Interview #31.

32 This contact list had 10,000 registrants by the end of 2014. Interview #30.

local, business-driven approach to business recovery reflects a similar importance assigned to the community-focused outlook for psychosocial recovery discussed in Chapter 3.

City efforts to improve overall business preparedness and recovery also includes CEMA assisting SMEs in building business continuity plans through the development of a handbook. (See photo on page 59.) This handbook, which can be downloaded for free on The City of Calgary website, provides a scalable model that business owners can adapt to their needs and circumstances.³³ Taken together, these initiatives underscore the notion that Calgary has made significant steps in assigning business recovery the urgency that it requires, particularly through the collaborative efforts between The City and strong business advocates such as the Calgary Chamber of Commerce. Work across different orders of government and in collaboration with other partners and NGOs, such as the ROC connecting with the BRZs, needs to be mentioned as playing a fundamental role in Calgary's overall recovery.

In financial terms, businesses typically found limited support through fundraising or charitable streams, so they primarily looked to insurance coverage and provincial support, which many reported was late in being announced.³⁴ Notwithstanding the complications of putting such a program together, the 30 days that it took for a provincial forgivable interest loan program to be announced, struck many interviewees as too long, since many of the businesses that would need these loans required timely assistance to re-open their doors as quickly as possible.³⁵

Although businesses could apply to the provincial DRP, the application procedures were ill-designed to meet the shorter time frames of smaller, cash-strapped organizations and individuals. In fact, provincial authorities were forced to extend internal deadlines for completing DRP applications twice. In January 2015, the Government of Alberta announced that it

33 Interview #1.

34 The Canadian Red Cross and the Calgary Foundation did offer some grants to help businesses recover.

35 Interview #30.

would increase the number of caseworkers working on DRP files with a view to closing all applications by summer 2015—over two years after the flood.³⁶ Considering the ROC's involvement in financial tracking and reporting, and ongoing dialogue and advocacy for DRP support with the province, as well as the crucial need for readily available financial assistance for citizens and smaller businesses, Chapter 5 will take a closer look at funding processes.

36 Government of Alberta, *Alberta Government to Resolve 2013 DRP Flood Applications by Summer*.

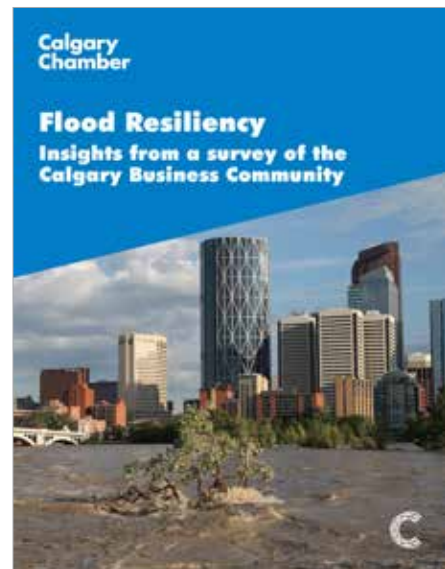
>
Calgary Tourism, Destination Report Q4
2014

Source: Tourism Calgary.



>
Calgary Chamber of Commerce Flood
Resiliency Report

Source: Calgary Chamber of Commerce.



>
CEMA Business Continuity Handbook
Source: Calgary Emergency Management Agency.



>
CCVO Rising Above Document
Source: Calgary Chamber of Voluntary Organizations.



CHAPTER 5

Financial Recovery: Funding Processes

Chapter Summary

- As of March 2015, The City of Calgary was tracking the average recovery rate at 99 per cent for its emergency and recovery costs from the 2013 flood.
- Interviewees were unanimous on the importance of expense-tracking and reporting, but emphasized that recovery success is also facilitated by an outcome-focused ROC. The need for appropriate reporting needs to be balanced by acknowledging the value of moving quickly.
- The ROC's strong leadership and communications effort were critical in getting across the urgency of recovery and communicating the longer-term rationale of funding resilience projects.
- Our review underlines the ongoing requirement to maximize recovery from insurance and grant programs and having adequate staffing capacity and expertise to ensure The City limits its vulnerabilities on funding applications and deadlines. The City is seeking to mitigate the risks of projects where the municipality is on the hook for an unknown percentage of the overall costs.

It should be emphasized that, contrary to the provincial-led DRP, The City of Calgary can offer financial assistance only for those things which it normally charges citizens or businesses, such as building permits. In terms of obtaining external funding for its recovery and resiliency initiatives, The City accesses three main external funding streams: insurance, the Government of Alberta, and the Government of Canada. As discussed in Chapter 2, having proper documentation and tracking procedures in place before an emergency event is highly useful when justifying expenses during the audit process.

As of March 2015, The City of Calgary was tracking the average recovery rate at 99 per cent for emergency and recovery costs from the 2013 flood. It is also making changes in line with the recommendations of a September 2014 Flood Recovery Expenditure Audit, which addresses the need for “building transparency in reporting to Council along with recommendations to improve processes that support accountability of flood recovery expenditures.”¹

Interviewees agreed that this level of scrutiny is similar for long-term recovery and needs to be built into the way in which financial figures are tracked and reported. However, they also emphasized that the success of recovery has been facilitated by an outcome-focused ROC. In other words, the ongoing need for appropriate reporting needs to be balanced by acknowledging the value of moving quickly and not delaying recovery “until you have an account code.” This approach was identified as a best practice in our CEMA review, and the ROC has applied it with similarly positive results.²

1 The City of Calgary, *Flood Recovery Expenditure Audit*, 6.

2 Starting recovery early also forms part of CEMA's Comprehensive Emergency Management Model. See Vroegop, *Forewarned and Forearmed*, iii.

The balancing act described above was also reflected in the ROC communications to City Council on whether recommended resilience-building projects could count on funding from other streams.³ Despite a need to obtain timely decisions to move forward, the ROC at times lacked definitive answers on what costs might be recoverable through insurance or the Province. As one official stated, it was not clear if The City would eventually be reimbursed for the entire project or just for “sandbags and excavators.”⁴ This is where several interviewees identified the ROC’s strong leadership, communications effort, and the overall recovery structure as decisive factors in getting across the urgency of recovery and the longer-term rationale of resilience projects.

Our review of interview findings points to the ongoing requirement to maximize recovery from insurance and grant programs and having adequate staffing capacity (with the necessary levels of expertise) early on that is sustainable over several years to ensure The City limits its vulnerabilities on funding applications and deadlines.⁵ The City has taken steps on these issues and is seeking to mitigate the risks of projects where the municipality is on the hook for an unknown percentage of the overall costs. One of these steps is an improved claims management system, which is currently being implemented.⁶

This system is in line with the recommendations made in the 2014 Flood Recovery Expenditure Audit and will counter the reliance on internal spreadsheets that limited individuals’ abilities to manage and centrally capture financial information, thereby making it more transparent and usable to a larger number of people.⁷ In addition, it will speed up the process by clarifying approval chains and listing pre-approved contractors.

3 Interview #1.

4 Interview #26.

5 Interviews #5 and #6.

6 Interview #23.

7 The City of Calgary, *Flood Recovery Expenditure Audit*. Also Interview #28.

Another instance that shows forward thinking on funding issues faced during recovery is the use of the Fiscal Stability Reserve (FSR), which is a City funding reserve with policies in place for use of these funds. The FSR is a critical “rainy day” fund and City Council has allowed for bridging and addressing funding gaps for recovery projects while maximum funds are retrieved through insurance or the DRP. This provides municipal recovery officials with more flexibility when making time-sensitive decisions on additional rebuilding costs. The reality that not all recovery costs may be retrieved through insurance or the DRP underlines that having sustainable staffing and management capacity with appropriate expertise (particularly in finance, claims, and project management) is critical to ensuring a maximum return through these sources.

Insurance

The City of Calgary purchases property insurance that includes coverage for flood damage. However, most extreme weather events before the 2013 flood did not trigger insurance components since they predominantly involved non-insurable items. Although flood damage is typically excluded from home owners’ insurance, this coverage is available for commercial or municipal property owners and includes buildings, but not assets such as roadways, pathways, riverbanks, and bridges. As such, during the initial stages of recovery, it was important to articulate to those involved in the overall recovery process what was covered by insurance and what was not. This was because two different processes needed to be followed when seeking funding for insured versus non-insured property, where costs would be retrieved through the DRP.

Although insurers would only provide coverage to rebuild back to “like kind and quality,” they were receptive to incorporating changes within the rebuilding, providing that the cost did not exceed the cost to rebuild “as was” before the loss. A \$50-million advance from the insurance companies was provided to The City within a few months of the flood and well before a full quantification of damages had occurred. This

underlines the importance of managing relationships and acknowledging the requirements of outside organizations that a municipality relies on for its recovery. The recovery director, for example, spoke to several dozen underwriters from across North America to proactively provide flood-related information and discuss recovery processes. This is an area where the ROC's transparency and its proactive stance on including insurance underwriters in its communications can be identified as a clear lesson learned.

This also shows that, although a municipality does not want to be seen as a bad risk after a large-scale emergency, recovery is no time for secrecy or silo thinking. Transparency in assessing and documenting damage instills a level of confidence with insurers. Insurers also required information from The City on how it would build resiliency into its infrastructure going forward and what it was doing to mitigate such a loss from happening in the future. Indeed, as pointed out by one interviewee, with an increase in weather-related emergencies, this collaboration is an important practice to help keep insurance attainable and affordable in the long run.⁸

Repairs that are covered by insurance are about 90 per cent complete as of early 2015. However, considering the time needed for insurers to review all invoices, The City may have to request an extension on the June 2015 deadline for submitting the insurance claim.⁹ Any portion of insurance claims that cannot be recovered will be applied for through the DRP.

The Disaster Recovery Program

The sheer volume of DRP applications created a huge logistical challenge for authorities. Although a provincial program, the DRP needs to be mentioned here considering its importance for recovering non-insurable loss expenditures. Our interviews show that The City of

8 Interview #15.

9 Ibid.

Calgary's overall experience with the DRP was generally less negative than was the case for some citizens and small business owners who felt frustrated having to navigate long, bureaucratic processes.¹⁰ In addition, when the short—many interviewees argued unrealistic—timelines set by political voices to get funds flowing quickly proved unworkable, it particularly affected Albertans in regions that had been hit disproportionately hard by the flood. As such, the program's inability to deliver had an overall negative impact on public satisfaction with provincial recovery efforts.¹¹

A major lesson learned by the province regarding the DRP is the need to streamline application and case management processes toward a “one-window” approach, which would see a specific official being assigned to each case for the entire process.¹² This would assist in reducing anxiety levels for citizens and help business owners save valuable time during highly stressful situations. This insight—the value of having one designated point of contact to coordinate an individual's entire DRP process—is similar to the ROC's central role in coordinating municipal recovery efforts and should be considered in future emergencies.

It is important for The City of Calgary to ensure its recovery work remains within the five-year DRP framework to manage and reduce financial risks. By the end of 2014, the return rate on municipal DRP submissions for flood operations stood at 99 per cent, totalling \$32.4 million to date.¹³ As noted in Chapter 2, the DRP submission team's expertise in eligibility criteria and thorough work on developing the submissions, in partnership with the diligent work of the project managers overseeing recovery repairs, is largely to thank for this impressive statistic. It should also be mentioned that, given the five-year

10 Interview #35.

11 CBC News, *Disaster Recovery Program Problems*.

12 Interview #33.

13 The City of Calgary, *City Manager's Report to Priorities and Finance Committee*, 7.

DRP framework, the work of the DRP submissions team is an important longer-term recovery activity that will need to be sustained by The City going forward.

Despite the fact that 99 per cent is an impressive figure, officials agreed that communicating the meaning of this figure to the public is almost as important as maximizing the return itself.¹⁴ Excluded coverage and deductibles mean that this number will never reach 100 per cent, but given the amounts involved anything lower might be regarded as government inefficiency, rather than a reflection of DRP conditions. With public support for more spending on resilience projects—such as protection from river flooding—at 47 per cent, there is a continuing need to be mindful of how The City tells the story of recovering funds from sources such as the DRP, regardless of the actual figure.¹⁵

14 Interview #27.

15 Ipsos Reid, *2014 Citizen Satisfaction Survey*, 43.

CHAPTER 6

Snapshot of Findings: Lessons Learned and Recommendations

Chapter Summary

- This chapter provides the lessons learned during and after the 2013 flood, and continues with a series of recommendations.
- Among the lessons learned are that starting recovery right away and matching recovery intensity to response efforts proved invaluable. Co-locating the EOC and ROC during initial recovery also provided great benefits.
- Recommendations include the building of a skills inventory for recovery purposes, ensuring proper knowledge management practices are in place, and enhancing situational awareness of vulnerable populations.

This chapter provides a series of 10 lessons learned and presents 7 recommendations reached from our review and interviews.

Lessons Learned

1. Starting recovery right away and matching recovery intensity to response efforts proved invaluable. The pre-flood training and preparedness of the City's Administrative Leadership Team by CEMA, supported by the ROC Resource and Response Manual, was key to setting Calgary on the right path after the flood. Despite some issues surrounding confusing lines of authority, co-locating the EOC and the ROC during initial recovery provided great benefits in terms of line-of-sight communications and coordination.
2. The appointment of a recovery director and the resulting work of the ROC Task Force to develop the 2013 Flood Recovery Framework¹ were of critical importance in enabling effective program management and progress-tracking through the identification of key metrics, performance indicators, and deliverables. By working collaboratively toward clearly defined and measurable goals, the ROC created a fiscally responsible and accountable environment that insulated the process from criticism and supported The Corporation during the audit process.
3. The ROC was essential for centralized communications, building relationships internally and with significant external stakeholders, and establishing a common operational picture for decision-makers, similar to CEMA's EOC for emergency response. As a trusted voice on recovery, the ROC coordinated a timely and accountable approach to recovery, enabled by metrics that allowed for transparent progress-reporting through quarterly reports to City Council.
4. A lesson learned in response that resonates in long-term recovery is the importance of bringing in outside voices for sharing information and addressing how municipal authorities can help the not-for-profit sector

1 The City of Calgary, *Flood Recovery Operations*.

By working collaboratively toward clearly defined and measurable goals, the ROC created a fiscally responsible and accountable environment.

in building a stronger community focus on recovery. The harnessing and channelling of the power of communities and community partners through EPIC is a valuable example of this.

5. After a massive emergency, there is a need to quickly adapt policies to reflect new realities. The Government of Alberta issued new building codes (STANDATA) structured to ensure compliance of new development or repair to flood mitigation standards. The City of Calgary's expedient changing of land-use policy ensured that resilience considerations were included in new build forms to offer better protection against future flooding. Hosting open houses and meetings in the impacted neighbourhoods was a lesson learned to advise impacted citizens of these types of changes.
6. The City of Calgary put all infrastructure recovery projects through a prioritization process to determine what would be funded and repaired, and in what order. This approach was used in concert with the 2014 budget finalization process and can be identified as a lesson learned in managing the multitude of recovery projects from across The Corporation after a major emergency.
7. Through such campaigns as YYC Is OPEN and events like the Calgary Business Recovery Expo, the Business Recovery Task Force was one of several important actors to advocate for the SME community and to offer a one-stop-shop approach for business owners. The collaborative corporate effort by several business units with non-governmental organizations has shown a distinct improvement since the initial flood response. This highlights the fact that recovery needs to be a whole-of-community effort that requires strong relationships beyond government.
8. Strong ROC leadership and working with an outcome-focused approach helped recovery and resilience projects move ahead where The City did not have complete information on what would be recoverable through other funding sources. Focusing on outcomes and the benefits of strong leadership was first identified as a best practice in our review of CEMA's response to the 2013 flood. For recovery, the FSR is an important funding reserve that allows The City to bridge funding gaps for recovery and resilience projects.

9. From an insurance perspective, a municipality does not want to be seen as a bad risk after an emergency, but recovery is no time for secrecy or silo thinking. Transparency in assessing and documenting damage instills a level of confidence with insurers that facilitates building trusted relationships and resilience. The proactive stance by the ROC on this is a lesson learned to help keep disaster insurance attainable and affordable in the future.
10. The lessons learned during the recovery of the 2013 flood will help validate, develop, and mature CEMA's ROC Resource and Response Manual. The next disaster may not come for years, may not be a flood, and may not be of the same magnitude. These lessons echo the value of a scalable recovery model, the all-hazards approach to emergency management embraced by CEMA, and the importance of maintaining expert knowledge by continuing to base training on best practices.

Recommendations

1. Municipal employees with flood recovery related roles need to be considered for more training when working in highly stressful environments that go beyond the demands of their regular jobs. The immense workloads and resulting levels of stress and fatigue reported by recovery officials and team members suggest that revisiting the business unit priorities as they pertain to staffing issues during recovery would be useful. This is particularly true for business units that are mandated to provide certain services, regardless of the circumstances.
2. The City of Calgary would benefit from a better understanding of which specialized skill sets are crucial in long-term recovery. Proceeding with the development of a cross-corporation skills inventory that can be used during emergency response and recovery is recommended. This will improve the ability to match immediate and longer-term requirements with available professional talent and can mitigate the loss of critical recovery expertise over time. Strengthening knowledge management practices can help build depth in essential skills and positions.

The City of Calgary would benefit from a better understanding of which specialized skills are crucial in long-term recovery.

3. We recommend assigning a HR advisor to recovery with specific roles and responsibilities in supporting staff when joining or transitioning out of recovery work or other special projects. In addition, ensuring a seamless transfer following project completion would help with an easier transition for recovery staff. As The City of Calgary will surely face other emergencies in the future, there is great value in building a corporate culture that promotes the value of these challenging opportunities.
4. Our review shows that municipal external business continuity planning (e.g., how do we get public service delivery back to acceptable standards) was better than its internal equivalent (e.g., how do we make sure our employees are capable and equipped to do so). Despite the implementation of a corporate business continuity plan, officials identified a need for The City of Calgary to monitor varying levels of progress on this across different business units and identify strategies to address it.
5. Given that many resources for Calgary's vulnerable populations are located in the flood plain, there is an ongoing need to increase pre-event situational awareness about those citizens who lack the ability to request assistance through regular channels, including their numbers, location, and specific needs. The Calgary Police Service, working with stakeholders such as CEMA and Community & Neighbourhood Services, is taking initial steps on this by implementing a voluntary vulnerable population registration database.
6. Our interviews revealed an opportunity to improve the capacity for tracking of spending, particularly early on during recovery, including the ability to maximize recovery from insurance and grant programs. Reassessing disaster event processes to ensure proper documentation and accurate reporting to Council was a recommendation in the recent Flood Recovery Expenditure Audit. An action plan with a completion date of June 30, 2015, has been implemented in the meantime.²
7. The City of Calgary would benefit from capitalizing on the recovery lessons learned and ensuring, just as in response, that city staff remain trained and ready to act in recovery roles for future events.

2 The City of Calgary, *Flood Recovery Expenditure Audit*, 13.

CHAPTER 7

Conclusion

Chapter Summary

- By focusing on lessons learned, an organization can document important insights, internalize them through ongoing training and exercising, and ensure they are second nature by the time the next disaster strikes.
- The value of a strong framework and recovery body that can function as a recovery champion to facilitate tracking, communicate progress, and document lessons learned can make sure the disaster, and the efforts of its recovery officials, do not quickly fade in the public memory.
- Fully recovering from a large-scale emergency will take many years and requires an ongoing commitment to people, to fostering relationships, and to working with a strong community focus.

Although interviewees were eager to discuss areas for improvement, it is equally important to acknowledge and document what went well.¹ This is why our findings do not draw attention exclusively to things that need to be done better next time. By also focusing on lessons learned, an organization can document them to ensure they are internalized and are second nature by the time the next disaster strikes. They can also be of use to other municipalities that wish to learn from The City of Calgary’s experience. While emphasizing the need to improve in certain areas, officials spoke with pride about Calgarians, CEMA, the ROC, and the City’s collective efforts during response and recovery.

Looking ahead, it needs to be remembered that recovering from a large-scale emergency is first and foremost about people, their relationships, and their communities. There is an ongoing need to be nimble, transparent, accountable, and work with a local focus to maintain public satisfaction and appreciation for first responders and those working on long-term recovery projects. As mentioned before, recovery from this type of disaster triggers the involvement of vast amounts of municipal staff and will take years to complete. Despite The City of Calgary’s impressive efforts in getting The City back on its feet, this long-term aspect of recovery is an important reality that needs to be remembered.

The positive “can-do” attitude and common sense of purpose that ties people together during the initial response efforts to a disaster is difficult to sustain over the longer term. Communicating risk to the public needs to strike a delicate balance between getting the message across that 1-in-a-100-year floods do not necessarily happen only once a century

¹ Note that in a 2014 research report on resilient cities, The City of Calgary ranked first in the “least vulnerable” category and third overall. See Grosvenor, *Resilient Cities*.

Recovery from this type of disaster triggers the involvement of vast amounts of municipal staff and will take years to complete.

and guarding against over-planning for one specific type of emergency without showing the rationale for investments or adequately considering vulnerabilities to other disasters. As discussed, the next disaster may not come for years, may not be a flood, and may not be of the same magnitude.

However, the value of a strong framework and recovery body that can function as a recovery champion to facilitate tracking, communicate progress, and document lessons learned can make sure the disaster, and the tireless efforts of its recovery officials, do not quickly fade in the public memory. By identifying key metrics and indicators and by working collaboratively toward defined deliverables and measurable goals, the ROC created a fiscally responsible and accountable environment that maintained public confidence and enabled The Corporation to stay focused along the road to recovery. Sustaining and fostering the corporate capacity to quickly and effectively form a ROC following a disaster is an essential lesson learned for recovery for which The City of Calgary can be rightly proud.

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APPENDIX A

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