

**Calgary
Chamber**

Flood Resiliency

Insights from a survey of the Calgary Business Community





The Calgary Chamber of Commerce has been working for 124 years to build a stronger and more prosperous Calgary business community. This mission took on a new dimension after the 2013 flood raged through the city's downtown core—damaging businesses, homes, property and public infrastructure.

Once the waters receded, Calgary had sustained unprecedented damage. With a nearly \$6- billion-dollar price tag, the flooding in southern Alberta was deemed one of the most expensive natural disasters in Canadian history. Dozens of businesses were directly flooded, damaging their operations, their facilities and their equipment. In addition, thousands of businesses were harmed by days of lost productivity and sales, as well as supply-chain disruptions. Disasters such as these are felt both on the bottom line and in the morale of the business community.

More than a year later, the Calgary Chamber continues to play an essential role in helping businesses recover from the damage and build resiliency to minimize the impact of future events.

In line with this mission, the Chamber has conducted a survey of its members and the community at large to better understand the full impacts of the flood, and

assess both disaster mitigation efforts and flood recovery programs. We hope that the passage of time has offered business owners a more holistic view of the impact the flood had on their community and livelihoods.

The survey asks questions about the effect of the flood, disaster preparedness activities and business owners' opinions on government support programs. In doing so, the survey allows us to identify key successes and highlight any shortcomings. The goal is to better understand the current level of disaster resiliency and to provide insights on how we can better prepare for future contingencies.

Only by knowing where we stand can we form effective plans on how to improve.

The key question that the survey attempts to answer in the face of all these disasters and seemingly random business interruptions is this: Just how resilient are we?

Specifically, the survey examines the role of both independent mitigation activities undertaken by businesses and the effectiveness of government programs that assisted in post-disaster recovery.

Resilient communities

From massive flooding in 2013 and the Calgary tree disaster of 2014 (an early September 2014 snowstorm that damaged or destroyed roughly one million trees—half the urban canopy) to a sweeping blackout in the downtown core in October 2014—over the past two years, Calgary has faced a host of unprecedented disasters and business interruptions. Yet, each time the citizens of Calgary were able to come back and resume their daily lives.

But does this make the city resilient?

In the most general sense, resiliency is the ability of a system to adapt and recover quickly from unexpected change or misfortune.

In a community, these shocks can come in the form of a natural disaster, infrastructure failures, man-made catastrophes and even sharp economic downturns. While all of these require unique responses, resiliency is having the capacity to face a broad array of challenges in an efficient and timely manner.

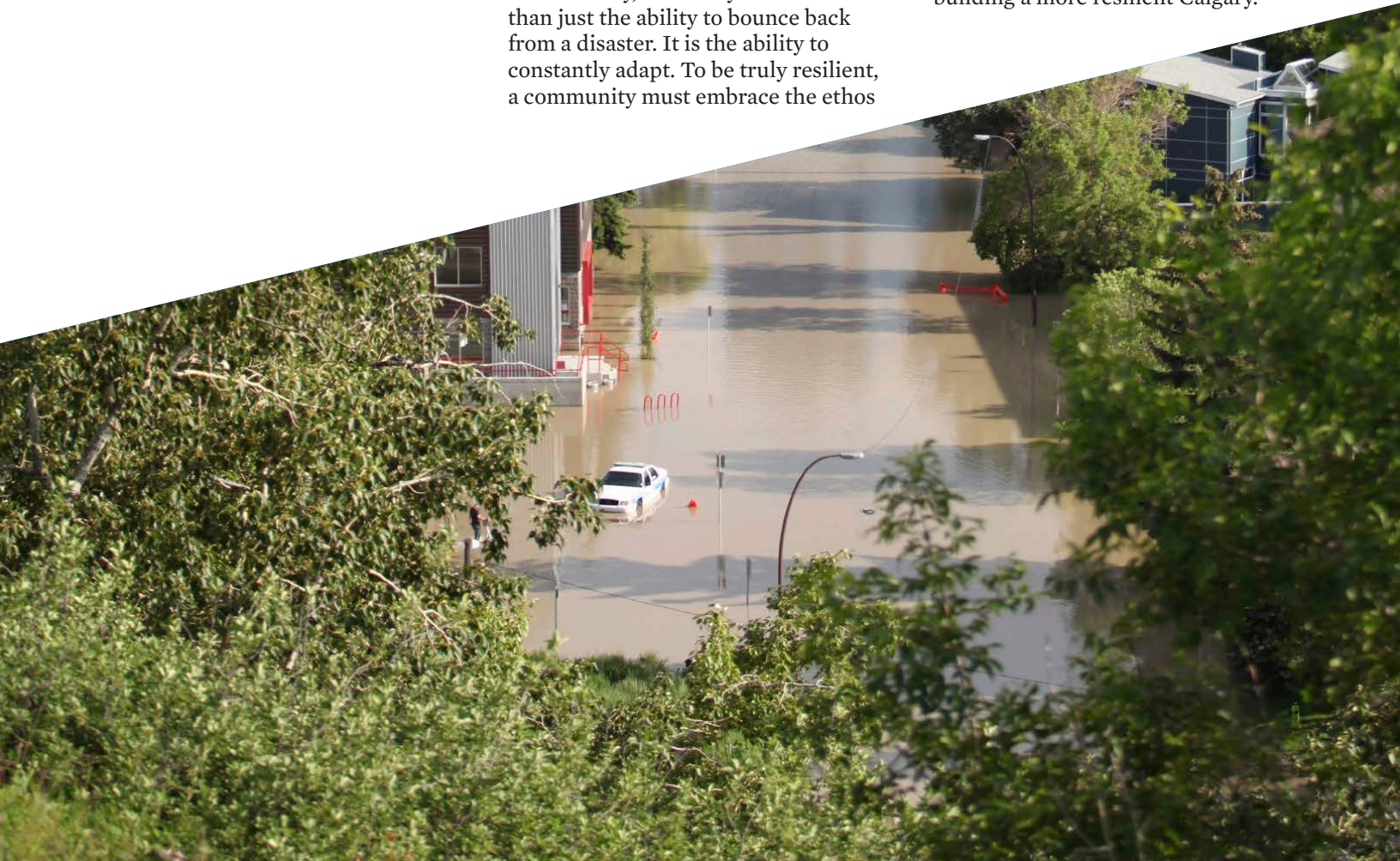
But for a city, resiliency is more than just the ability to bounce back from a disaster. It is the ability to constantly adapt. To be truly resilient, a community must embrace the ethos

of preparedness, response, recovery and—perhaps most importantly—continued improvement. It requires all levels of government to coordinate with its citizens to properly prepare for unexpected challenges as well as individual efforts to minimize the damage caused in their own lives.

Resiliency is not something that takes place purely in the wake of a disaster; rather, it is an ongoing process. It requires the constant foresight to plan and execute innovative policies and robust strategies in dealing with the unforeseen.

A resilient community has the necessary resources and flexibility to withstand unforeseen hardship. Resiliency is a cyclical process of constant assessment, reassessment and improvement. A community cannot be truly resilient if it does not internalize the lessons learned from past misfortunes in an effort to mitigate future adversities.

In that sense, this report, as an assessment tool, also plays a role in building a more resilient Calgary.



Resilient businesses

To create a resilient city, both community and business resiliency must be built in tandem. Resiliency is vital in ensuring that Calgary businesses are not swept away by rising tides or unexpected storms. By building resilient businesses, Calgary can ensure economic and social strength and the long-term health of the business community.

For businesses, resiliency is important because of one simple truth: disasters and business interruptions are costly. Disastrous events such as the 2013 flood have significant repercussions, affecting every level of business, both directly and indirectly. Without proper foresight, these disasters can wreak havoc on their bottom line, or even worse—ensure that a business may never re-open.

Community resiliency can help minimize the human and capital costs of a disaster. Local emergency infrastructure is the first line of defence against shocks to a business. This includes fire departments, emergency communication and coordination of vital community resources. During a disaster, businesses rely heavily on the capabilities of the community at large.

The 2013 flood resulted in heavy economic costs, both for the community and individual businesses. Closure of businesses and other interruptions costs the economy 5.1 million work hours, and BMO Capital Markets estimated that the economic interruption was so large that it reduced Canadian GDP by \$2 billion dollars.

Small businesses, especially in retail and food services, can see their entire inventory vanish. One Chinatown business owner told the CBC that the flood cost him \$20,000 worth of food inventory and forced him to lay off five employees. Another restaurant in the Beltline (an inner city community) experienced eight days of lost revenue and \$10,000 in

lost inventory. These repercussions affect not only the business owners, but also their employees, their families and the community that relies on them for economic activity.

In the aftermath of a disaster, business owners suffer greatly. They are faced with large clean-up costs and damage to capital assets. The cost of fixing water damage and replacing vital machinery can be enough to put a business under. These tasks become more difficult when a disaster impacts an entire community, and there is a scarcity of resources and information. Then there are the economic costs associated with days of disrupted operations.

These costs can come in the form of forgone revenue and productivity as a result of closing the business down temporarily, not to mention spoilage of inventory and the time it takes for a customer base to return. Even losing valuable data, documents and IT infrastructure can hold a business back for weeks if not months.

It is the role of the government and local authorities after such a disaster to support businesses in their recovery efforts. In Alberta, this took the form of the provincial Disaster Recovery Programs (DRP). The DRP focused on providing both businesses and individuals with financial support to cover uninsured property damage, loss and other expenses. It was aimed specifically at helping those most vulnerable, including homeowners, tenants, non-profits and small businesses. In terms of resiliency, it also provided funding for mitigation activities in the event of another 1-in-100-year flood event.

More locally, the Calgary Chamber has worked extensively with the Calgary Emergency Management Agency (CEMA) to act as a resource for businesses facing these unexpected interruptions. CEMA plays a role in both communicating emergency information to disrupted communities and in providing

valuable information on how to best prepare for the unexpected.

Through proper resiliency preparation, disaster mitigation and business recovery planning, businesses can see significant savings down the road. It can mean the difference between a temporary shutdown and the permanent closure of a business. One study estimated that 43 per cent of businesses affected by natural disasters never reopen, and of those that do, 29 per cent fail within two years.

Our survey asked questions about both of these programs (DRP and CEMA) in order to explore how they have been successful and how they could be more effective in the future. Just as businesses need to change and adapt to meet unexpected demands, so do the emergency programs that serve them.

Local governments and authorities have an important role in mitigating business interruptions because of the wide-ranging community implications. A disruption in economic activity on a large scale puts people's income and livelihood at risk, creating greater insecurity in an already precarious situation. It is also true that some financial impacts are not directly borne by a single geographic area. There are tertiary effects such as disrupted supply chains and distribution venues, not to mention loss of overall economic activity as community resources focus on recovery efforts.

While disaster mitigation and resiliency planning do not guarantee success, they do give businesses a fighting chance.

1. Resiliency matters

In the past two years, a majority of Calgary’s businesses have faced some type of interruption. The most common interruption identified was flooding and extreme weather, followed by utilities, sewerage and electricity problems. This should come as no surprise considering the large emergencies that the city has endured in recent memory.

Sixty-four per cent of respondents had their business operations interrupted for one reason or another. Of those impacted, about one-fourth experienced interruptions for two reasons and 17 per cent for three or more reasons. Flooding and extreme weather were each identified by 45 per cent of respondents, and 28 per cent cited utilities, sewerage or electricity problems. This shows that business interruption is an important reality facing Calgary’s

business community and can have even broader economic implications.

These interruptions often come as a shock and have costly outcomes. Because of the frequency of these interruptions, building community resiliency is important so that businesses can survive and recover as quickly as possible. The fact that the majority of interrupted businesses are facing multiple shocks illustrates how resiliency must be also be a flexible concept. Resiliency does not mean being prepared for a single type of disaster, but rather having strategies in place to deal with the unexpected. Increased resiliency means that when 64 per cent of businesses face these interruptions, they have a minimal impact on their livelihood and the economic health of the community.

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Businesses Interrupted in the Last Two Years

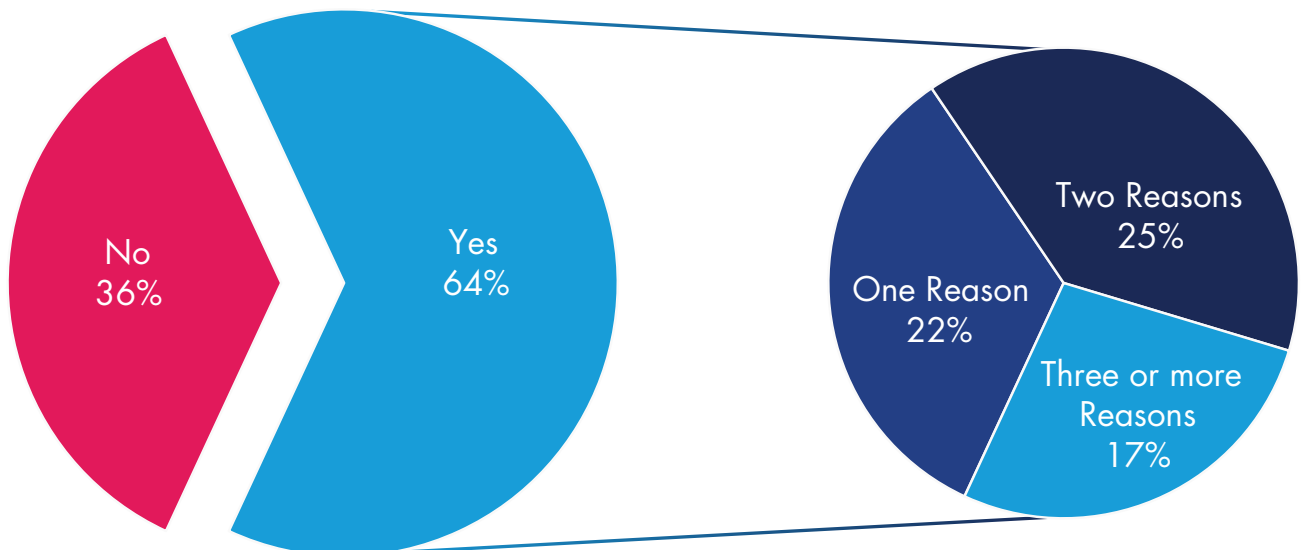


Figure 1: All respondents

2. 2013 flood: Widespread and varied impact

Of all the possible business interruptions, the 2013 flood had the most widespread impact. The flooding affected 41 per cent of all respondents. While the majority of respondents were not impacted by the flood, of those who did experience a business interruption over the past two years, 64 per cent cited the 2013 flood as one of them.

Yet, interruptions from the flood do not appear to be equally distributed amongst all businesses. Large businesses—those with more than 101 employees in Calgary—were more than twice as likely to have been impacted as the smallest of businesses (5 or fewer employees). Nearly 60 per cent, or three-fifths, of all large businesses in Calgary were impacted by the 2013 flood, while only 23 per cent of the smaller businesses were. For context, the largest group of companies comprises just under a third of all survey respondents and accounts for a significant amount of employment and overall economic activity in the city. Small businesses accounted for a quarter of respondents.

It does seem that as a business becomes larger, the more vulnerable it is to these business interruptions. This is important to keep in mind because it

could have policy implications and should be a key factor in determining the types of mitigation activities undertaken by governments— and the mix of post-disaster services and relief programs offered.

The most common damage associated with the 2013 flood was a closure of offices, with 79 per cent of businesses impacted by the flood reporting this effect. This underscores the importance of disaster planning. Mitigation activities such as remote access abilities and cloud computing capabilities can minimize the financial damage a closure can cause.

Over a third of small-medium businesses (6 to 50 employees) and half of medium-large (51 to 100) businesses reported a loss of sales following the flood. The reality of a post-flood slump in sales and an overall drop in foot traffic highlights the importance of Chamber-supported programs such as “YYC is Open,” which pushed for consumers to support local businesses hurt by the flood.

Percent of Businesses Impacted by 2013 Flood

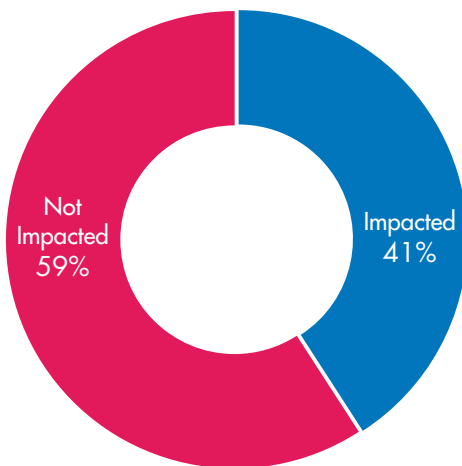
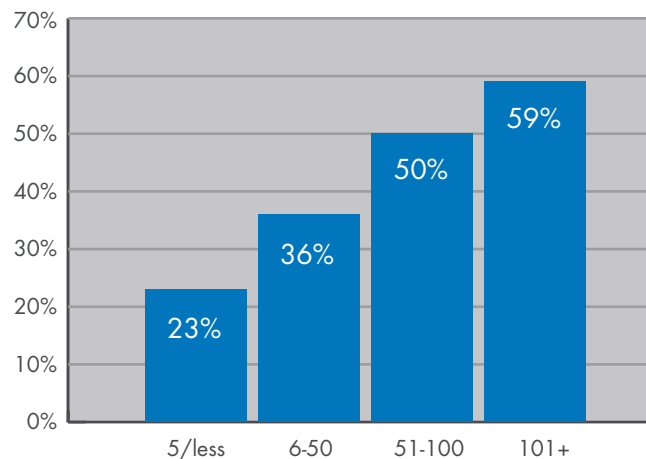


Figure 2: All respondents

Percent of Each Business Size Interrupted by Flood



Number of Employees in Calgary

Figure 3: All respondents



3. Uptake in resiliency efforts

One clear highlight of our survey is that the vast majority of businesses in Calgary take the issue of disaster preparedness seriously. Before the 2013 flood, 75 per cent of companies had undertaken some sort of disaster preparedness, but this jumped to 88 per cent after the flood. The most common pre-disaster preparation was the storage of first-aid supplies in the office, followed by 52 per cent of businesses having off-site data backups. Having the capability to access data once a disaster has hit is a critical component of ensuring business continuity and minimizing downtime.

The biggest jumps were in the number of businesses reporting that they had developed an emergency communications strategy and remote operation abilities. This could suggest a direct response to the number of businesses forced to close their doors because of the flood. In an event such as a flood, the ability to communicate with both staff and clients and to be able to work remotely for as long as possible becomes paramount. It seems that businesses have internalized this danger, and many have taken proper precautions. Such a direct relationship, as the data suggests, indicates a strong resiliency mindset within the business community.

It is important to note that after the flood, 42 per cent of businesses impacted sought additional information, and that across all disaster mitigation best practices listed, each one saw an increase in participation. The number of companies not participating in any disaster preparedness activities fell by 50 per cent after the flood.

There are still areas for improvement, however. While there has been a relative rise in disaster mitigation activities, it appears that the business community still lags behind in uptake of the most important ones. Forty per cent of flood-impacted businesses still do not appear to have off-site storage of critical documents, remote operating abilities and protocols, or an emergency communication strategy. A majority did not seek out additional information about disaster planning and recovery. So while businesses may be making resiliency efforts, they are not taking advantage of the multitude of resources available to help inform them of best practices. Although business owners are the most aware of their specific business needs in the case of a disaster, 42 per cent do not have a disaster plan in place of any kind.

These are all critical activities in ensuring a business minimizes the impact of a disaster and is able to recover as quickly as possible. This underscores the importance of local organizations that work to educate and provide businesses with resources on how to properly prepare and develop effective strategies. There is still work to be done, but the general increase in overall resiliency shows these efforts have been fruitful.

A large majority of businesses appear to lack insurance to cover another major interruption, and there does not appear to have been a large scale uptake in such protections after the flood. The DRP, as mentioned earlier, was developed to help finance this uninsured damage. Private financial protections are important to ensure that the public does not end up bearing private costs. However, because of the complex nature of actuarial risks, there may be other underlying factors hindering uptake. Yet, it is important

to note that in the event of another massive interruption, a new DRP-type program may be required, but may be more difficult to finance.

As discussed earlier, preparation for future disasters after one has already occurred is an essential component of building resiliency. The data does show increased overall resiliency in Calgary's business community following the 2013 flood. This is reflected in the fact that 81 per cent, a vast majority, of businesses impacted by the flood, agree they are better prepared today. The community, it appears, has made a concerted effort to mitigate the impact of future disasters and ensure that in the event of another 1-in-100-year event, it will be stronger and better prepared.

Percent of Impacted Businesses Who Undertook Mitigation Activities Before and After 2013 Flood

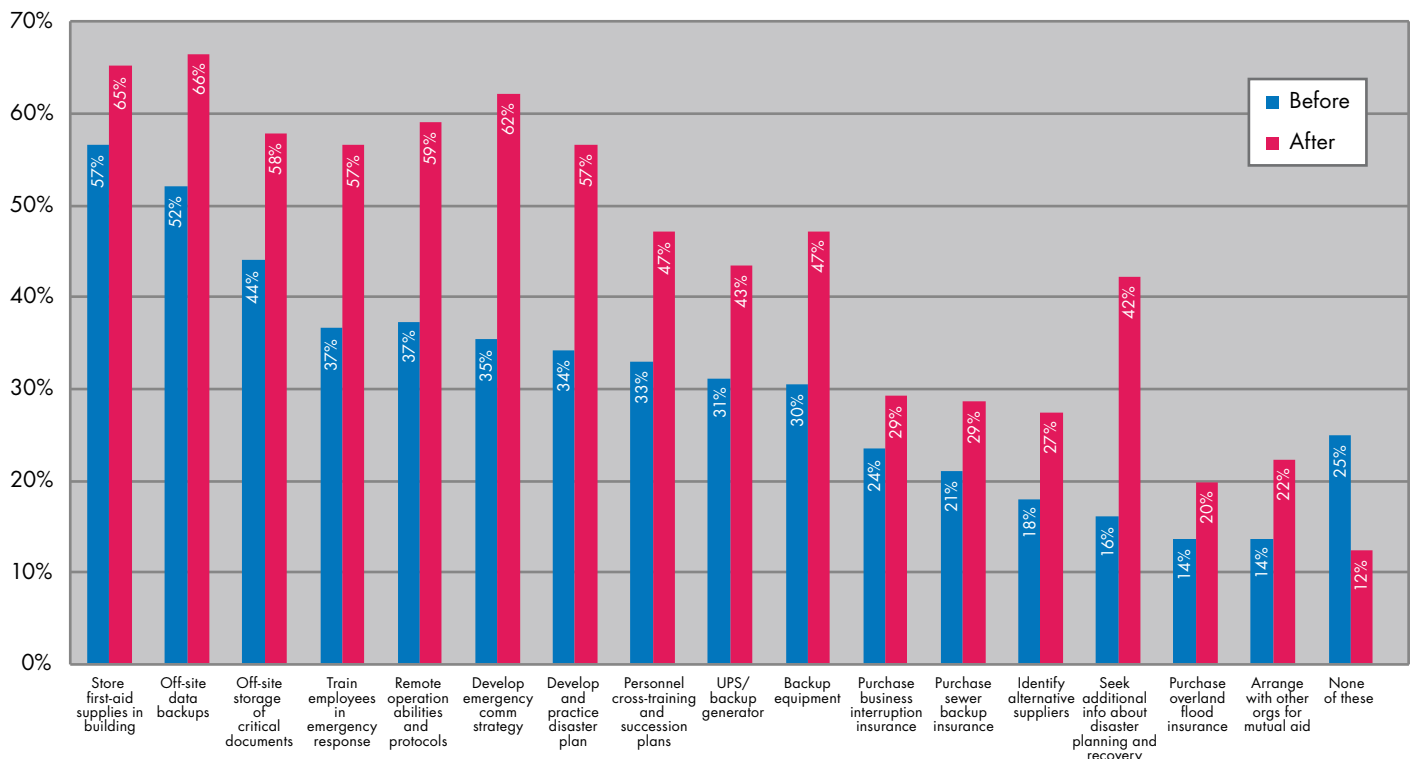


Figure 4: Impacted by 2013 flood

4. Communication gaps

When asked about support in relation to the 2013 flood, just under one-third of those impacted said they received communications from the Chamber. However, roughly one-third also said they were not recipients of support or communications from any of the listed programs or groups.

Two initial insights can be drawn from the data.

First, it highlights the fact that non-profits and other community organizations such as the Chamber play an important role in the city's overall resiliency. It appears that the Chamber has a very effective disaster communications strategy in place, one which seems to reach a broad intersection of Calgary's business community. More non-members actually report having received Chamber communications than members, so it would appear that this strategy is reaching past the organization's traditional circles and relative size.

Second, CEMA has been the most effective group in communicating information and providing updates.

Forty-one per cent of those respondents impacted by the flood received some type of updates from CEMA, and 14 per cent acknowledged receiving direct support. Yet, 32 per cent of respondents neither received communications from CEMA, the government or the Chamber nor received support—whether from CEMA, through the DRP or other local government programs.

While the low participation in the DRP, and support from other government programs or CEMA, may be a reflection of the nature of the business community's needs, communication during and after a disaster should be more broadly accessed. This is something independent of the level of impact from a disaster and should be a central component of any resiliency strategy. Federal and provincial government agencies, CEMA and the Chamber have been successful in their efforts but more remains to be done.

Percentage of Flood Impacted Businesses Who Received Aid

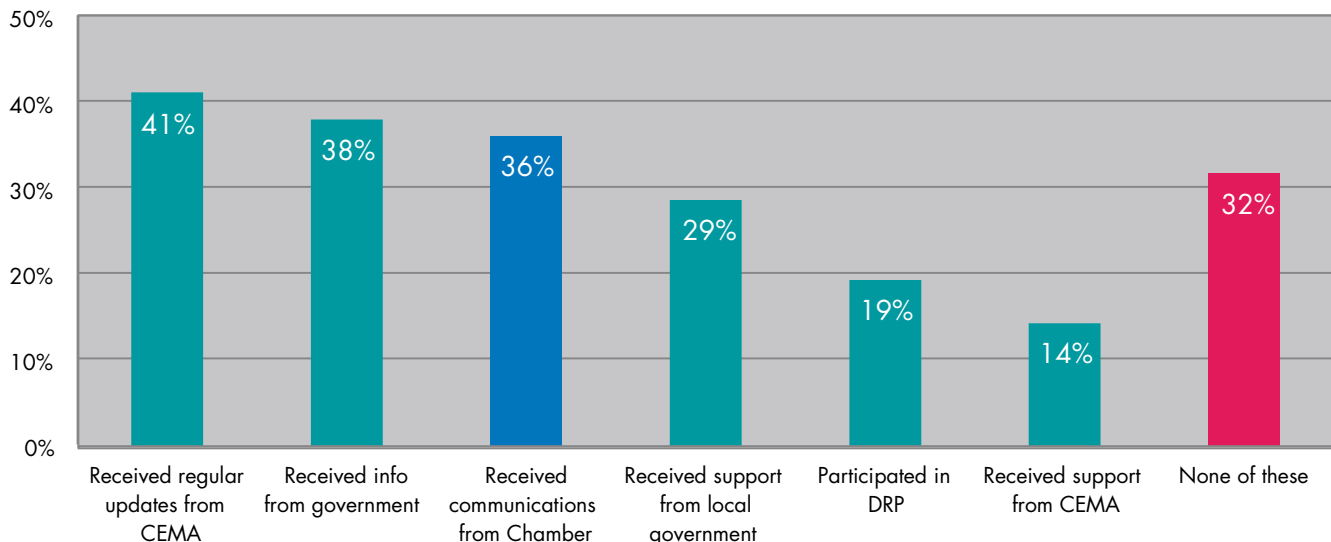


Figure 5: Impacted by 2013 flood

5. Overall confidence in government, with some exceptions

When asked about the government, 73 per cent of businesses impacted by the 2013 flood expressed confidence in the government's ability to handle another disaster of the same magnitude. This represents a significant majority. Such a strong number suggests overall satisfaction in the way in which governments (local, provincial and federal) dealt with the disaster.

However, it appears these numbers may be skewed toward large businesses. Those businesses with over 100 employees expressed above average confidence. General confidence decreases as the businesses get smaller (refer to graph). Of the small businesses, 43 per cent did not have confidence in the government in the event of a future disaster. One possible reason for the discrepancy between the opinions of the small and large businesses is that government services and programs may not be meeting their needs equally. It appears that those businesses with the largest pool of resources feel significantly more confident in their government.

This trend of government support favouring larger businesses over smaller ones also appears in the survey through questions about the DRP. While aggregate approval of the DRP is lower than that of government as a whole, over 60 per cent of those impacted by the 2013 flood feel the DRP provided support that helped their business recover, was easy to

work with, and was reasonably timely. These are all very positive numbers for such a large program. However, a discrepancy again exists between the attitudes of large and small businesses.

There may be a number of contributing factors to this phenomenon. The first is the level of administrative burden associated with the DRP, pointing to an issue of overall accessibility and compliance costs. It may also result from the mix of government support offered; the program itself may serve one group better than another. It may also result simply from the level of need. However, the data is inconclusive in this regard, and further research must be conducted on specific experiences with the DRP to tease out the underlying mechanics behind this trend.

It does appear that those impacted by the flood are slightly more confident in a future government response than those not impacted. While only a slightly higher (five per cent) favourability rating, it suggests that businesses were not soured by their interactions with the government. Those businesses that were under the most pressure after the flood actually came out of the experience feeling more confident in the government's capabilities. This is a strong endorsement of the business community's perception of the government's disaster response and recovery policies.

Confidence in Government Response

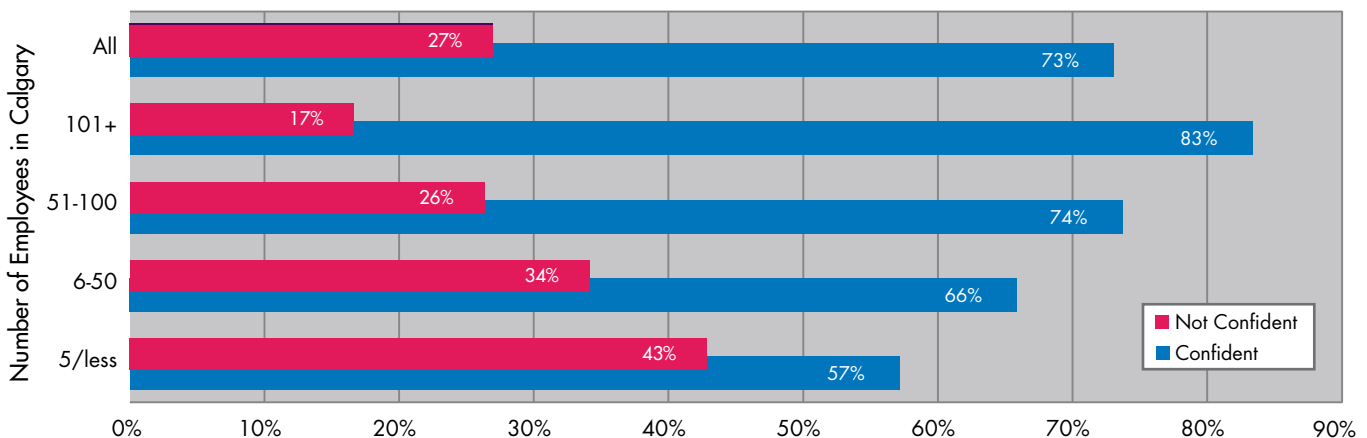


Figure 6: Impacted by 2013 flood

6. Future mitigation and preparedness efforts have popular support

One salient point for policy makers is that a good portion of businesses support disaster mitigation and preparedness activities. All respondents were asked, in the case of a future event such as the 2013 flood, which of the following areas should the government focus their efforts to best support business: flood/disaster mitigation, disaster preparedness, recovery, helping plan, or crisis/disaster management.

One-third said that disaster mitigation would best support their business, with another 22 per cent favouring disaster preparedness. So it would appear that in the business community as a whole, there is a feeling that mitigation and preparedness efforts on the part of the government offer them the most support.

There is, however, a split among those impacted and not impacted by business interruptions. Not surprisingly, those unaffected by any interruption in the last two years were less likely to believe that these efforts would be the most beneficial focus for the government. They appear to be more interested in recovery efforts and help in disaster planning. Even for those not

interrupted and those interrupted but not impacted by the flood, the approval of these activities still sits around 50 per cent. As mentioned in an earlier section, those who experienced interruptions outnumber those who have not nearly two to one. Thus, the aggregation of respondents points to an overall favourability of the idea that mitigation and preparedness activities by the government would help their business the most.

It also would appear that once an interruption has occurred, a business is more likely to favour such programs. This could be rooted in the fact that once businesses have experienced interruptions such as flooding, they witness the effectiveness of these efforts first-hand.

Regardless, the data shows that the government efforts to support businesses in the case of a future event should be focused on mitigation and preparedness. There is popular support for these efforts, and considering large cleanup and recovery costs, it may be the most cost-effective approach as well.

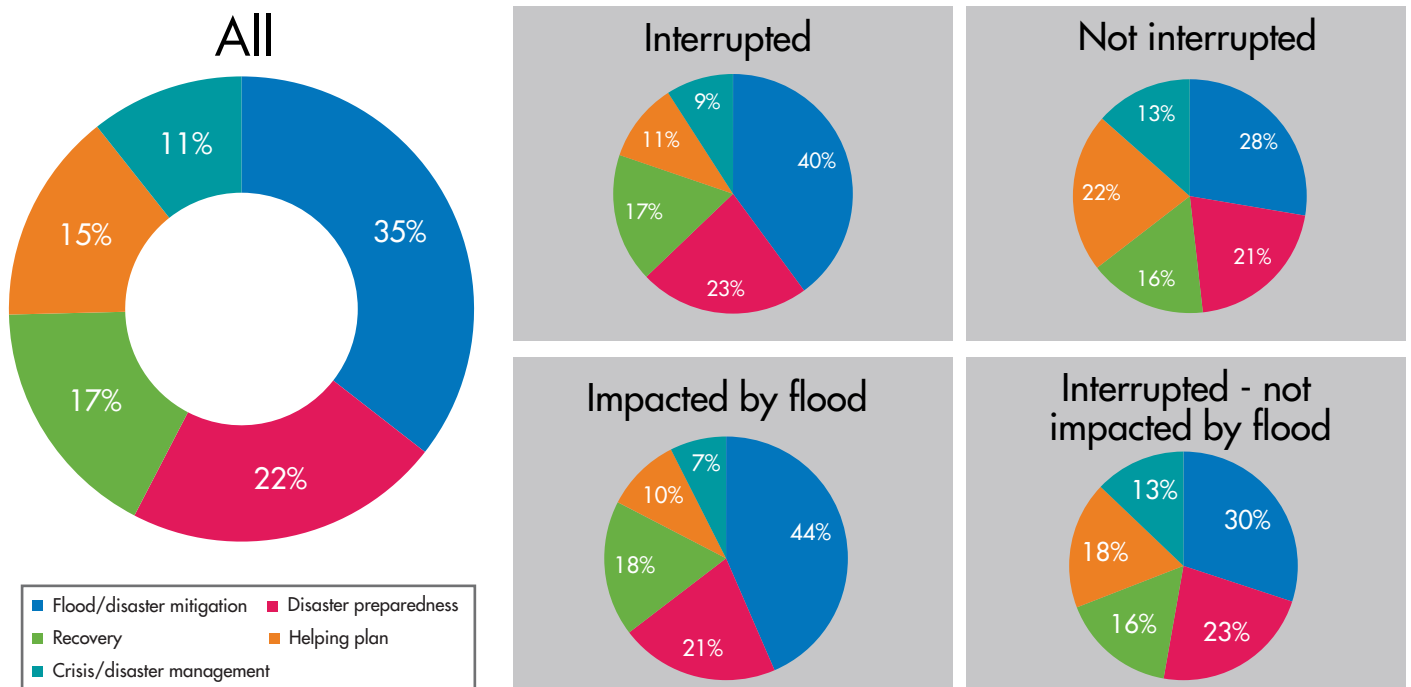


Figure 7

NEXT STEPS



Since the 2013 flood, the Chamber has worked hard to help businesses better prepare for future disasters. This includes efforts in conjunction with the CEMA to develop a handbook that outlines how businesses can prepare themselves for a natural disaster. As our survey shows, Calgary has taken major steps to increase its overall disaster preparedness, and businesses have a favourable view of the government's efforts. Yet, there is always room to improve because constant assessment and improvement are cornerstones of a resilient community.

Recommendations

One-third of flood-impacted businesses reported not having received any communications, whether from the Chamber, CEMA or other levels of government. This is cause for concern because government should reach out to and engage a broad section of citizens and businesses both during and after a disaster, regardless of how much need or damage they experience. The information gleaned from the survey should be used as a baseline to compare communication strategies with those used in the blackout and "tree event," to evaluate their effectiveness and the value of policy changes.

While there has been a significant increase in resiliency activities, 68 per cent of impacted businesses did not seek out additional information on disaster planning and recovery. This information gap may lead to wasteful practices and leave businesses more vulnerable than they appear. Although it has been more than a year since the flood, the campaigns to provide businesses with the relevant information should continue to ensure that best practices are being implemented.

Generally, it seems that government assistance for businesses impacted by the flood was well received. However, there seems to be a disparity between the experiences of large and small businesses in the community. There must be a deeper assessment of the programs and their administrative burden to ensure that the needs of the entire community are met in a relevant and accessible manner.

In the event of another major event such as a flood, a DRP type program may once again be needed to cover uninsured damage. Research must be conducted on private mechanisms for protecting businesses against these large-scale interruptions. An assessment of current insurance barriers would be a significant first step.

Governments, both local and provincial, should further their efforts to build mitigation capacity and preparedness within the community. There is broad support among businesses for these efforts, and it would appear that this is the area that businesses feel the government can best help them in the event of another disaster.

Your Calgary Chamber

Following the flood, the Chamber took an active role in recovery and resiliency efforts. By analyzing the extent of the damage, mobilizing resources and helping to revitalize both customers and businesses, we helped ensure that Calgary businesses were able to recover in both the short and long term.

A business in Calgary affected by the flood was more than 50 times less likely to close than a similarly affected business in other North American jurisdictions—an accomplishment that Calgary’s head of emergency management Chief Bruce Burrell recently credited in large part to the Chamber.

The centrepiece of our efforts was the Calgary Business Recovery Task Force—a partnership with 12 other community organizations, working to get businesses cleaned up and repaired as quickly as possible. The task force also worked to ensure business and investment came back to the flood-affected areas through the comprehensive local, national and international “YYC is Open” marketing campaign.

On July 31 2013, the Calgary Chamber hosted an all-day regional business recovery expo. This “one-stop shop” event consisted of an expo to help connect businesses in need and panel discussions that provided the necessary tools and information for flood-affected business owners to get back to pre-flood level business. The event drew 250 attendees and included 30 information booths set up to answer flood-related questions to help business owners successfully navigate the path to recovery.

Over a year later, most of the city has returned to normal operations, but there are many businesses that will remain closed or have just recently opened their doors to the public. Small businesses continue to need support. We continued our flood resiliency work in April 2014 by hosting a panel workshop focused on small business marketing and business interruption.

Even with the unexpected weather and power outages of the past few months, the Chamber has been unrelenting in its efforts to look out for the interests of the business community. We continue our work to ensure that the business community has a strong voice now and in the future.

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