



Resilient Calgary

Strategy Update Report 2021

URBAN RESILIENCE

“The capacity of a city’s individuals, communities, institutions, businesses, and systems to survive, adapt, and grow despite chronic stresses and acute shocks.”

100 Resilient Cities

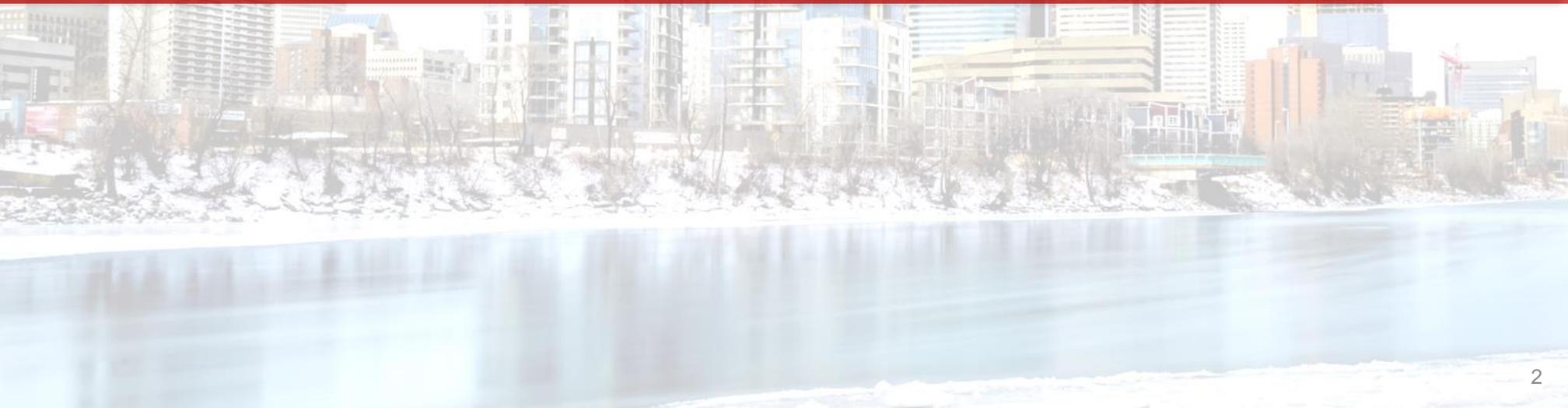




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Resilient Calgary Overview



What is the Resilient Calgary strategy?

The Resilient Calgary strategy places a lens on four areas affected by stresses and shocks: our economy, inclusion, natural infrastructure and built infrastructure. Resilience based tools and foresight processes help to support service delivery and investment decisions. The strategy emphasizes the value of leveraging relationships and resources through collaboration locally, nationally and globally.

The delivery of the strategy is supported by The City's Resilience team, who guides resilience planning, information and strategy within The City and the Calgary community to support Calgary's vision of *a great place to make a living a great place to make a life*.

Background

The City's resilience focus began with the 2013 flood, which impacted our physical infrastructure, businesses, and our community's mental health. We realized that addressing stresses and shocks requires collective effort, and that we have an opportunity to build on the community spirit so deeply felt during the flood response and recovery.

Our work began with identifying formal approaches for defining resilience, taking stock of what was happening in Calgary and other cities, and involving the community in discussions to build a Resilient Calgary strategy. Dozens of organizations representing all community segments identified stresses, shocks, risks, opportunities and challenges. The City began to incorporate resilience in decision making, by applying a resilience lens to inform the 2019-2022 One Calgary service plans and budgets. The City has continued to develop ways forward in overcoming the impact of key stresses and shocks.

Resilience as a Building Block for Action

Discovery sessions and collaboration circles identified a cross-cutting theme and four key pillars that informed the Resilient Calgary strategy and continued to guide work in 2020.

- Future-focused Calgary – better decision-making tools for a future that is increasingly volatile, uncertain, complex, and ambiguous (VUCA).

- Economy - finding meaningful work during the evolution of an economy that supports innovation, technological growth and change and digital dependence;
- Inclusion – Building trusted and informed relationships between organizations and equity-seeking communities;
- Natural Infrastructure - Better understanding the value of our natural environment in a future that will be hotter, colder, wetter and dryer during different seasonal cycles that we have historically experienced;
- Infrastructure - Understanding how our infrastructure and assets can be best planned and managed to sustain quality of life and to support an evolving future of human behavior in the built environment, and access to water by a region dependent on glacier fed rivers.

Collective resilience action continues within our community and stakeholders, using models and tools to help audiences think about the future, create solutions that consider the impacts of stresses and shocks, and realize desired outcomes.

Resilient Calgary Strategy

facilitates informed decision making for a prosperous, safe, green and equitable city, now and in the future

How?



Facilitate strategic investment decisions



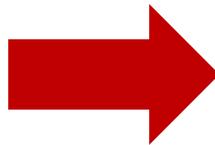
Help solve/ navigate the resilience challenges



Future focused thinking



Global, national & local partnerships



What is Our Impact?



Solutions that meet current and future needs



Help Calgary to be prepared and resilient for future stresses and shocks



Elevate voices of communities in meaningful decision making



Calgary attracts and retains people



Value; transparency; benefit; resilient investment portfolio





THE WORLD'S LEADING URBAN RESILIENCE NETWORK – BUILDING A SAFE AND EQUITABLE WORLD

Calgary is a member of the Resilient Cities Network (evolved from the momentum established in the 100 Resilient Cities network), a global city-led nonprofit organization that brings together knowledge, practice, partnerships, and funding to empower member cities. Resilience actions are focused on two pillars: circularity (including waste, infrastructure and food systems) and climate change (including water, community and energy resilience) as well as three cross-cutting themes: equity, economic opportunity and resilient recovery.

Initiatives include the Cities on the Frontline speaker series in partnership with the World Bank with 32 sessions delivered in 2020.

Calgary participates through the North American Network (NAM) which includes region specific initiatives such as a 2021 NAM Prospectus for funding, the 2020 Annual NAM Regional Convening held over 3 days focusing on Pandemic Response and Recovery with equity, financing and economic recovery themes, and a Racial Equity Community of Practice. There are 25 US and 4 Canadian cities in this network.

Team Canada

Calgary is one of four cities participating along with Montreal, Toronto and Vancouver.

The four member cities meet regularly to:

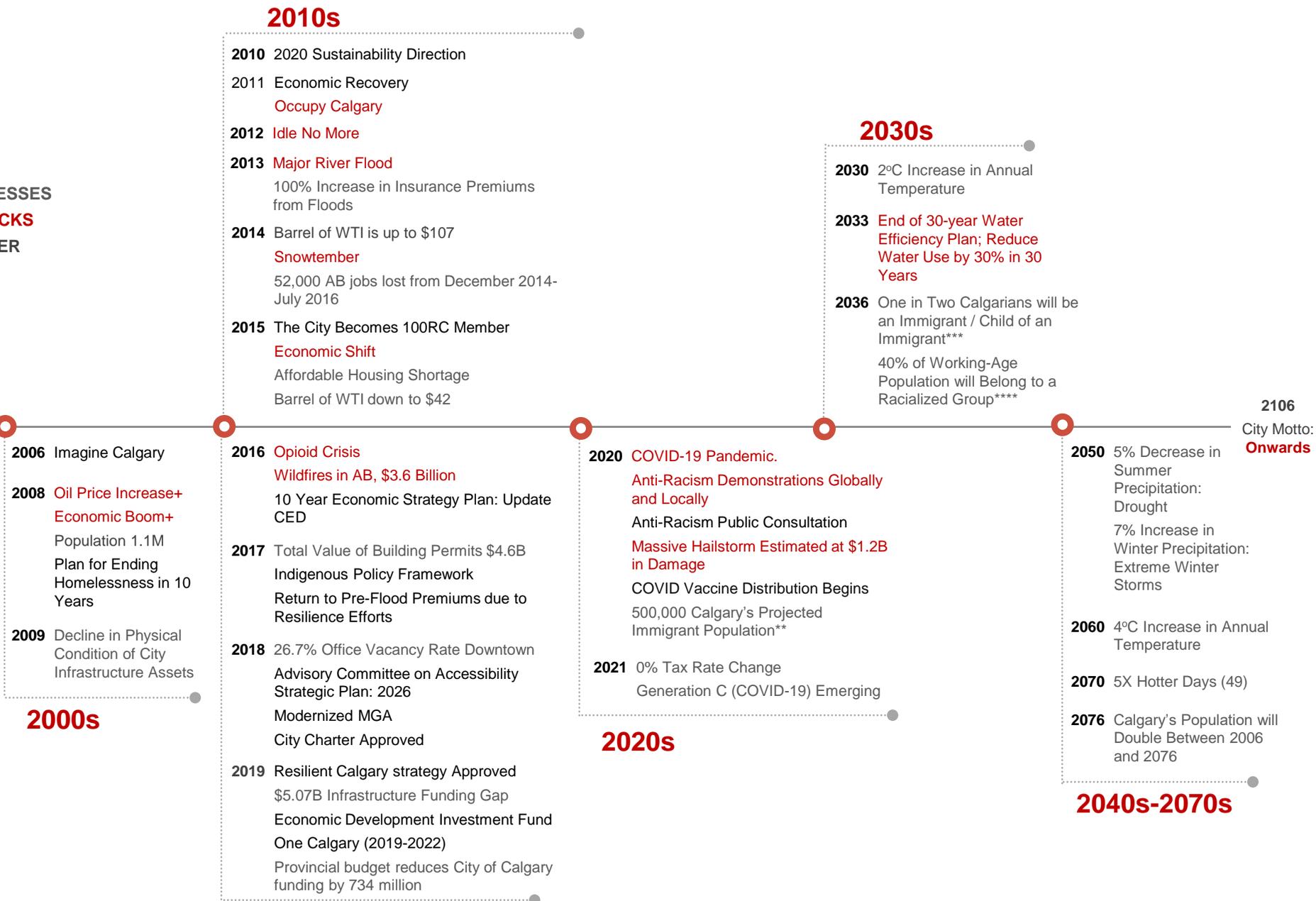
-  Advance and illuminate the state of urban resilience in Canada
-  Share emerging learnings, best practices and innovations
-  Connect with national and international practitioners and thinkers to advance urban resilience in Canada
-  Begin the conception of a national Urban Resilience Agenda for Canada



Calgary Timeline of Stresses and Shocks

STRESSES
SHOCKS
OTHER

100 Year
Vision



2010s

- 2010** 2020 Sustainability Direction
- 2011** Economic Recovery
Occupy Calgary
- 2012** *Idle No More*
- 2013** *Major River Flood*
100% Increase in Insurance Premiums from Floods
- 2014** Barrel of WTI is up to \$107
Snowtember
52,000 AB jobs lost from December 2014-July 2016
- 2015** The City Becomes 100RC Member
Economic Shift
Affordable Housing Shortage
Barrel of WTI down to \$42

2030s

- 2030** 2°C Increase in Annual Temperature
- 2033** *End of 30-year Water Efficiency Plan; Reduce Water Use by 30% in 30 Years*
- 2036** One in Two Calgarians will be an Immigrant / Child of an Immigrant***
40% of Working-Age Population will Belong to a Racialized Group****

2020s

- 2020** *COVID-19 Pandemic.*
Anti-Racism Demonstrations Globally and Locally
Anti-Racism Public Consultation
Massive Hailstorm Estimated at \$1.2B in Damage
COVID Vaccine Distribution Begins
500,000 Calgary's Projected Immigrant Population**
- 2021** 0% Tax Rate Change
Generation C (COVID-19) Emerging

2040s-2070s

- 2050** 5% Decrease in Summer Precipitation: Drought
7% Increase in Winter Precipitation: Extreme Winter Storms
- 2060** 4°C Increase in Annual Temperature
- 2070** 5X Hotter Days (49)
- 2076** Calgary's Population will Double Between 2006 and 2076

2106
City Motto:
Onwards

* WTI - West Texas Intermediate is a grade of crude oil used as a benchmark in oil pricing.
 ** The immigrant population in Calgary-- and throughout Canada--is growing and will continue to grow. Calgary's total immigrant population (both Permanent and Non-permanent residents) is projected to reach almost half a million by 2020.
 *** 2036 - Based on projection scenarios, more than one in two people in 2036 would be an immigrant or the child of an immigrant in Calgary (between 56.2% and 63.3%).
 **** 2036 the proportion of the working-age population (aged 15 to 64) who belong to a visible minority group would increase in all areas of the country, in all the scenarios. This proportion would surpass 40% in Toronto, Vancouver, Edmonton, Calgary, Winnipeg and Abbotsford

Advancing the Rethink to Thrive Strategy

At the center of The City of Calgary's *Rethink to Thrive strategy* is planning and meeting our customers' needs within a new normal. Rethink to Thrive supports The City's vision – a great place to make a living, a great place to make a life.

Rethink to Thrive's central premise is that government can no longer work in siloed approaches, for example, with one business unit working on social well-being, another addressing infrastructure and another tackling pandemic recovery.



Cities are *systems*, experiencing rapid change and requiring integrated, risk-aware, forward-looking and inclusive actions.

The City of Calgary Administration, guided by its Rethink to Thrive Strategy, is realigning departments and business unit to get the work done more collaboratively, realizing synergies and being innovative as we move forward.

As we implement the new way of working, a future-focused perspective will uncover complexities and drive resilience forward.

Business units are now focused on a “new normal, by being open, addressing new norms and trying new ways of doing things so that we truly thrive in our new reality. Together, with the direction of the Mayor and Council, and the leadership by the City Manager and Executive Leadership Team, Business Unit Directors, city leaders, community members, stakeholders and partners will work to create a resilient Calgary that thrives.

Symbol Legend

-  Future Focused Calgary
-  Future of Calgary's Economy
-  Inclusive Futures
-  Future of Natural Infrastructure
-  Future Ready Infrastructure

Advancing the Rethink to Thrive Strategy

CITY MANAGER GOALS					
Develop a trusting relationship with Council (individually and collectively) to support the delivery of council priorities	Optimize financial management of operating and capital budgets and reduce the cost of government	Improve service value and deliver major capital projects	Strengthen employee trust and confidence through the delivery of organizational strategy, alignment of corporate resources, and inspirational leadership	Hold leaders and employees accountable to a work environment that fosters safety, pride, innovation, respect, inclusion, trust, empowerment, diversity, and fun	Strengthen public and business trust and confidence
OBJECTIVES					
Improve our reputation		Reduce cost of government		Strengthen employee engagement	
Increase our capacity					
STRATEGIES					
Provide organizational focus and good governance		Protect financial sustainability and optimize investment		Inspire a proud and engaged workforce	
<ul style="list-style-type: none"> Provide Council with the best professional advice in a timely and effective manner Empower decision making at the right levels of the organization Review organizational alignment and focus senior leaders on managing strategic risks Review corporate governance and find opportunities to identify duplication, reduce or consolidate work and reporting, and clarify accountability Focus on the corporation's capacity, resiliency and agility to respond to emerging issues 		<ul style="list-style-type: none"> Increase service efficiency and effectiveness Work collaboratively to find permanent savings in The City's operating base budget Optimize capital planning and infrastructure investment Advance The City's interests with Provincial and Federal governments and the Calgary Metropolitan Region Board Continue service planning and budgeting with a focus on putting citizens at the center of our service delivery 		<ul style="list-style-type: none"> Focus the organization on safety (physical and psychological), respect, and inclusion Modernize our workforce practices and create a clear connection between business needs and policy Provide opportunities for learning and development Drive individual and team performance Continue to reinforce the Code of Conduct// 	
<ul style="list-style-type: none"> Share timely and relevant information with citizens, businesses, and employees, and actively correct misinformation Develop a corporate communications strategy focused on investment and value, and encourage employees to be ambassadors of City information Foster positive, collaborative and productive relationships with key stakeholders and partners Provide great customer service by being open and accessible and responding to requests in a timely manner 		<ul style="list-style-type: none"> Encourage innovation and experimentation and promote a "fail fast" mentality Create a Calgary that is more resilient in the face of stresses and shocks Leverage technology, data and analytics to make better decisions and work smarter Be champions for business success and apply a business-friendly lens to planning and service delivery Enable others to innovate and be innovative by creating the right mindset and conditions for success 			

Resilient Calgary Strategy Overview



Cross-Cutting Theme: A Future-Focused Calgary

All pillars use a future focused lens when advancing resilience outcomes and actions



PILLAR 1

The Future of Calgary's Economy

All community members are encouraged and able to participate in a diverse and strong economy



PILLAR 2

Inclusive Futures

Institutions have trusted and informed relationships with Calgary's equity-seeking communities



PILLAR 3

The Future of Calgary's Natural Infrastructure

Natural infrastructure assets are identified, protected, tracked, managed, and used to inform investment and planning decisions



PILLAR 4

Future Ready Infrastructure

Calgarians are supported through strategic investment in future focused and resilient infrastructure



Resilient Calgary Strategy Update: Pillars and Initiatives



A Future-Focused Calgary

Progress: ○ ○ ○ ○ ○
● = approx. 25% done

Project:
Activated Completed On Hold Upcoming



Globally, cities are evolving with a future that is increasingly volatile, uncertain, complex and ambiguous (VUCA). If we want Calgary to have a resilient and prosperous future, we will benefit from better tools to engage with and consider numerous complex choices.

To accomplish this, City services need future-focused information and resources to innovate and thrive in an ever-changing world. Scenarios can help us identify opportunities, risks and gaps to achieving our goals. By working to address these elements, The City can be flexible, innovative and future-focused on creating a Calgary that is more resilient to stresses and shocks.

GOAL

A coordinated set of foresight practices and products are developed for City strategists, service owners and decision makers to think about the future of Calgary, develop insights and apply this thinking to their strategies.

3

Activities

7

Key Initiatives

A
Calgary Foresight Planning

B
Resilience Dividend

C
Triple Bottom Line Policy

OWN

PARTNER WITH COC

ENCOURAGE

S1. Strategic Foresight Capacity & Awareness
 ● ○ ○ ○ ○

S1. Horizon Scanning Practice
 ● ○ ○ ○ ○

S1. Insights Toolkit
 ● ○ ○ ○ ○

S2. Resilience Dividend
 ● ● ○ ○ ○

S2. Dividend Integration into City Practices
 ○ ○ ○ ○ ○

S2. TBL Policy Review & Implementation Plan UNDER REVIEW
 ○ ○ ○ ○ ○



What's Next?



Formalize the Strategic Foresight Community of Practice & the FYI Calgary Scan Club, update the Future Focused Calgary 2035 Trends & Scenarios and pilot the Toolkit to be ready for Next Cycle.



Advance the Resilience Dividend Project with Evergreen and other Resilient Cities partners to explore The City's current prioritization models, best practices and the application of a resilience screen for investment.



Review the TBL Policy for needed updates or changes under the recently launched policy review program.

Applying a Strategic Foresight Methodology During COVID-19

In early April 2020, a Future Focused Calgary project began to:

- identify the complex range of changes that have the potential to impact the future of Calgary in the next 15 years, and;
- to build strategic foresight capacity in the organization.

The “FYI Calgary Scan Club” (Scan Club) launched with staff from each department and conducted a horizon scan to identify possible changes occurring and being accelerated that have the potential to impact Calgary. This scan was completed over four weeks and identified 200+ signals which were distilled down to 26 of the most relevant and impactful trends.

Following the horizon scanning process, Scan Club ran an exercise to understand the interconnections between signals of change and uncover major driving forces and critical uncertainties. The critical uncertainties were used to provide a framework and foundation for exploratory and plausible future scenarios based on a world-building framework of four scenarios.

These summary of trends and scenarios are available to the organization to evaluate our planning strategies and inform The City’s next business plan and budgeting cycle (2023-2026). The application of these scenarios can identify opportunities, risks and gaps towards achieving targeted goals. This will enable The City to be nimble, innovative and future-focused to create a Calgary that is more resilient to stresses and shocks.

Economic Resilience

Progress: ○ ○ ○ ○ ○
● = approx. 25% done

Project:
Activated Completed On Hold Upcoming



The resilience of a city improves when all are encouraged and able to participate in a diverse and strong economy. This enhances the community's ability to attract business, talent and investment.

Calgary can capitalize on its high quality of life, available commercial real-estate and educated workforce as it continues to bounce back COVID-19, the recent economic downturn and downtown tax shift.

GOAL

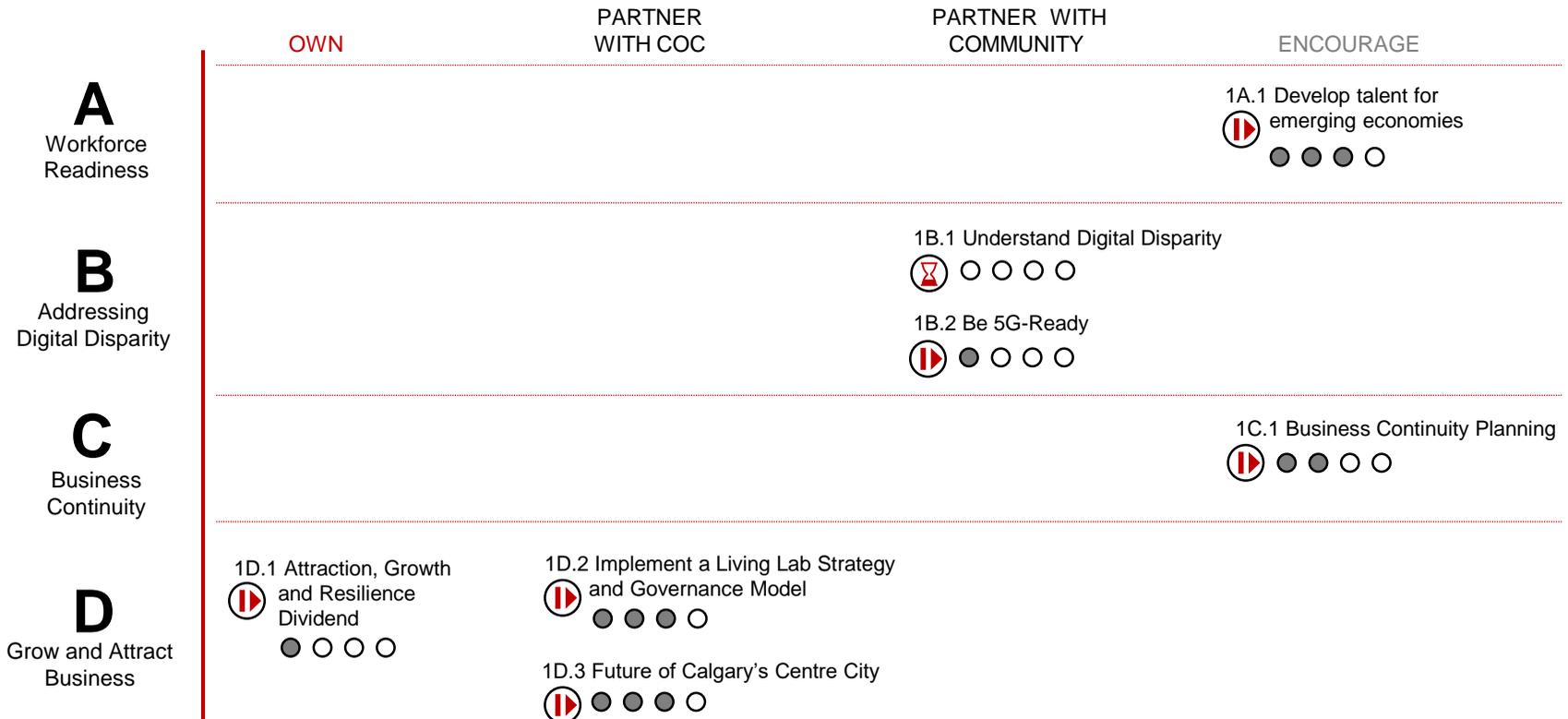
All community members are encouraged and able to participate in a diverse and strong economy

4

Outcomes

7

Key Initiatives





What's Next?



Continue to partner with internal and external leads to identify and address emerging issues and opportunities in the downtown core



The Connect pillar of the Downtown Strategy is supported by the Resilience team directly, as part of the intent to support economic vibrancy by connecting people, goods, information and ideas



The Downtown Strategy will present the second State of the Downtown Report to Council and the community in 2021

Establishing the Downtown Strategy and the State of the Downtown Report

In support of action 1D.3, Future of Calgary’s Centre City, The City has established The Downtown Strategy and interdisciplinary team, supported by resilience resources. This is a concentrated focus and coordinated effort to create economic and cultural opportunities in the downtown to drive a thriving local economy. The Downtown Strategy includes four pillars important to a vibrant downtown and our city’s economic resilience. These working areas are built on the four areas of focus in Calgary’s economic strategy, Calgary in the New Economy:

- Place — accelerating urbanization and connectivity
- Work — increasing opportunities to work, study, and run a business
- Live — making Calgary a more attractive place to live in and to visit
- Connect — connecting people, goods, information, and ideas

It brings together The City of Calgary (“The City”), our Civic Partners, community partners, and Business Improvement Areas (BIAs) in a coordinated and collaborative effort to make life better every day for citizens, customers, residents and businesses as it relates to the downtown. This strategy brings new energy to a future-focused, collective approach to align existing projects and initiatives, thereby increasing the impact of our work. –State of The Downtown.

Inclusive Futures

ESCs Equity-Seeking Communities

Progress: ○ ○ ○ ○ ○
● = approx. 25% done

Project:
Activated Completed On Hold Upcoming



The resilience of a city improves when ESCs are regarded as strengths to society, have meaningful voices in decision-making and leadership; are connected and feel empowered to act; interact with systems where power is fairly distributed; and are valued for their differing opinions that challenge our thinking.

Communities and partners agreed that a key resilience challenge in Calgary was the lack of equity and inclusion in leadership and decision-making. The best way forward is for Calgary institutions to recognize ESCs' strengths and focus on building trusted relationships with them.

GOAL

Institutions have trusted and informed relationships with Calgary's ESCs.

4

Outcomes

9

Key Initiatives

OWN

PARTNER WITH COC

PARTNER WITH COMMUNITY

ENCOURAGE

A

Inclusive Decision Making

2A.1 Diversify representation on boards

● ○ ○ ○ ○

2A.3 Establish a community futures-thinking practice

● ○ ○ ○ ○

2A.2 Co-create post pandemic community informed strategic recovery plan (Canadian Poverty Institute)

● ○ ○ ○ ○

B

Relationships with Indigenous Communities

2B.1 Support to revitalize Indigenous cultures and languages (Indigenous Groups)

● ○ ○ ○ ○

2B.2 Walk parallel paths together (United Way of Calgary & Area)

● ● ● ○ ○

C

Diverse Governance

2C.1 Establish equitable decision-making processes

● ● ○ ○ ○

D

Equitable Economic Development

2D.2 Develop a benefit driven procurement policy (Supply Management)

● ● ○ ○ ○

2D.3 Explore guaranteed basic income options (Basic Income Calgary)

● ● ○ ○ ○

2D.1 Encourage business investments addressing inclusion (TBD)

○ ○ ○ ○ ○



What's Next?



Design and conduct workshops with Equity Seeking Communities in 2021 to build community futures thinking practice



Establish community informed principles for an equitable governance paradigm



Determine feasibility of a city-wide community prosperity dashboard to support future decisions



Publish report on Equity Seeking Communities perceptions of Calgary's new normal post pandemic

Calgary's New Normal Post Pandemic: A Virtual Conversation with Community

In December 2020, The City of Calgary, Canadian Poverty Institute, Vibrant Communities Calgary with the Canadian Urban Institute, hosted an equity-seeking community (ESC) conversation about the post pandemic and what ESCs imagine Calgary's new normal may look like over the next decade. 78 people and 14 community facilitators participated in a two hour zoom session that immersed them in three future scenarios.

The overall feedback from participants was positive. Community members appreciated that they were involved in these important conversations. This session was a great first step for them to be resilient and better prepared for different plausible futures and to also think of ways to create the futures they want. They asked for more of these discussions where they could dive deeper into the possibilities. A summary report of the session was sent to all participants in May 2021.

The Future of Calgary's Natural Infrastructure

NI Natural Infrastructure

Progress: ○ ○ ○ ○ ○
● = approx. 25% done

Project:
Activated Completed On Hold Upcoming



Natural infrastructure is the range of assets from natural landscapes through engineered solutions that harness ecological and hydrological processes and that provide services and other resilience benefits. Natural infrastructure can provide recreational opportunities, contribute to our physical and mental well-being, reduce water treatment needs, reduce the impacts of flooding, improve air quality, reduce the urban heat island effect, provide wildlife habitat and more.

As Calgarians, we enjoy the services as well as the social, economic and environmental advantages these spaces provide. In Calgary, we have an opportunity to integrate natural infrastructure into our traditional infrastructure and asset management frameworks. A shared understanding of the value of natural infrastructure and the multitude of services and benefits they provide will assist decision makers in making choices related to investment and planning.

GOAL

Natural infrastructure assets are identified, protected, tracked, managed and used to inform investment and planning decisions.

3

Outcomes

A

NI Awareness

B

NI Valuation

C

NI Investment

6

Key Initiatives

PARTNER WITH COC

3A.1 NI Awareness

● ○ ○ ○ ○

3B.1 NI Valuation Toolkit

● ○ ○ ○ ○

ENCOURAGE

3A.2 NI Inventory

● ○ ○ ○ ○

3B.2 NI Integration into City Processes

● ○ ○ ○ ○

3C.1 NI Policy Integration

● ○ ○ ○ ○

3C.2 NI Implementation Support (School Site Naturalization)

● ○ ○ ○ ○



What's Next?



Include Natural Assets as an asset class in Calgary's Asset Management Program



Understand the range of service values provided by natural infrastructure in Calgary



Explore how to support naturalization projects on school site land with the Calgary Board of Education

Advancing Municipal Natural Infrastructure Management in Alberta Workshop

On 2019 September 19-20 more than 70 representatives from Alberta local governments, water stewardship groups, not-for-profits, research institutes, and private sector stakeholders gathered to discuss approaches to municipal natural infrastructure management. A public evening event allowed for continued discussion with additional attendees from the development industry, academia, and other sectors. This workshop was the first of its kind to bring multiple jurisdictions across Alberta together to discuss how natural infrastructure could be more fully considered in municipal decision-making and service delivery.

The purpose of the workshop was to provide Alberta local governments with emerging evidence on the value of municipal natural infrastructure management and to develop a roadmap to expand the practice in Alberta based on local context. Experts and municipalities from across Canada that have already formally integrated natural infrastructure in their decision-making shared experiences and worked with participants

to co-develop a framework to embed natural infrastructure into municipal decision-making in Alberta municipalities.

Findings were that natural infrastructure and the services they provide are a fundamental part of municipal infrastructure. A growing number of local governments are now incorporating natural infrastructure into core decision-making and asset management processes. Evidence shows that this can save money, reduce risk and result in cost-effective and reliable service delivery.

Through actions identified in the Resilient Calgary strategy, The City of Calgary is on our way to include natural assets as part of our asset management framework and to better understand the services and other benefits they provide to inform planning and infrastructure investment decisions.

Future Ready Infrastructure

Progress: ○ ○ ○ ○ ○
● = approx. 25% done

Project:
Activated Completed On Hold Upcoming



Strategic investment and management of all infrastructure assets (hard, natural, community) will be one of the municipality's most challenging undertakings.

If well managed, this will result in significant benefits to the community (return on investment) and improved community, city and regional resilience.

GOAL

Calgarians are supported through strategic investment in future-focused and resilient infrastructure.

2

Outcomes

A

Strategic, coordinated and future focused infrastructure investment

B

Resilient watershed systems

4

Key Initiatives

OWN

4A.1 A resilience lens is applied to strengthen public infrastructure investment decisions
 ● ○ ○ ○ ○

PARTNER WITH COC

4A.2 Maintain and improve the infrastructure that supports service needs
 ● ○ ○ ○ ○

4B.1 Implement the integrated water management plan
 ● ● ○ ○ ○

4B.2 Watershed investment strategy
 ○ ○ ○ ○ ○



What's Next?



Continue flood feasibility and barrier extensions, deliver riparian restoration, update Stormwater Management Strategy, release Drought Management Plan, socialize Source Water Protection Policy and implement Business Water Efficiency Program.



Support the Government of Alberta in advancing the Springbank Offstream Reservoir (SR1) project.



Release next Infrastructure Status Report, complete Asset Management plans for all business units and implement an infrastructure investment planning management system.



Source additional funding / financing to compensate for provincial reductions. Pilot resilience dividend tool and apply to next service plans and budget cycle

Inglewood Bioengineering Project

The City of Calgary is committed to exploring innovative solutions for supporting watershed health, biodiversity, and flood mitigation. One of these innovative solutions is the Bioengineering Demonstration and Education Project (BDEP) located in the community of Inglewood.

Bioengineering is the use of vegetation and natural materials for slope stabilization, erosion reduction and vegetation establishment. Bioengineering is more ecologically beneficial than hard riprap designs — the practice of armoring and stabilizing banks with rock. For example, willow stakes and shrubs can act as structural and mechanical elements to stabilize and naturally protect vulnerable slopes. The plant roots help to grab and hold soil, while the plant vegetation helps to slow the flow of water – a twofold approach preventing further bank erosion. The advantage of bioengineering techniques is that they achieve a number of bank stabilization goals while also creating critical wildlife habitat and improving water quality.

The project is a joint effort between The City of Calgary and Alberta Environment and Parks and aims to improve fish habitat while also stabilizing slopes between Pearce Estate Park and the Inglewood Bird Sanctuary. A major goal of the project is to increase awareness and understanding of how soil bioengineering structures are built, as well as the benefits they can bring to our watershed. Several different bioengineering techniques were used to demonstrate a range of soil bioengineering techniques and their applicability to different site conditions.

In 2019, The BDEP entered its monitoring phase. Monitoring of the site aims to assess the effectiveness of the various bioengineering techniques and to ensure the fish habitat and wildlife goals are being met. Several education opportunities have also been piloted to increase awareness and understanding around bioengineering and facilitate knowledge transfer, research and partnerships between The City of Calgary, the Province, Industry and the public. This won the Award of Excellence in the category of Water Resources and an Award of Merit in the category of Sustainability at the Consulting Engineers of Alberta Awards.



Leveraging the Municipal Stimulus Program to Improve Quality of Life for Calgarians

On July 28, 2020 the Government of Alberta announced funding for infrastructure investments as part of Alberta's Recovery Plan to help with the COVID-19 recovery. The Municipal Stimulus Program is intended to provide funding that will create and sustain local jobs, enhance provincial competitiveness and productivity, position communities to participate in future economic growth, reduce municipal red-tape and promote job-creating private sector investment. Infrastructure Calgary coordinated and successfully applied for \$152.8 million of stimulus funding for capital investments in 2020 and 2021.

The City of Calgary proposed projects that will provide new and improved infrastructure, local job creation, more equitable services, an increase in Affordable Housing, reduction in operating costs, economic diversification support for the downtown, alignment with The City's Growth and Change Strategy and a more resilient, competitive and prosperous city.

- Affordable Housing
- Critical Road & Fiber Infrastructure Renewal
- Cultural Building Envelope Upgrades
- Facility Upgrades
- Park System Upgrades
- Stormwater Community Drainage Improvements
- Transit Infrastructure - 52nd St

Council Policy and Quality of Life Outcomes that will result from the proposed investments are:

- Increase jobs by 882
- Addition and repair of Affordable Housing units to support vulnerable residents during this time of hardship
- Reduce operating costs of City services
- Support Calgary in the New Economy and attract investment
- Stimulate vibrancy in the Downtown through facility revitalization to attract patrons and support adjacent business and residential activity
- Rehabilitate historic buildings
- Reinvest in critical City infrastructure to support mobility, accessibility and inclusion
- Foster climate and resilience outcomes through innovation, technology, year-round access and improve community drainage
- Support Civic Partner facility upgrades, recreation, park and pathway systems to support quality of life for Calgarians, attract tourism and economic vibrance

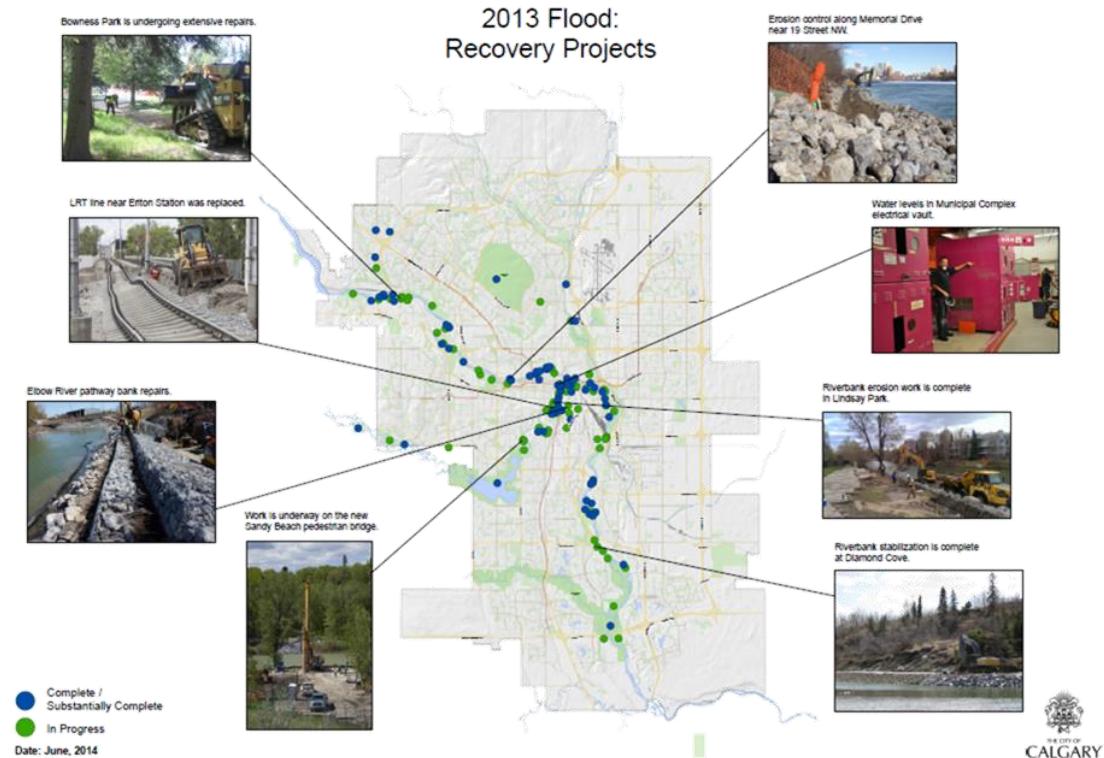
Completion of The City of Calgary's 2013 Southern Alberta Flood Disaster Recovery Program

In June 2013, Calgary's Bow and Elbow rivers simultaneously flooded the downtown core and residential neighbourhoods resulting in the most expensive natural disaster in Canadian history. The full impact to City infrastructure encompassed 252 projects totalling \$295 million in damages sustained as a result of the flood.

Following the 2013 flood, The City of Calgary applied to the Province's Disaster Recovery Program (DRP), a conditional grant program run by the Government of Alberta to assist public companies, not for profits, businesses and residents in the aftermath of a disaster situation. This program was put in place to assist in covering costs from losses and damages for which insurance was not readily available and costs for recovery and rebuilding.

The Government of Alberta closed submissions to the 2013 Southern Alberta Flood DRP in 2020 June 19, and completed review and payment of recovery to The City of Calgary in 2021 March.

- Total number of projects: 252 (including Emergency Operations recoveries)
- Recovery rate for Emergency Operations was 99.2%
- Recovery rate for Infrastructure was 80.2%
- Total DRP costs recovered by The City of Calgary (including Emergency, Recovery and Infrastructure): \$137 million
- Funding previously committed for flood recovery within the Fiscal Stability Reserve not required: \$81 million



An aerial night view of Calgary, Alberta, Canada. The image shows a mix of modern and historic architecture. In the foreground, the historic stone building of the Calgary City Hall is illuminated, featuring a prominent clock tower with a red roof. Behind it, modern high-rise buildings with glass facades are lit up. A red semi-transparent overlay covers the middle portion of the image, containing the title text.

Resilient Calgary Strategy

Responding to Shocks in 2020

COVID-19 Pandemic

COVID-19 is an intersectional crisis that amplifies community and economic risks already impacting Calgarians. Mental health, addiction and poverty, along with racial and gender inequalities have compounding effects on individuals as a result of isolation, limited access to services and social supports. The economy, already suffering from market volatility and tax shifts, now must struggle with business continuity issues and activity restrictions.



The City of Calgary was better prepared for this shock by identifying these outcomes in the strategy

Outcome S.1: Deliver a Calgary Foresight Planning Method

Outcome 1C: Strengthening resilience through business continuity

Outcome 2A: Calgary institutions include equity-seeking communities in decision making processes

Outcome 2D: Calgary institutions invest in equitable economic development

Outcome 3C: Calgarians are supported through strategic investment in natural infrastructure

Outcome 4A: Calgary infrastructure investment is strategic, coordinated and future focused

Calgary has always been an entrepreneurial city and entrepreneurs thrive on challenges. This is testing us, but we will endure — even if it's at a distance for a while — because of our relationships, our sense of community and our ability to take on big challenges.

~Mary Moran, President and Chief Executive Officer for Calgary Economic Development.

Resilience Supportive Actions

COVID-19 dramatically altered workplans across the City. Many projects were delayed or cancelled. The Resilience team was able to pivot and support emerging response actions. Our work in developing the original strategy identified stresses that would be vulnerable to shock. Issues of social inclusion, downtown office vacancy and lack of understanding of the value of natural assets were all intensified during the pandemic as we saw the rise in Black Lives Matter, business closures and greater use of our natural areas. Our existing efforts to better understand these issues established the organizational foundation required to pivot resources in response to the compounding crisis. Our work to expand our collective knowledge and develop community capacity to address issues stressors proved invaluable.

Economic Resilience Taskforce

- The community taskforce is Identifying priority projects that support economic recovery for all, while strengthening social and environmental resilience

Calgary's Social Recovery and the New Normal

- Distributed six ESC psycho-social & employment impacts of COVID-19 reports, to inform recovery decision-making. Reports written by the Canadian Poverty Institute, Ambrose University.
- Conducted a community post-pandemic virtual conversation to discuss what Calgary's new normal could look like over the next decade. Partnered with Canadian Urban Institute, Vibrant Communities Calgary, and the Canadian Poverty Institute.

Natural Infrastructure Awareness

- Parks and open spaces play a critical supporting the physical and mental well-being of Calgarians during COVID-19. We are only beginning to understand the benefit of these spaces during pandemic response and recovery.

Future Focused Calgary

- Identify the complex range of changes that have the potential to impact Calgary's future in the next 18 months to 15 years; identify high-level actions to mitigate risk and inform our recovery efforts, and to build strategic foresight capacity in the organization.

Responding to Infrastructure-Related COVID-19 Risks and Issues

- Monitored and reported on impact of COVID-19 to capital investments
- Addressed and fast-tracked solutions for pandemic related delays (e.g., procurement of steel).
- Accelerated infrastructure investments relating to vacant facilities, reduced road traffic.

Water Resources:

- The 2020 annual flood readiness campaign included messaging on COVID-19, including how Calgarians should prepare for a potential flood during the pandemic.
- 2020 flood response plans considered how COVID-19 would require us to do some things differently. This included ensuring staff and citizens would be able to continue practicing physical distancing during a potential response.
- 2020 Summer Outdoor Watering Campaign highlighting practices that citizens could implement in their yards to be prepared for a variety of weather conditions and situations.



Black Lives Matter Demonstrations

Starting in June 2020, thousands of Calgarians peacefully came together to support the global demonstrations against anti-black racism and racism against Indigenous and racialized communities. It began in the wake of the murder of American George Floyd and other victims of police brutality and violence. Protests continue with collective calls for anti-racism systemic changes.

Over 60,000 signatures were collected to ask The City of Calgary to host a public consultation on anti-racism to establish an Anti-Racism Advisory Committee to Council. Over 150 Calgarians registered and 120 Calgarians participated in the July 7-9 consultations. Approximately 60 letters were submitted to the consultation.



The City of Calgary was better prepared for this shock by identifying these outcomes in the strategy

Outcome 2A: Calgary institutions include equity-seeking communities (including BIPOC) in decision making processes

Outcome 2B: Calgary institutions have trusted and informed relationships with Indigenous communities in a good way

Outcome 2C: Calgary institutions value diverse governance paradigms

Resilience Supportive Actions

Community Outreach and Support

- Co-created with community groups a social media campaign to encourage BIPOC to participate in consultation
- Consulted with BIPOC in how to effectively present their stories at the consultation
- Advised City consultation planning group on racial equity processes, recommended panel members and informed the criteria for anti-racism advisory committee members

Principles for a Preferred Future of Governance

- Developing principles of an equitable governance with the Institute for Community Prosperity, Mount Royal University

“Our experiences in Calgary are evidence of the overwhelming presence of systemic racism throughout this city. Racism exists and is insidious within the foundations of a city we love and call home. It has limited my career and caused trauma in my children.”

~Participant from Public Consultation on Anti-Racism

Hailstorm 2020

On 13 June 2020, northeast Calgary was devastated with a catastrophic hail and rainstorm that caused substantial damage to public and private infrastructure including businesses, homes, and automobiles. The City's Climate Change Resilience Strategy looks to implement risk management measures to reduce the impact of extreme weather events and climatic changes on infrastructure and services (adaptation)



The City of Calgary was better prepared for this shock by identifying these outcomes in the strategy

Outcome 2A: Outcome 2A Calgary institutions include ESCs in decision making and democratic processes

Outcome 3A: Calgarians are aware of our key natural infrastructure and its role in providing community benefits.

Resilience Supportive Actions

Accelerated Permitting

- Immediately approve and support any building, demolition or development permits related to the severe event

Development and building industry stakeholders engagement

- Supporting a comprehensive examination of building and planning standards including building codes and material standards for more climate resilient, sustainable, and affordable

Community Risk Profiles and Cultural Competence

- Supporting development of culturally appropriate engagement strategies based on community risk profile

“Winter is coming. How do you feel? How do Calgarians feel to see communities like this damaged in our city, and after four months they have not seen the uptake in repairs?”

~Ward 5 Councilor, George Chahal

Economic Recession / Downturn

The Calgary economy has experienced adverse impacts from three shocks:

1. The impacts of decreased oil and gas activity and organizational downsizing prompted a sharp drop in the property values of downtown office buildings and led to a shift in nonresidential property.
2. Supply shock due to a global oil supply glut as a few oil-producing countries struggle for market share. It compressed oil prices and the oil industry profitability suffered.
3. Chronic demand shock: decreased demand for many goods and services is causing adverse impacts on businesses and workers that provide the goods and services, especially the travel and tourism-related sectors.

The City of Calgary was better prepared for this shock by identifying these outcomes in the strategy

Outcome S.1: Deliver a Calgary Foresight Planning Method

Outcome 1D: Calgary is able to coordinate efficiencies, levers and incentives to grow and attract business

Outcome 2D: Calgary institutions invest in equitable economic development

Outcome 3C: Calgarians are supported through strategic investment in natural infrastructure

Outcome 4B: Calgary services are supported by shock and stress resilient watershed systems



"It's going to take a lot of growth, maybe a few years of growth, to absorb all of that excess labour and make sure everyone finds jobs. So, it's going to take us a while and we don't think we're going to be back into single digits probably until 2022 or even later,"
~ATB Financial chief economist Todd Hirsch



Resilience Supportive Actions

Municipal Stimulus Program

- Coordinated and successfully applied for \$152.8 million of stimulus funding to support job creation and contribute to economic recovery.
- Applied a resilience lens to score potential investments for submission

Future Focused Calgary

- Dedicated meetings were hosted to identify the signals of change that are most impactful to small and medium enterprise businesses in Calgary.
- Signals of change were shared with the Business-Friendly Task Force and Business Improvement Area (BIA) leaders

Economic Resilience Task force

- Short-term emergency financial aid priorities shift to establishing medium and long-term resilience for The City and community, leveraging the Resilient Calgary strategy.
- Use diagnostic work on economic shocks and stressors to screen and evaluate approvals moving forward.

Downtown Flood Barriers

- The Downtown barrier is one of several community level flood barriers projects that are currently underway with funding support of the Province. Upon completion, it will greatly increase the resilience of Calgary's downtown economic core by providing protection from another 2013-level flood.

Climate Change

Climate change, driven by the continued rise in anthropogenic greenhouse gas emissions, is impacting every facet of human society; from the built environment, the natural environment, and human well-being to our interconnected socio-economic systems. Global and local stresses and shocks related to climate change were witnessed in 2020 and will continue to occur with increasing frequency and severity into the future.



The City of Calgary was better prepared for this shock by identifying these outcomes in the strategy

Outcome 1A: Calgary's workforce is ready for emerging economies

Outcome 1D: Calgary is able to coordinate efficiencies, levers and incentives to grow and attract business.

Outcome 2D: Calgary institutions invest in equitable economic development.

Outcome 3A: Calgarians are aware of our key natural infrastructure and its role in providing community benefits.

Outcome 3B: Calgarians are supported through sound analysis of natural infrastructure value that informs decision-making.

Outcome 3C: Calgarians are supported through strategic investment in natural infrastructure.

Outcome 4A: Calgary infrastructure investment is strategic, coordinated and future-focused.

Outcome 4B: Calgary services are supported by shock and stress resilient watershed systems.

"We have a situation with climate change which will involve every country in the world and from which we can't self-isolate."
~Mark Carney

Resilience Supportive Actions

Natural Infrastructure Awareness and Policy Alignment

Natural infrastructure can mitigate greenhouse gas emissions by absorbing carbon dioxide and reduce climate risk through environmental adaptation. Services provided include flood protection, water purification, urban heat island reduction and community open space.

Presentations describing how nature-based solutions can address climate risk were delivered to hundreds of participants. Natural Infrastructure language was included in The Next20 update and the Regional Growth Strategy as a tool for climate adaptation

Community Climate Risk Assessment

Climate change impacts will affect equity seeking communities (ESC) most strongly. Climate resilience efforts (from insurance costs and resilient materials to energy efficiency) can be directed to better protect the most vulnerable from climate risk.

A Community Climate Risk Assessment will detail communities in Calgary that are most vulnerable to the impacts of key climate hazards. This information can then be leveraged to improve outcomes for ESC through policy, programs, and education.

Corporate Infrastructure Climate Lens Assessment

Civic infrastructure must be able to withstand a future climate that is more volatile than in the past.

A process has been developed to assess corporate infrastructure projects for greenhouse gas emission reductions and climate risk. This supports a low-carbon, diversified economy that attracts investment, and building infrastructure that is future-ready.

Water Resources

Water Utilities action areas including flood and drought resilience, water efficiency and source water protection contribute to managing critical operations and supporting customers that may be impacted in a changing climate.

Since the 2013 flood, steps have been taken to reduce Calgary's exposure to flood damage with support from Provincial and Federal funding. These actions have reduced our flood risk by about 50%.

Our future climate is being considered in new land use and development policies and tools.

Proactive investments in source water protection will contribute to maintaining and enhancing the resiliency of drinking water supplies.



Unpredictable, Unstable and Insufficient Funding Structures Threaten Infrastructure Gap

Certainty contributes to better infrastructure planning, however many of the City of Calgary's funding structures have recently been reduced or eliminated at the same time as Calgarians are dealing with the downturn in Oil & Gas and economic implications of COVID-19.



The City of Calgary was better prepared for this shock by identifying these outcomes in the strategy

Outcome 4A: Calgary infrastructure investment is strategic, coordinated and future focused

Outcome 4B: Calgary services are supported by shock and stress resilient watershed systems

Resilience Supported Actions

Securing Alternative Funding Structures

- Seeking Public Private Partnerships (P3)
- Ongoing discussions with Canada Infrastructure Bank
- Innovative financing solutions

Rebalancing the Capital Portfolio

- Least harm approach taken to identify reductions necessary to meet reducing funding

Used a resilience lens to score potential investments for the Municipal Stimulus Program

- Criteria included contribution to a resilient city, facilitating equitable service, etc.

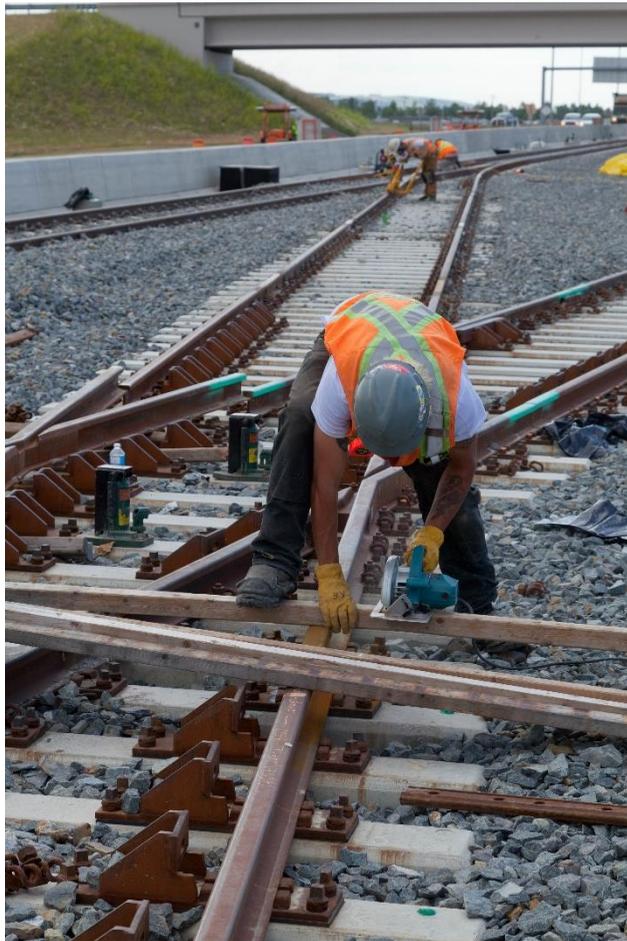
City of Calgary response to the Government of Alberta on the Alberta Infrastructure Act and 20-Year Strategic Capital Plan

- Provided recommendations for best practices in Capital Planning Governance, capital prioritization criteria, future trends.

“...municipalities will be left behind from an inflationary perspective,” states the letter signed by Calgary Mayor Naheed Nenshi and Edmonton Mayor Don Iverson as well as the presidents of the Rural Municipalities of Alberta and the Alberta Urban Municipalities Association on proposed changes under the Local Government Fiscal Framework Act.

Rethinking Infrastructure for a COVID-19 and Post-COVID World

COVID-19 could change the way cities look and operate, how infrastructure is used or pivoted to new uses, and even what is considered essential.



The City of Calgary was better prepared for this shock by identifying these outcomes in the strategy

Outcome 4A: Calgary infrastructure investment is strategic, coordinated and future focused

Outcome 4B: Calgary services are supported by shock and stress resilient watershed systems

Resilience Supportive Actions

Future Focused Calgary

- Strategic Foresight initiative to identify the complex range of changes that have the potential to impact the future of Calgary in the next 15 years; identify high-level actions to mitigate risk, and to build strategic foresight capacity in the organization

Developing Resilience Dividend to strengthen the resilience lens used to prioritize infrastructure investments

- Make every dollar invested in infrastructure do more “work” by insisting on multi-functionality
- Infrastructure investment and equity seeking communities
- Recognize the relation between built networks and shared living environments

Infrastructure Status Report

- 2021 publication to include Natural Infrastructure for the first time

Employee Support and Service Delivery Task Force (ESSD), Economic Resilience Task Force, Downtown Strategy

- Resilience support provided

“...Over the short and long term, certain aspects of city life will shift,” said Rachel MacCleery, senior vice-president at the Urban Land Institute, a city planning think-tank in Washington, D.C., from the use of streets and transit to the design of spaces inside buildings.

Resilient Calgary Strategy

Looking Forward

As Cities face increasingly volatile, uncertain, complex and ambiguous futures, Resilience activities such as horizon-scanning and capacity and awareness building will ensure we are identifying opportunities, risks and gaps.

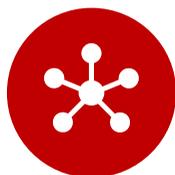
As we further implement our Resilient Calgary strategy, we will integrate equity, economic diversification and climate change to inform all Corporate decision making.

We are excited about the work ahead as we contribute to organizational learning, provide timely information for decision makers, and foster collaboration between key stakeholders.

Lastly, as a team we will continually demonstrate the qualities of resilience and advocate for them in our organization and in Calgary.



Reflective



Resourceful / Connected



Diverse



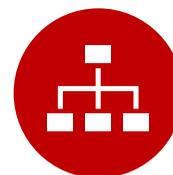
Flexible



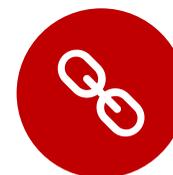
Inclusive



Integrated



Redundant



Robust
Yet Able to Fail Safely