



CALGARY CLIMATE PANEL

ANNUAL REPORT

2020

EXECUTIVE SUMMARY

The Calgary Climate Panel's (the Panel) annual report provides a temperature check on climate action progress in Calgary. It is intended to provide feedback to Council and the public on strengths, challenges, and opportunities in achieving climate adaptation and mitigation goals.

The main findings for 2020 are:

1. **Action in specific areas is positive:** Significant work has been led by The City of Calgary (The City) and community partners to develop broad strategies, and inventory risks and opportunities in specific areas of climate action, namely energy efficiency, alternative fuels and vehicle electrification, and water resource management.
2. **Partnerships in climate communication and education are effective:** Partners on the Panel continue to collaborate effectively to advance public awareness and youth education around climate action.
3. **Quantitative targets are critical for assessment:** The *Climate Resilience Strategy* and implementation initiatives do not have appropriate quantifiable targets and monitoring metrics at the right scale and scope for the Panel to provide data-driven advice on progress. Without metrics, it is difficult to identify and prioritize specific opportunities for action, partnerships, and investment.
4. **There is a need to accelerate development of a more comprehensive strategy, policy, and implementation framework:** An integrated strategy with clear policy, implementation tools, metrics, and financial supports for implementation is required to avoid maladaptive decisions; and to quicken the pace of action.



Calgary has significant opportunities for climate action innovation, yet many initiatives are still in their infancy compared to leading communities.

KEY RECOMMENDATIONS FOR ACTION ARE:

1. Establish implementation strategies, quantitative targets, performance measures, and monitor impacts:

The City should immediately update the *Climate Resilience Strategy* to include current, global standards for targets including:
 - A net zero emissions target by 2050;
 - Investigate the applicability of a fair-share of emissions target by 2030 similar to other Canadian jurisdictions; and
 - Best practice for adaptation targets and outcomes.
2. Develop policy, regulatory frameworks and programs to support the prioritization and formalization of climate resilient and low-carbon behaviours.
3. Accelerate investment and implementation of financial tools to support climate action.
4. Implement comprehensive climate action across Calgary and ensure integration across climate themes.
5. Continue building on public engagement successes.
6. Strengthen Calgary Climate Panel governance.



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I. REPORT PURPOSE AND CONTEXT

The annual Calgary Climate Panel report provides a temperature check on climate action progress in Calgary. Given the timing of this report, the focus is primarily on progress in 2020, however, important events and decisions in early 2021 are also included. Given the mandate of the Panel and its accountability to The City, a major focus is placed on providing a commentary on progress of The City's *Climate Resilience Strategy*. This report is intended for both Calgary City Council and the public. The Panel's annual report focuses on strengths, challenges, and opportunities that Calgary has in advancing climate action.

This report does not provide quantitative metrics for climate action in various sectors or for specific initiatives because they have not yet been developed for Calgary at this scale. The *qualitative assessment* provided herein is based on knowledge gained through the Panel meetings in 2020, The City's *Climate Resilience Strategy and Action Plans Annual Report 2020*, and the collective knowledge of panel members as climate change mitigation and resiliency leaders within their respective organizations and professions. The Panel's annual report is intended to be read as a companion report to the *Climate Resilience Strategy and Action Plans Annual Report 2020* (prepared by administration) and The Panel's report provides an independent perspective on Calgary's progress.

In framing Calgary's progress, it was necessary to look beyond our city to see how progress elsewhere is advancing. Lessons can then be drawn about the way forward for Calgary. Key highlights that should inform Calgary's context for climate action are:

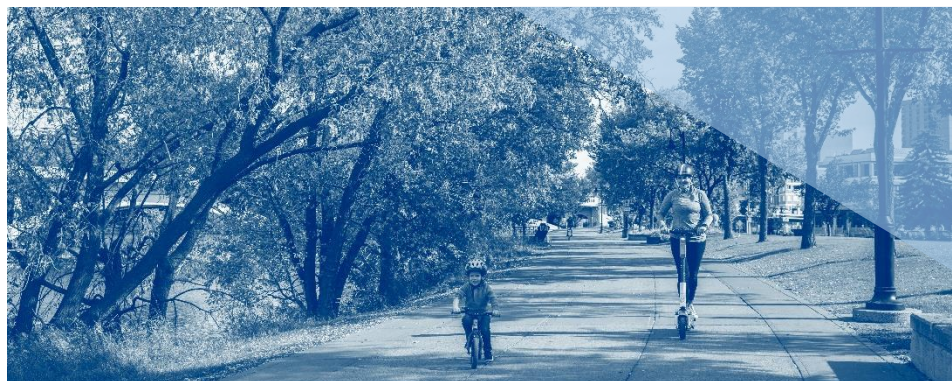
- As of May 14, 2021, 1,940 jurisdictions in 34 countries have declared a climate emergency, enabling them to take decisive action to address emissions and build resiliency. This includes 512 jurisdictions in Canada.ⁱ
- Most of Canada's major cities have set, not only a goal of being net zero by 2050, but by cutting emissions up to 50% of levels seen in the 1990s or early 2000s by 2030. These goals are also based on a "fair share of emissions" approach and emphasize enabling equitable access to climate actions within their communities.ⁱⁱ



- At the national and provincial levels, there have been some changes to infrastructure and community design standards and guidelines to improve climate resilience.ⁱⁱⁱ While new assets will need to comply with new standards, the challenge for most Canadian cities remains addressing climate vulnerabilities for existing assets and communities.
- Funding for specific climate change mitigation and adaptation investments announced by the Federal government in late 2020 is now being made available through the recent 2021 budget.^{iv} This funding will influence investment trends in the technologies and practices that drive climate action in Canadian communities over the coming years.

2. COVID-19, ECONOMIC RECOVERY AND CLIMATE ACTION

COVID-19 has greatly impacted all aspects of Calgary and the lives of Calgarians. While it has had a profound and tragic effects, it has also highlighted Calgary's resiliency including the creativity and adaptability of businesses, individuals, and community services. These are assets of our community that can have profound positive impacts on achieving our climate goals. Calgary's 2020 Greenhouse Gas (GHG) emissions represent a 13.6% reduction from 2019 (*Climate Resilience Strategy and Action Plans Annual Report 2020*) – a scale of reduction never before seen. Calgary and The City should leverage the climate-positive behaviours that have worked for citizens throughout 2020. For example, Calgarians requested road closures for pedestrian use; worked from home; and connected with natural areas more than ever. Where feasible and practical, efforts should be considered that support these and other similar initiatives for the longer term as we enter the recovery phase of the current global pandemic.



3. ABOUT THE CALGARY CLIMATE PANEL



The Panel was created by The City as the first major action following adoption of its *Climate Resilience Strategy* in 2018. The *Climate Resilience Strategy* is City-led and supported. It requires significant community and industry effort to implement. Panel members support the *Climate Resilience Strategy* and have committed to The Panel's dual roles as: (1) as advisors to The City; and (2) as partners and collaborators in implementation.

As an advisor, the Panel provides guidance to The City on climate opportunities, risks, policy options and priorities. The Panel provides insights on climate action that administration may not be aware of and offers industry and community perspective on implementation opportunities and challenges. As a partner, the Panel members join with The City in climate action and, through their leadership, strengthen the climate actions of their own organizations.

The Panel membership is a diverse group of stakeholders with a variety of perspectives on climate actions. The Panel members are experienced and represent a range of professional disciplines including science and engineering, public policy and planning, medicine and public health, finance and economics, and community development.

3.1 2020 PANEL MEMBERSHIP

Academic Advisor
 Alberta Council for
 Environmental Education
 Alberta Ecotrust
 Alberta Health Services
 ATCO
 BILD Calgary Region
 BOMA Calgary
 Calgary Airport Authority
 Calgary Board of Education
 Calgary Chamber of
 Commerce

Calgary Climate Hub
 Calgary Emergency
 Management Agency
 ENMAX
 Fuse Collective
 Indigenous Member
 Intact Insurance
 Public Member
 Siemens Canada
 The City of Calgary
 University of Calgary
 Youth Member

4. EVALUATING PROGRESS - OVERVIEW

In evaluating progress, the Panel's expectation was to have access to robust data and information on the actual or projected impact of actions on emissions reduction and climate adaptation goals. Unfortunately, this level of data and information is not yet available. As such, the majority of this report is focused on providing independent qualitative insight.

4.1 DATA-DRIVEN ADVICE

The current *Climate Resilience Strategy*, its embedded action plans and the annual updates do not provide sufficient quantitative targets and data at the action or thematic/sector scales to identify gaps, opportunities and highlight progress. No mitigation or adaptation data is available at a project level for the Panel to provide objective, data-driven comments. Once metrics and data are available, the Panel will be able to comment on the quantitative climate impact of the *Climate Resilience Strategy*.

Key Recommendations:

1. The City should immediately update the Climate Strategy to include current standards for targets including:
 - A net zero emissions target by 2050;
 - Investigate the applicability of a fair-share of emissions target^v by 2030, similar to other Canadian jurisdictions; and
 - Best practices for adaptation targets and outcomes.
2. Climate actions require a Climate Budget and Climate Accounting Framework to assign targets and enable a comparison of overall progress to established targets. When quantifying the impact of climate action, affordability and equity metrics should also be used. These tools should be adopted by The City and where possible by Calgary organizations with significant GHG emissions.



4.2 CLIMATE LEADERSHIP INSIGHT

While the *Climate Resilience Strategy* and related work has not yet developed quantitative metrics, the Panel's membership is able to offer *qualitative assessments* based on the information available. The intent of this qualitative assessment is to recognize strengths and challenges of the climate action being taken in Calgary to-date, and to make overarching recommendations for future work.

The Panel's annual report identifies five themes that incorporate action in the areas of both GHG emission reduction and climate adaptation. The five themes cover most themes within The City's *Climate Resilience Strategy*. There are strong interlinkages among the five themes in the current report, and many are dependent on one another.

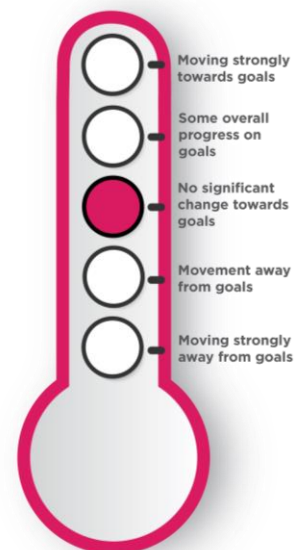
The results presented in Section 5 represent a consensus view of the Panel. Details on the methods used to develop the report are included in Appendix A.



5. EVALUATING 2020 PROGRESS – THEMATIC REVIEW

5.1 BUILDINGS AND ENERGY SYSTEMS:

Of all the Climate themes, The City, developers and building owners/operators prioritized Buildings and Energy Systems for action in 2020 and early 2021. Private and non-profit sector leaders are creating net zero and net zero ready buildings and energy systems. While action is happening, policies, regulations, and approaches should be reviewed and revised to support climate action, increase awareness, enable innovation, and address the impact on affordability. Regulators need to work with technical experts, industry leaders and end-users to advance technological innovations and behaviours that change how Calgarians are able to meet their energy needs in a low-carbon manner. To enable this, solutions need to be affordable and equitable while improving the climate-adaptiveness of Calgary's building stock and energy systems. This theme has the potential to greatly impact climate adaptation and emissions reduction goals.



STRENGTHS:



- Net zero technologies are being explored by the building and energy sector and are a leading action for Calgary. Once data is available, the Panel will be able to comment on the quantitative climate impact.
- The City has made good progress with retrofitting public-owned/operated buildings; education/awareness campaigns; and mapping/benchmarking initiatives.
- Calgary stakeholders developed good examples of climate positive actions such as the University of Calgary's MacKimmie Tower, the University's first net zero carbon building; BOMA's program BOMA BEST (a national green building certification program); and the Renfrew Solar Coop.
- The City undertook an internal climate hazards assessment initiative providing a good foundation for adaptation.
- Community stakeholders provide a range of financial supports (e.g., ATCO, ENMAX), and The City approved funding in 2020 for the acceleration of low carbon financing mechanisms. Additional financial supports are being investigated by The City and partners.

CHALLENGES:

- Climate vulnerability and risk information is lacking for existing buildings and energy systems and must be better understood, particularly for critical facilities.
- The pace of progress is challenging. Calgary needs to learn from other comparable jurisdictions and move more quickly and effectively towards the adoption of net zero or net zero ready buildings and high efficiency energy systems and designs.
- There is a major gap between the ability of new versus existing buildings and energy systems to achieve net zero emissions and ensure climate-resilient features are incorporated into retrofit projects.

OPPORTUNITIES:

- Calgary should engage with industry and where appropriate adopt regulations from other comparable jurisdictions that support best practices.

- Efforts should be taken to ensure equity among Calgarians with respect to access to affordable low-carbon and climate-adaptive building technologies. Calgarians require accelerated financial incentives and examples of case studies to actively pursue these choices. Programs such as the Clean Energy Improvement Program (Alberta's answer to Property Assessed Clean Energy financing) should be available to the public, with one of the first steps being the establishment of a bylaw, a requirement of the enabling legislation.
- Public agencies should provide leadership by requiring net zero ready or net zero standards on major infrastructure (i.e., new arena, the fieldhouse, the *Sustainable Building Policy*).
- Active participation in the development of more efficient, robust, and comprehensive building standards for new and existing buildings that support low carbon designs that are applicable to the Calgary/Alberta environment.

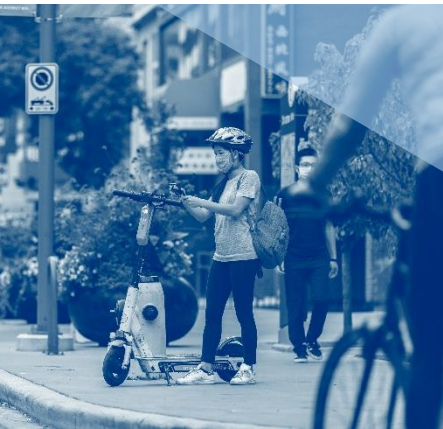


5.2 TRANSPORTATION

Many initiatives are underway to support both climate change adaptation and emissions reduction in Calgary's transportation networks, including carsharing, developing networks of EV charging and LRT planning. Major transportation emitters, such as logistics, air, and commercial transportation, are also identifying technologies and practices needed to reduce emissions and ensure that transportation services remain strong as the climate changes.

Transportation is of critical importance to Calgarians and highly impacts climate mitigation. It is important to accelerate Calgary's understanding of and support for technologies, operational practices and transportation-related behaviours that promote emissions reduction and are climate adaptive. Equity is an important part of the climate story for transportation. Carbon reduction initiatives must be implemented city-wide, and care should be taken to ensure access and acceptance by groups of all cultures, economic status, and locations.





STRENGTHS:

- Climate mitigation progressed in areas of: carsharing, LRT planning, multi-modal and EV infrastructure, and active transportation.
- Continued implementation of pedestrian, cycling and transit strategies.
- In the scheme of Calgary's climate progress, priority is on low-carbon solutions: electrification of personal vehicles, establishment of charging networks and ride sharing or short-term vehicle rental options.

CHALLENGES:

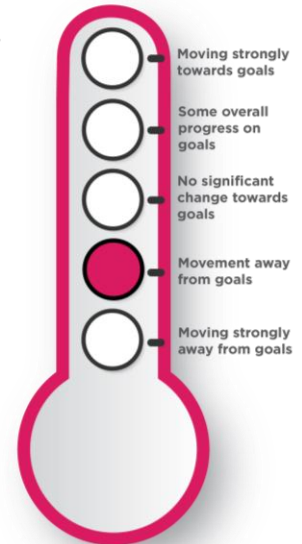
- Calgary has a strong driving culture built into the existing urban structure that significantly impacts emission reduction goals. As a result, decisions that support traditional single occupancy vehicle infrastructure may be contrary to the other emission-reducing actions if these two pathways are imbalanced (i.e., ring road, delays in Green Line LRT may encourage more driving versus commitment and funding of the 5A Cycling Network).
- Logistics and transportation networks are highly complex systems, dependent on many external factors. This makes understanding making climate change vulnerabilities, particularly challenging.

OPPORTUNITIES

- Initiatives that promote alternative fuels or increased efficiencies should similarly be supported and encouraged including hydrogen and natural gas fuel options. Only through a full understanding of current and emerging technologies, will there be a clearer understanding of the opportunities for carbon reductions.
- Adapting goods movement and particularly last mile delivery is an important pathway to achieve mitigation goals.
- Calgary requires additional investment and incentive programs for quicker adoption of low-carbon transportation technologies and behaviours by the public.
- Progress on adaptation in the transportation sector needs to be addressed. A climate risk infrastructure assessment for critical assets and transportation networks must be undertaken.

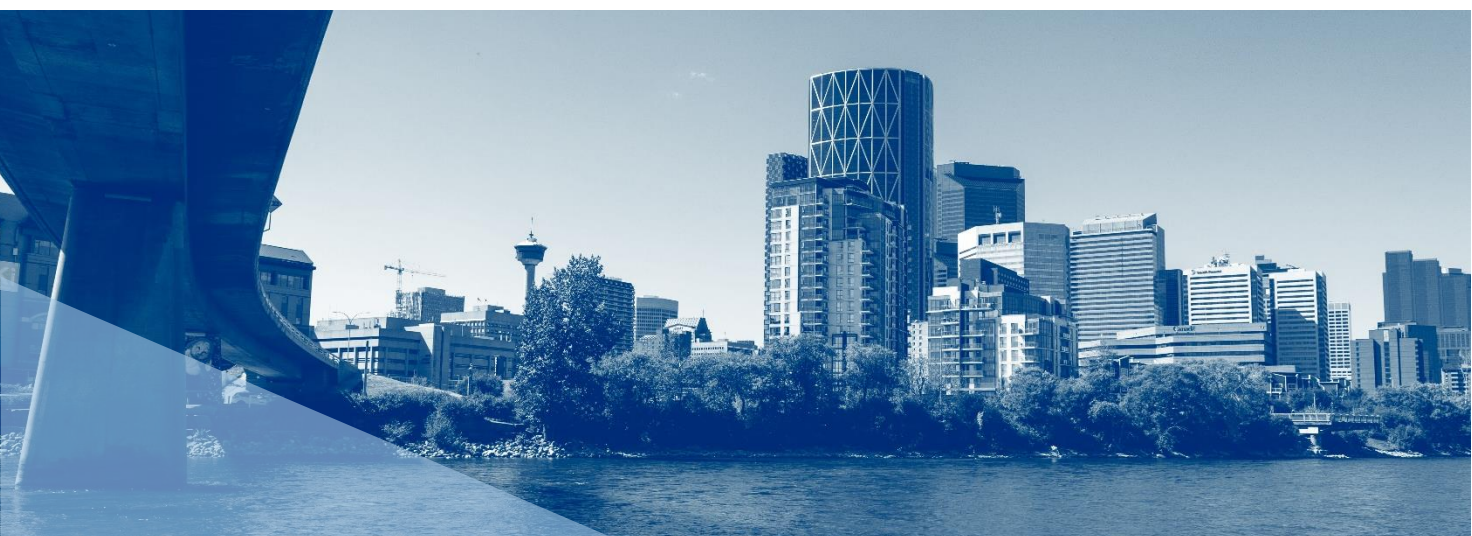
5.3 PLANNING AND LAND USE:

Although changes were made to planning policy in 2020, significant opportunities to formalize climate adaptation and GHG emission reduction were missed, some of which occurred in early 2021. In particular, *The Guide for Local Area Planning*, which was adopted as a guide instead of statutory policy in 2021, did not include clear policy supporting climate-adaptive and low-carbon design and land use. The planning regulatory framework (Land Use Bylaw) was not significantly updated to reflect low-carbon and climate adaptive regulations. Although some moderate climate-positive policy and applications updates were made, the impact on climate goals are not understood.



STRENGTHS:

- Minor climate updates to planning studies and development application forms were completed including Local Area Plans (i.e., North Hill, Beltline and Winston Heights Village), and the climate resilience inventory form.
- A baseline assessment of community climate vulnerability was undertaken to support data driven climate adaptive planning policy.
- The City identified climate-related hazards for water, wastewater, and road infrastructure.



CHALLENGES:

- Calgary's established areas were designed and developed under previous statutory policy plans. The result is a carbon-intensive built form in the established communities that is based on historical assumptions about climate loads and climate hazards.
- Climate is vaguely referenced in most new planning policy including *The Guide for Local Area Planning*; however, strategies for implementation and managing cost require further development.
- There is evidence that supply could be outpacing demand for higher-density housing in some parts of Calgary^{vi}.

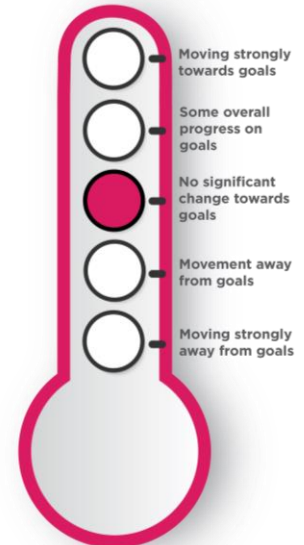
OPPORTUNITIES

- Investment, initiatives, and policy revisions should be aligned to eliminate barriers to promote retrofits and renovations to existing homes and businesses using technologies and practices that support lower carbon footprints.
- To support climate action goals, infrastructure and roadways need to be right-sized (i.e., not oversized), low-carbon and climate-adaptive design needs to be a requirement, and the pace of development should not outstrip demand.
- There is a need for investment in and prioritization of Main Streets and Activity Centres as development areas and improving energy efficiency and renovations that support climate resiliency in Calgary's building stock. This should also be done in a manner that supports equitable access to low-carbon and climate-adaptive housing.
- The Land Use Bylaw is an influential implementation tool for affecting climate action. Climate action amendments to this regulatory tool will have substantial impacts on advancing climate action.
- The City needs clear metrics and a carbon budget to understand the impact of land use decisions on GHG emissions. It should be recognized that The City has recently directed administration to develop a Carbon Budget^{vii} (decision made in March 2021). To operationalize the carbon budget, The City should develop a carbon accounting framework.
- Planning decisions have another role to provide choice for consumers that both mitigate climate impacts and promote individual choices.
- The policy and regulatory environment should promote innovative solutions to both increase climate efficiencies in established communities and respect diverse individual choices and economic capacity.
- Climate adaptation adoption is focused on Low Impact Development (LID) at the property scale. Implementation of watershed-scale LID will be required to achieve the climate goals.



5.4 NATURAL SYSTEMS (INCLUDING WATER)

The Natural Systems theme has a good foundation because of strategy and baseline assessments that have been established. These will enable the integration of climate adaptation in natural system management and decision-making. However, action on the ground has been limited to-date and the scale tends to be geographically limited. A regional ecosystem planning lens needs to be adopted if Calgary wishes to strengthen its adaptation to climate change and maximize the climate mitigation potential of natural systems. Other jurisdictions have a combination of regulatory requirements and incentives for naturalization embedded into their land use, infrastructure and development policies/strategies that have prioritized climate adaptation and support net zero emissions reduction planning^{viii}.



STRENGTHS:

- Important initial work was undertaken including establishing a target of 16% tree cover by 2060. Currently, tree cover is 8%.
- Internal City of Calgary directives, tools and assessments were completed on ecosystem services.
- A range of significant community-specific flood mitigation initiatives occurred that have climate adaptive elements and strengthen ecosystem health.

CHALLENGES:

- Lack of adaptation and mitigation targets, implementation strategies, and data to measure performance.
- No clear strategy for addressing climatic changes and their associated impacts on natural systems or leveraging their role in climate change mitigation.

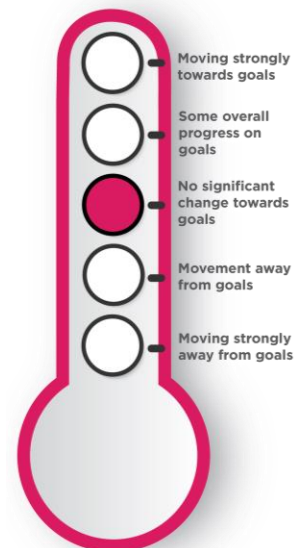
OPPORTUNITIES:



- Naturalization actions should go beyond localized or project specific areas to consider how they integrate into the city-wide naturalized lands and regional land uses. There is potential for maladaptive investments if there is no regional strategy/map to ensure individual naturalization projects provide their fully potential benefits and are not just “islands” of natural area or features that might limit the extent of benefits.
- Land use policy must consider healthy natural ecosystems as an element for improving community resilience to climate hazards.
- Current natural system actions lack integration with agricultural practices and rural land uses. This integration is important given the benefits that strong forests and the prairie ecosystems can provide to agriculture in areas of carbon management and climate resiliency.^{ix}
- To support the previously identified opportunities, there is a need to determine the carbon sequestration potential of the city’s natural and parks assets. The gain and loss of this sequestration potential should be tracked within Calgary’s community greenhouse gas inventory^x.

5.5 PEOPLE AND ECONOMY

The City and the private sector have been taking positive steps forward - even when faced with a declining economy and the threat from COVID-19. Education initiatives are highlights of considerable success. Calgary needs to transition away from a hydrocarbon-based economy: comprehensive training for a carbon-neutral future; implementation of financially positive carbon-reduction measures; and adoption and/or refinement of policies that support innovation for low-emission and climate-resilient action. Currently, Indigenous perspectives and knowledge on climate action are largely absent from this dialogue and climate actions tend to be reserved for more socio-economically privileged groups. The shift toward more equitable climate action will enable stronger progress toward Calgary’s climate action goals.





STRENGTHS:

- A key priority in 2020 was climate education. Several successful climate education initiatives were implemented by educational institutions, the non-profit sector, and The City such as Calgary Ecoschools, Community Climate Conversations, Climate Symposium. These programs lead to greater public understanding and innovation. Climate results of education are hard to measure, but impact change, nonetheless.
- Disaster Risk Management considers climate vulnerability as a core consideration. Extreme weather events are prominent in the Disaster Risk Assessment for The City and the Calgary Emergency Management Agency (CEMA). It is a key element of all Disaster Risk Management decisions.
- The City developed the community climate risk index that is currently being used to understand climate-related vulnerabilities at the neighbourhood scale.

CHALLENGES:

- Diverse audiences across Calgary are not being sufficiently engaged in climate action awareness and education initiatives.
- There is a lack of clear information on public health adaptations in The City's planning, infrastructure, and programs. Little information is available about how extreme weather, vulnerabilities and inequities in health care, social services, and food systems are considered in service delivery.
- Climate-related disasters are costly for Calgarians. Calgarians are financially at risk from climate disasters (i.e., 2020's hailstorm).

OPPORTUNITIES

- Calgary requires a clear economic roadmap to identify pathways for decarbonizing the local economy and creating employment for low carbon jobs. This should also include a carbon budget for a just and equitable transition that increases the social equity and economic prosperity for all Calgarians.
- Development and building standards must consider the increasing potential for extreme and severe events and mitigate these impacts.
- Community non-profits will be key to ensuring the resiliency of people to climate change risks and this group should be explicitly engaged. There is an opportunity to learn from the experience of other cities in engaging the social service sector in climate action.
- The City's education initiatives should target youth and go beyond the classroom to engage all segments of society.

6. OVERALL PACE AND SCALE OF PROGRESS

Calgary's GHG emissions for 2020 were 15.73 megatonnes of CO₂e (*Climate Resilience Strategy and Action Plans Annual Report 2020*). This is a 13.6% reduction in emissions from 2019. The reduction is a result of many factors as outlined in *Climate Resilience Strategy and Action Plans Annual Report 2020* including COVID-19. While the 2020 emissions are a slight decrease from 2019, Calgary's emissions are only 0.4% below 2005 levels and not on track to achieve the current target of 80% reduction by 2050.

Now is the time. We are poised for economic, cultural, and institutional shifts as we recover from COVID-19. Calgary needs to take a strong position that investment in climate action is a strategy for economic prosperity, social wellbeing, and ecological health. We must build on the momentum of work accomplished in 2020 that set a solid foundation and capitalize on action that will have real impacts on reducing GHG emission and making Calgary climate-adaptive.



The *Climate Resilience Strategy* was adopted later than many other cities and progress is being made, but we are lagging. Our one climate target is outdated: the GHG target is to reduce city-wide GHG emissions by 80% below 2005 levels by 2050. Leading Canadian cities have adopted fair-share targets of approximately 50% reduction over 1990-2000 emissions by 2030 and net zero targets for 2050. Calgary has no targets or data for climate adaptation (see Section I for references).

Persistent focus on implementation is the next step. Science-based targets and clear project level data is necessary to know whether we are on the right track.



7. RECOMMENDATIONS

Progress has been made on The City's *Climate Resilience Strategy* and the COVID-19 pandemic has highlighted many of the strengths and assets of our community. Many lessons have been learned that will be important to support climate action going forward. The Panel has identified the following overarching recommendations for Calgary:

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- 1. Establish implementation strategies, quantitative targets, performance measures, and monitor impacts.**
- Develop implementation strategies, clear data-driven targets and performance measures based on science and expert advice that also track social and financial impacts of the plan.
 - Ensure targets are community- and sector-based.
 - Targets should reflect federal and provincial changes in target setting and align with other comparable jurisdictions. This should include a net zero emissions target by 2050. Calgary should also investigate the applicability of a fair-share target for 2030, similar to other Canadian jurisdictions. Best practices for adaptation targets and outcomes should also be pursued.
 - City decisions should be data-driven. Carbon Budgets and Carbon Accounting Frameworks offer tools to support transparent climate decisions (i.e., transportation, planning and others), and enable monitoring.
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- 2. Develop policy, regulatory frameworks, and programs to support the prioritization and formalization of climate resilient and low-carbon behaviours.**
- Net zero or net zero ready commitments should be made for all City infrastructure.
 - The City and other public agencies must provide leadership through demonstrated practices that support climate action and develop industry/private-sector capacities.
 - The City's regulatory tools should be streamlined and updated to support the transition to a low carbon economy and enable climate action for all aspects of municipal jurisdiction.

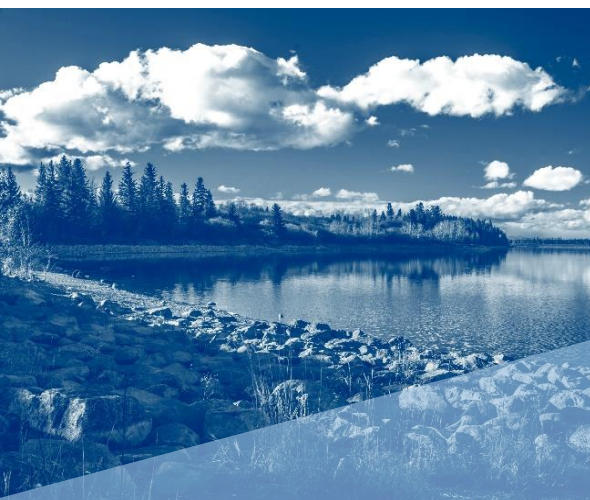
- d. Financial tools and programs must be consistent with the regulatory framework.
- e. Accelerate The City's action on the energy awareness program to inform homeowners, renters, and prospective homebuyers about the energy benefits and costs in housing choices such as their carbon footprint.

 **3. Accelerate investment and implementation of financial tools to support climate action.**

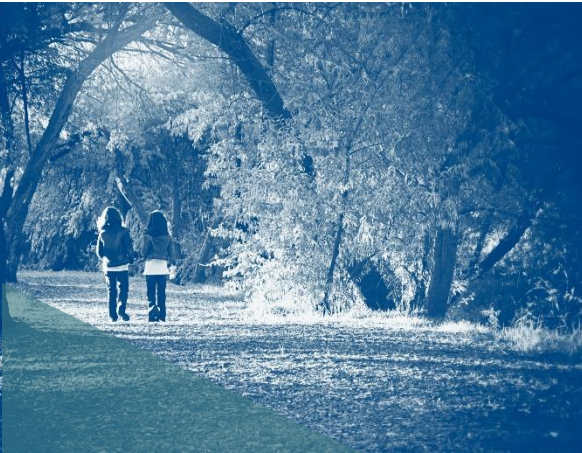
- a. Additional investment is required to achieve the climate goals in a timely manner. The City must ensure appropriate funding is available for City initiatives and work with stakeholder organizations and businesses to develop accessible financial instruments to expedite investment in both residential and commercial/industrial low-carbon retrofits.
- b. Be ready to access and maximize future federal and provincial funding on climate actions to help refocus Calgary's economy and provide new opportunity to those who are un- or under-employed.
- c. The City should adopt best practices from comparable jurisdictions to expedite action (i.e., goods movement; land use bylaw regulations; Clean Energy Improvement Program Bylaw (Alberta's PACE program) and other financial models; climate economic roadmap).

 **4. Implement comprehensive climate action across Calgary and ensure integration across climate themes.**

- a. Implement a comprehensive adaptation program that impacts all themes and moves from assessment to integration of climate-resilient principles and data into policy. Ongoing updates to water resource management design standards are a good example.
- b. Adopt a city-wide approach to bridging the gap between goals/targets and actions. Currently, there are many small-scale initiatives in each theme, but no overarching implementation strategies to link these sometimes-disconnected initiatives. Exceptions to this are in the Building and Energy Systems theme, where there seems to be a good start.
- c. Develop action plans and policies based on the interlinkages between climate adaptation and mitigation. Without addressing the interconnectedness, maladaptive decisions will result.



5. Continue building on public engagement successes.



- a. Build on the success of the Calgary Schools for Climate Action initiative, “Calgary Ecoschools” by enhancing community education offerings, and creating a positive common narrative. The City should target education programs for youth.
- b. Create a shared sense of commitment through meaningful stakeholder and public engagement. Communicate effectively and regularly with stakeholders and the public.
- c. Diverse perspectives and knowledge on climate action, including those of Indigenous people, are largely absent from climate action dialogue and climate actions. All organizations involved in climate action should make deliberate steps to ensure, where possible, that actions are accessible to all segments of Calgary’s population and that diverse perspectives, such as traditional knowledge, are incorporated into climate engagement work.

6. Strengthen Climate Advisory Panel governance.

In 2020, the Panel identified two significant challenges in fulfilling their mandate: a) four meetings per year limits the information that is provided to the Panel members, and b) the lack of direct connection to Council reduces the potential impact.

- a. The Panel should provide credible, strategic and independent advice to inform Council. The Panel recommends a Climate Committee of Council be created to formalize the advisory relationship and be directly accountable to Council.
- b. Meetings should be increased in frequency, as should access to information on official projects/initiatives being led by The City.

END NOTES

ⁱ <https://climateemergencydeclaration.org/>

ⁱⁱ This includes, but is not limited to Toronto (<https://www.toronto.ca/services-payments/water-environment/environmentally-friendly-city-initiatives/transformto/>), Montreal (<https://montreal.ca/en/articles/montreal-climate-plan-objective-carbon-neutral-2050-7613>), Edmonton (https://www.edmonton.ca/city_government/environmental_stewardship/ghg-emissions-reduction-plan.aspx), Ottawa (<https://ottawa.ca/en/planning-development-and-construction/official-plan-and-master-plans/climate-change-master-plan>), Vancouver (<https://vancouver.ca/green-vancouver/vancouver-climate-emergency.aspx>), Halifax (https://www.halifax.ca/sites/default/files/documents/about-the-city/energy-environment/HRM_HaliFACT_vNew%20Logo_.pdf). Much of this work comes from the C40 Cities Network.

ⁱⁱⁱ See the National Research Council's Climate-Resilient Buildings and Core Public Infrastructure Initiative <https://www.infrastructure.gc.ca/plan/crbpci-irccipb-eng.html>

^{iv} 2020 Announcement: <https://pm.gc.ca/en/news/news-releases/2020/12/11/prime-minister-announces-canadas-strengthened-climate-plan-protect>

2021 Budget: <https://www.canada.ca/en/department-finance/news/2021/04/government-of-canada-highlights-budget-2021-investments-to-create-a-healthy-environment-for-a-healthy-economy.html>

^v There is currently no established definition of "fair-share" for Calgary. Other Canadian cities that have adopted targets based on fair share of emissions have done so through the C40 Network (<https://www.c40.org/about>).

^{vi} City of Calgary Housing Reviews 2020 and 2021:

<https://www.calgary.ca/cfod/finance/corporate-economics/housing-review.html>

^{vii} Just as a fiscal budget sets a limit on how much money a city can spend, a carbon budget sets a limit on the emissions it can produce and an accounting framework tracks emissions produced and avoided.

^{viii} Examples include:

City of Toronto: 2008 Green Roof Requirement

Ottawa:

- [Urban Forest Management Plan](#) Adopted by their council in 2017. This is similar to Calgary's ReTree YYC program we refer to below but has slightly more detailed quantitative performance targets (pg. 61 in the report) and 26 cross departmental recommendations to adopt.
- [Greenspace Master plan](#),
 - o Creating parks and greenspaces within the urban environment.

Edmonton: Natural Connections Integrated Conservation Plan

https://www.edmonton.ca/city_government/environmental_stewardship/strategy-biodiversity-protection.aspx

^{xi}

<https://www.ourcommons.ca/Content/Committee/421/AGRI/Reports/RP9814809/agrip11/agrip11-e.pdf>; <https://prairieclimatecentre.ca/2016/06/research-and-collaboration-adapting-our-forests-to-climate-change/>

^x This is referred to as Basic+ under the protocol. Edmonton and other municipalities already use this approach.

APPENDIX A

METHODS USED TO DEVELOP CLIMATE LEADERSHIP INSIGHTS

The Panel used a consensus approach and qualitative methods in developing the annual report. The insights offered represent the collective view of the Calgary Climate Panel members, as both representatives of their organizations and professionals with experience in climate change mitigation and adaptation across a broad range of disciplines and sectors.

The Climate Resiliency Strategy is based on 10 themes. The Panel's 2020 annual report focuses on five themes that were considered to have the highest influence this year, and to keep the report concise. The five themes based on a combination of Climate Strategy's adaptation and mitigation themes.

In developing the report, a weight-of-evidence approach was used and focused on reviewing actions, investments, and decisions at a theme level to identify major influences. This was not a granular review of every single climate action being taken, but an evaluation of Calgary's progress as a whole. The intent was to identify strategic areas for next steps, as opposed to project-specific decisions or investments.

The results are reported using a qualitative graphic to show visually whether Calgary is moving towards or away from the Climate Resiliency Strategy's goals based on the scope, maturity, and pace of climate action in each theme. Each theme section is accompanied by a summary of key strengths, challenges and opportunities for advancement.

Legend:

- Moving strongly away from goals: based on the scope and pace of action. Current action will be detrimental to achieving goals.
- Movement away from goals: based on the scope and pace of action. Current action may not be detrimental to achieving goals but may not be comprehensive or rapid enough.
- No significant change towards goals: no directional change. Current action is resulting in no noticeable net positive or negative impact to achieving goals.
- Some overall progress on goals: based on the scope and pace of action. Current action may be helpful to achieving goals but may not be comprehensive or rapid enough.
- Moving strongly towards goals: based on the scope and pace of action. Current action will be positive in achieving goals.

The Panel members provided individual responses for each theme. All feedback was reviewed and assessed by the report subcommittee. The Panel members collectively agreed to the final graphic representation.

To provide individual responses, a list of projects undertaken in 2020 was provided to the Panel members.

The full list is provided on the following pages.

NATURAL SYSTEMS INCLUDING WATER

City Initiatives:

- Updated climate-related hazards based on local data
- Natural asset valuation and integration into asset management framework
- Flood mitigation along Bow and Elbow River (multiple locations, including Glenmore upgrade) (City initiative)
- Stormwater Strategy Update
- Watershed Investment Strategy
- [City water licence](#)
- Public Infrastructure Assessment Process
- Urban forestry / canopy replacement and expansion
- Parks management

Community Initiatives & Context:

- Rain gardens, mowing strategy, xeriscaping (Alberta Low Impact Development Partnership)
- Nose Creek Watershed Partnership watershed modelling work
- Elbow River Watershed Partnership Restoration and Monitoring Work
- Cows and Fish Riparian Management
- [Stormwater Management Cooperative](#)
- Riverwatch Community Monitoring
- Springbank Offstream Reservoir consultation and studies
- Record presence of over-wintering waterfowl

TRANSPORTATION

City Initiatives:

- Continued implementation of pedestrian, cycling, and transit (RouteAhead) strategies to facilitate mode shift away from single occupancy vehicles
- Review of transportation network and design/procedure updates and changes for climate adaptation and resilience
- Continued shift to lower carbon transportation with CNG fleet, electric bus pilot, and investments in EV infrastructure
- Green Line LRT: climate resilience and GHG mitigation assessments completed, and Envision sustainable infrastructure framework adopted to guide design and build

- Ongoing exchange of best practices/technologies in climate action with partners (e.g., industry associations), material/service suppliers (e.g., cement, concrete, asphalt), and peers (e.g., Transportation Association of Canada, Canadian Urban Transit Association)
- Updated climate-related hazards based on local data
- Parking minimum changes
- Public Infrastructure Assessment Process
- Transit Oriented Development
- Complete streets installation/design (new or retrofiting)

Community Initiatives & Context:

- [Neighbourhood Active Transportation Network](#) (Sustainable Calgary)
- Carsharing changes in Calgary
- Calgary Airport Authority climate change risk assessment

PLANNING AND LAND USE

City Initiatives:

- MDP/CTP Review
- Guidebook for Great Communities, renamed The Guide for Local Area Planning in 2021, (including specific large-scale brownfield site requirements)
- Local Area Plans and projects – climate policies (i.e., North hill, Beltline ARP, Winston Heights Village)
- Climate Resilience Inventory Form - Climate information required in CARL for new land use, DPs, and Outline Plan applications. Information also included in CPC and Council reports
- Main Streets program investment and implementation
- Established Areas Infrastructure Investment Fund
- Updated climate-related hazards based on local data
- Suburban water, wastewater, and road designs (See Amendment #9 to PFC2020-0963 for roads)
- Surface permeability tracking (parcel coverage and/or installed technology)
- Neighbourhood ‘metabolism’ (energy in, energy out)
- Street tree requirements

Community Initiatives & Context:

- Update to the Airport Vicinity Protection Area

BUILDINGS AND ENERGY SYSTEMS

City Initiatives:

- Energy Benchmarking Program
- Integrated City Energy Mapping
- Solar Potential Map
- Climate Resilient Home Handbook for Calgarians
- Public Infrastructure Assessment Process
- Updated climate-related hazards based on local data
- [Sustainable Building Policy](#) (City of Calgary)

Community Initiatives:

- Boma Best Benchmarking and Certifications
- The Canadian Home Builders' Association are building awareness, understanding on best practices in net zero construction and energy efficient home renovations, and providing education initiatives to bridge the knowledge gap.

PEOPLE AND ECONOMY

City Initiatives:

- Community Climate Risk Index
- Updated climate-related hazards based on local data
- CEMA Ready-Calgary online training course

Community Initiatives:

- What do Calgary's K-12 students feel – and know – about climate, energy, and environment?
- Community Climate Conversations ([Climate Hub](#))
- Climate of Change webinar ([Climate Hub](#))
- [Accelerating CCS Technology \(ACT\) Program from Emissions Reduction Alberta](#)
- [Industrial Energy Efficiency, Carbon Capture Utilization and Storage from Alberta Environment and Parks](#)
- [NRCan industrial energy management projects financial assistance](#)
- [Alberta Green Infrastructure program](#)
- Climate Innovation Fund

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