

# Climate & Environmental Management

Led by: Director of Climate & Environment

## Description

Climate & Environmental Management provides leadership, strategies, programs, and support to plan for and manage climate and environmental issues, risks, opportunities and trends associated with the delivery of public services. Climate action aims to reduce the impacts of severe climate events on infrastructure, people and nature, reduce greenhouse gas (GHG) emissions, and improve energy management. Environmental sustainability aims to protect and reduce our impact on land, air and water resources to ensure quality of life, human and ecological health. We identify, assess and manage contamination risks of city-owned land to protect human health and the natural environment.

## Value and benefits

Calgarians rely on The City to protect the environment, build resilience and reduce impacts of climate change on people, infrastructure and the natural environment. We assess environmental and climate risks to our infrastructure, services, people, air, land, water and biodiversity. We provide support and guidance so The City meets or exceeds environmental legislation. We provide expertise and support to Calgarians, ICI (Industrial, Commercial & Institutional) customers to reduce GHG emissions, manage energy more efficiently and plan to mitigate and adapt to climate change. We develop and deliver environment and climate programs, to support and build awareness for Calgarians, ICI, Partners as well as The Corporation. We identify, assess, and manage the risks of soil and groundwater contamination on City-owned lands and protect the health of workers, the public, and the natural environment

## Customers

Our service supports Calgarians, non-governmental organizations and ICI organizations through climate resilience and environmental education and programming. Within the organization, we support corporate management, other City services and employees. We collaborate with executive leadership to ensure we meet evolving legislative requirements.

## What we deliver

We provide customers expertise, strategic advice, tools and products to manage risks through our environmental management system and associated policies and programs. We assess risks using science-based analysis and develop cost-effective solutions to manage energy, reduce climate risks and greenhouse gas emissions. We identify, assess and manage contamination risks of city-owned land.

## Partners

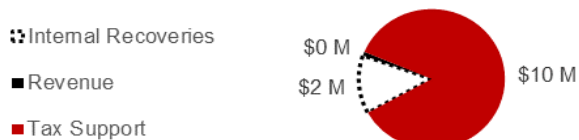
We are trusted internal strategic partners providing support through corporate governance, risk management and advocacy to reduce environmental risks in services and operations as well as in the community. We assist operational and land-owning business units to manage contamination related risks. We partner with external organizations and governments to amplify the reach and impact of our efforts.

777	Sites assessed in 2021 for contamination
26,302	Environmental Expo participants 2022
Conserved 52ha	Environmental Significant Area 2021
22	Infrastructure Climate Lens Assessments

## Key assets

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Climate and Environmental Management  
2022 Budgeted Gross Operating Expenditures Funding  
Breakdown (\$ Millions)\*



\* Gross operating budget may include internal recoveries that are also included in other services' gross operating cost.

Note: Internal recoveries is how The City accounts for the costs of goods or services between services

# What we have heard & what we are watching

## What we have heard

A majority of Calgarians (79 per cent) support taking climate action. Through various focus groups and engagement sessions, we heard:

- The importance of biodiversity,
- The City needs to be more involved in development of a green economy and should provide incentives to help with this transition,
- A need to prioritize natural-based solutions whenever possible,
- Climate action should be approached with an equity lens to ensure we have a healthy environment and access to environmental and climate services for all Calgarians regardless of socio-economic status.

We also heard this work, while important, must be balanced with the concern that funding Climate and Environmental actions are costly to Calgarians.

## What Council has directed

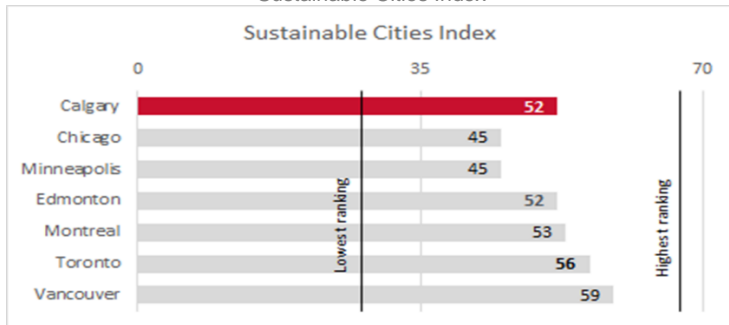
Council declared a climate emergency and outlined climate resilience as a foundational element in its Strategic Direction 2023-2026. Council expects Calgary to be a sustainable community that can manage impacts of severe weather; reduce emissions; build a green economy and play an active role in climate innovation. This will be done through: Implementation of the Climate Strategy and work towards a net zero emissions by 2050 target; coordination with City services to prioritize emission and climate risk reduction, implement a carbon budget and advocate for funding from other orders of government to accelerate these actions; collaboration with the Indigenous Relations Office to foster relationships with First Nations and inform climate change and environment strategies with traditional knowledge; participation in global programs on climate change like Global Covenant of Mayors; compliance with legislation and meet regulatory requirements.

## What we are watching

There has been increasing trends towards municipalities to increase natural space connectivity and increase use of natural infrastructure that provides tangible municipal services while offering key ecosystem services (e.g. urban heat island mitigation, dust mitigation, stormwater filtration and retention, pollination etc.).

The expansion of federal government funding programs for municipal investment in reducing corporate and community greenhouse gas emissions, transitioning towards a low-carbon economy, reducing climate risk, and building climate resilience into public infrastructure, and investment in natural infrastructure solutions.

Sustainable Cities Index



Corporate Knights

## Comparing our service

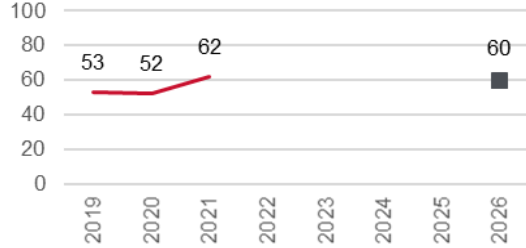
C&E business unit oversees several environmental and climate governance and initiatives aimed to advance The City's environmental sustainability and climate resilience. This index tracks 12 key indicators of urban sustainability related to climate change, air quality, land use, transportation, water, waste, policy, and resilience. Comparisons between the City of Calgary's Sustainable Cities Index score are made with other Canadian and North American cities, as well as the lowest (33) and highest (67) city scores from the Index. Future updates can show changes to Calgary's score.

# Measuring performance & where we want to go

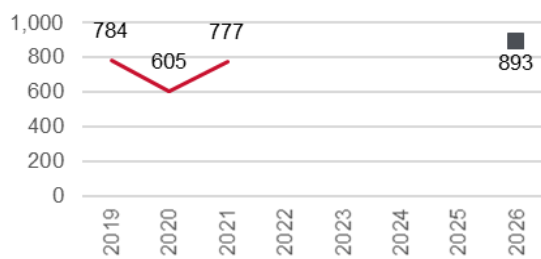
For Council Approval

— Actuals      ■ Expected Future Performance

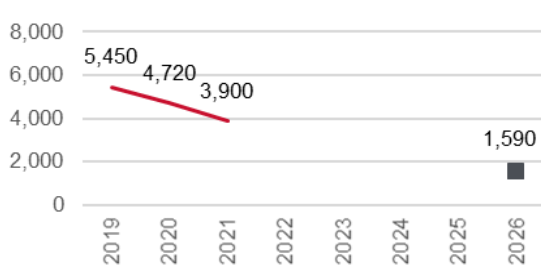
**PM1: Environmentally Significant Area protected and conserved in greenfield development (per cent of ESA protected or restored calculated at land use amendment/outline plan approval)**



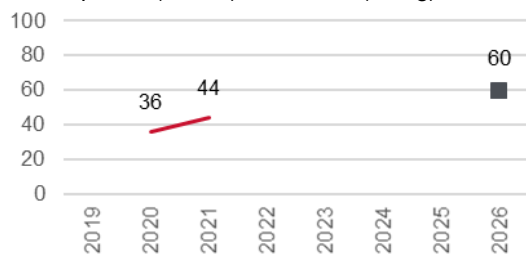
**PM2: Number of sites assessed annually - Contaminated Site Management**



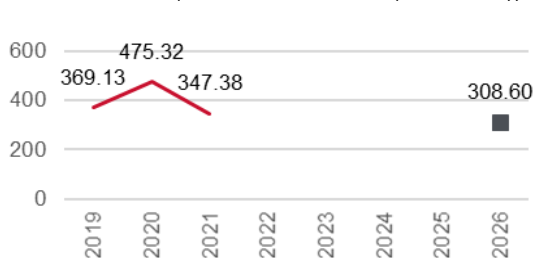
**PM3: Number of properties within 1:100 River Flood Extent - Flood Exposure Risk**



**PM4: Tracking Adaptation and Measuring Development (TAMD) Scorecard (rating)**



**PM5: Measured amount of carbon dioxide (CO<sub>2</sub>) equivalent (e) released - Corporate Greenhouse Gas Emissions (1,000 tonnes CO<sub>2</sub>e (kilotonnes))**



## Story behind the curve

Expected future performance was set to maintain environmentally significant area (ESA) conservation at current levels. This measure supports existing policy to protect identified ESA as natural areas in greenfield development; the Municipal Development Plan, the Open Space Plan and the Biodiversity Policy. Quality of biotic community, ecological function, distinctive and/or unusual landforms, and uniqueness of a habitat or ecosystem components are identified via assessment to determine if an area qualifies as ESA.

This future expected performance is comprised of a combination of new service requests and the review and management of existing City sites. The annual target was established based on historical performance data and is expected to be achieved by end of each year. Provision of contaminated sites services is an ongoing endeavour and will continue even if the future expected performance is reached prior to the end of the cycle.

The 2026 target (1590 properties) represents 70% reduction in exposure from the 2019 value. It is based on hydraulic modelling of scenarios that include all of the permanent structural flood mitigation measures (upstream reservoirs, community flood barriers, drainage system improvements) that are either constructed or are planned to be constructed prior to 2026. The value will be adjusted (reference to the principles of the Flood Resilience Strategy) so that if it is met earlier or climate change or land use projections change the risk profile, a practical minimum of exposure is planned for.

This measure tracks the ability of The City of Calgary to prepare and implement climate adaptation measures in eight different indicator categories, consisting of: Integration of climate change into planning; Institutional coordination for integration; Budgeting and finance; Institutional knowledge and capacity; Adaptation planning under uncertainty; Participation; Awareness of climate change issues, risks and responses among stakeholders

Corporate GHG emissions have been consistently below 2005 levels since 2012, when the City of Calgary began purchasing renewable electricity certificates for 100% of our electricity consumption. Recently corporate energy consumption and the associated emissions have been affected by the ongoing COVID-19 pandemic. In 2021, corporate GHG emissions were 347.4 kilotonnes of carbon dioxide equivalent (CO<sub>2</sub>e), which is 6 per cent less than in 2019. Expected future performance is set to achieve 30% below 2005 levels by 2026 in order to be on track to achieve our Corporate net zero target by 2050.

## What we plan to do

### Result for 2023-2026

We will focus on implementing critical steps towards the Environment Strategy and the Climate Strategy: Pathways to 2050.

### How we are going to get there

Increase protection and conservation of Environmentally Significant Areas (ESA) in greenfield development by developing standard protocols for ESA identification in ecological inventories and biophysical impact assessments, by retaining identified ESAs using Environmental Reserve or other planning tools as part of Land Use Amendment/Outline Plan approvals and by updating ESA and Environmental Reserve policies and guidelines.

Protect the environment and public health and safety by providing corporate-level leadership and support to City services on identifying, assessing and managing contaminated lands. A proactive approach to identifying potential contamination concerns on City land assets and lands contemplated for development ensures that appropriate due diligence is performed and responsible management of environmental risk occurs.

Combine local and regional, structural and non-structural flood mitigation measures to optimize economic, social and environmental resilience to river floods. City-led, supported or advocated initiatives include: new upstream dams and reservoir operations; local flood barriers and infrastructure floodproofing; thoughtful flood hazard zone land use regulation and regulatory refinement; public engagement/education; enhanced flood forecasting; response planning and emergency response.

Drive drought resilience in Calgary through a corporate-wide stance and significant collaboration involving Water Treatment & Distribution Service Line by planning for local and regional water demand, water allocation and/or licensing, water treatment and distribution infrastructure and/or operations and emergency response. Shifting regional climate, utility and environmental equity and the provincial moratorium on new licenses from the Bow Basin make this initiative complex, timely & important.

Guide effective corporate-wide environmental and climate management and performance through policy, frameworks, strategic plans, standards, procedures and tools. Includes assurance activities including audits, risk registers, compliance tracking and performance reporting on behalf of the corporation.

Develop, implement and manage outreach and education initiatives and partnerships aligned with environmental and climate outcomes of the community and the corporation. Key objectives include to educate and build awareness, as well as collaborate and partner to amplify efforts. Services are provided with equity considerations.

Integrate climate and environment considerations into planning and approvals continuum. Review and update existing planning and design policies, guidelines, regulations and processes to include net zero, climate resilience or environmental targets, recommendations and/or requirements; incentivize innovation and quality improvements for new developments to further climate or environment; research and analysis to support appropriate city growth targets and types.

Improve climate resilience of Calgary's people, communities, food systems, buildings, infrastructure and natural assets. Use engagement, data analysis and policy to address climate risk/vulnerability of Calgary communities; advance emergency preparedness and business/service continuity planning for climate-driven events; develop relationships (industry, builders, civic partners), incentives, operational improvements, assessment tools to support climate-resilient built and natural infrastructure.

Support Calgary's transition to a net-zero City. Improve energy efficiency and reduce emissions from new and existing buildings and transportation systems through training and capacity building, financing, incentives and regulatory / policy improvements.

Lead by example by improving the energy efficiency and reducing emissions from City-owned and operated assets and services, including buildings, vehicles, facilities, land, and City operations. Support the transition of City fleet to low-carbon alternatives; manage greenhouse gas emissions from waste; include climate considerations in new capital projects; explore offsets to drive further energy efficiency projects and improvements.

Ensure our policies and services support The City's commitment to building and maintaining a respectful, inclusive, and equitable workplace that is representative of the community we serve.

# Operating budget needed to achieve results

For Council Approval

## Breakdown of net operating budget (\$000s)

	2023		2024		2025		2026	
	Base	One-time	Base	One-time	Base	One-time	Base	One-time
Previous Year's Net Budget	8,806		9,724		10,000		10,060	
Previously approved One-time budget		-		-		-		-
2022 One-time carry forward		450		-		-		-
Revenue Changes	-	-	-	-	-	-	-	-
Internal Recoveries Changes	-	-	-	-	-	-	-	-
Inflation	42	3	58	74	60	112	54	129
Operating Impact of Previously Approved Capital	-	-	-	-	-	-	-	-
Operating Impact of New Capital (Incremental)	-	-	-	-	-	-	-	-
Service Reductions	-	-	-	-	-	-	-	-
Service Increases	876	5,809	218	6,891	-	11,565	50	15,778
<b>Total net budget*</b>	<b>9,724</b>	<b>6,262</b>	<b>10,000</b>	<b>6,965</b>	<b>10,060</b>	<b>11,677</b>	<b>10,164</b>	<b>15,907</b>

\*The previous year's One-Time Budget is not carried forward to the following year.

## Total Operating Budget (\$000s) for Approval

	2022 Budget	2023			2024			2025			2026		
	At April 30	Base	One-Time	Total	Base	One-Time	Total	Base	One-Time	Total	Base	One-Time	Total
Expenditures	12,016	10,832	6,262	17,094	11,108	6,965	18,073	11,168	11,677	22,845	11,272	15,907	27,179
Recoveries	(1,624)	(999)	-	(999)	(999)	-	(999)	(999)	-	(999)	(999)	-	(999)
Revenue	(108)	(108)	-	(108)	(108)	-	(108)	(108)	-	(108)	(108)	-	(108)
<b>Net</b>	<b>10,284</b>	<b>9,724</b>	<b>6,262</b>	<b>15,986</b>	<b>10,000</b>	<b>6,965</b>	<b>16,965</b>	<b>10,060</b>	<b>11,677</b>	<b>21,737</b>	<b>10,164</b>	<b>15,907</b>	<b>26,071</b>
Base	8,806												
One-Time	1,478												

Note: Figures may not add up due to rounding.

# Capital budget needed to deliver service

For Council Approval

Activity	Investment Name	2023 Request (\$000s)	2024 Request (\$000s)	2025 Request (\$000s)	2026 Request (\$000s)	2027+ Request (\$000s)	Total Request (\$000s)
<b>Annual Investment Program(s)</b>							
410887	Environ Analytics System	619	250	-	-	-	869
410886	Env Mgmt Sys (EnviroPortal)	115	115	2	-	-	232
<b>Program(s)</b>							
410751	Centralized Climate Fund	3,518	9,720	11,350	5,400	-	29,988
410899	Corporate Infrastructure Climate Risk & Resilience Program	150	150	150	150	-	600
410888	Natural Infra Invest Prog	100	100	100	100	-	400
410885	Corporate Infrastructure Climate Mitigation Program	360	840	100	100	-	1,400
<b>Projects(s)</b>							
		-	-	-	-	-	-
Sub-Total (New Budget Requests)		4,862	11,175	11,702	5,750	-	33,489
Previously Approved Budget Remaining		-	-	-	-	-	-
Total Capital Investment		4,862	11,175	11,702	5,750	-	33,489

## Explanation of capital budget requests

### Annual Investment Program(s)

#### Activity 410887: Environmental Analytics System

Implement an environmental analytics system to produce indicator dashboards, data for report inclusion and analyze scenarios for future planning. Develop tools to increase visibility into environmental performance, reporting, information exchange, advance decision making and planning.

Funding From: Pay-As-You-Go (\$869 thousand)

Contributing Services: Data Analytics & Information Access

Operating Impact: None

#### Activity 410886: Environmental Management System (EnviroPortal)

Implement technology for tracking environmental impact of City services, compliance obligations, and actions to reduce risk and improve performance. Provides information and assurance related to environmental and climate risk, and feedback on the corporate environmental management system.

Funding From: Pay-As-You-Go (\$232 thousand)

Contributing Services: IT Solutions & Support

Operating Impact: None

### Program(s)

#### Activity 410751: Centralized Climate Fund

Support service lines to integrate climate considerations into new infrastructure projects or major retrofits. Support service lines to integrate GHG and climate risk reduction measures into major infrastructure projects.

Funding From: Municipal Sustainability Initiative (\$9,000 thousand) Canada Community-Building Fund (\$9,000 thousand) Pay-As-You-Go (\$11,988 thousand)

Contributing Services: Facilities Management, Affordable Housing, Infrastructure & Engineering, Real Estate, Parks & Open Spaces, Urban Forestry, Stormwater Management, Wastewater Collection & Treatment, Water Treatment & Supply, Waste & Recycling

Operating Impact: None

#### Activity 410899: Corporate Infrastructure Climate Risk & Resilience Program

Conduct climate risk and resilience assessments of existing asset portfolios and develop design criteria. Reduce impact of extreme climate events to existing and new City owned infrastructure to protect citizens and reduce financial and service loss.

Funding From: Pay-As-You-Go (\$600 thousand)

Contributing Services: Affordable Housing, Facility Management, Wastewater Collection & Treatment, Waste & Recycling, Fleet Management, Recreation Opportunities, Real Estate, Public Transit, Emergency Management & Business Continuity, Stormwater Management, Data Analytics & Information Access, Property Assessment

Operating Impact: None

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**Activity 410888: Natural Infrastructure Investment Program**

Expand scope of the Natural Asset Valuation Project to include engineered natural infrastructure and non-city owned assets. Natural Infrastructure provides citizens with critical ecosystem services that provides significant annual service benefit.

Funding From: Pay-As-You-Go (\$400 thousand)

Contributing Services: Parks & Open Spaces, Urban Forestry, Stormwater Management

Operating Impact: None

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**Activity 410885: Corporate Infrastructure Climate Mitigation Program**

Implement Corporate carbon budget, develop service line GHG plans, and support low carbon technologies. Reduce GHG emissions from existing and new City owned infrastructure and assets.

Funding From: Pay-As-You-Go (\$1,400 thousand)

Contributing Services: Water Treatment & Supply, Corporate Governance, Facility Management, Waste & Recycling, Fleet Management

Operating Impact: None

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