Climate Resilience Planning and Development Action Plan | DRAFT

The draft Climate Resilience Planning and Development Action Plan identifies 15 actions the City can take to integrate climate adaptation and mitigation into the land use planning and development continuum. These actions were selected based on climate best practices, alignment with the City's Climate Strategies, legal jurisdiction, council priorities, and stakeholder feedback. The following draft actions are intended to be implemented from 2024 to 2026 in order to lay a strong foundation for ongoing climate resilience building. Feedback provided through this engagement will be used to further refine and prioritize the draft actions and to identify any potential missing actions that should be considered.

Action	Outcome	Why	Approach
1. Streamline the permitting process for climate resilient development	The City of Edmonton champions climate resilient development • Resilient City Building Processes	Provincial legislation prevents municipalities from regulating energy efficient development beyond the current energy performance Tier of the Building Code mandated by the Province. With these legal limitations, the City must explore other levers of change to support the development of energy efficient buildings. Developing a streamlined permitting approvals process that reduces approval timelines, reinforces the City's commitment to championing climate resilient development. At the February 27, 2024 UPC Meeting (UPE01754), Administration committed part of the 2024 budget to a green permitting pilot in 2024.	• Develop and implement a coordinated and dedicated Development and Building Permit Review program for buildings that are built beyond the current energy performance Tier set out by the Province.
2. Incorporate EV-ready requirements into the Zoning Bylaw	New development sites and buildings are designed in a way that integrates electric vehicle (EV) charging infrastructure • Resilient Site and Landscaping Design • Resilient Buildings	Transportation makes up 31% of Edmonton's total greenhouse gas (GHG) emissions and was identified in Edmonton's Community Energy Transition Strategy (2021), alongside urban form, as one of the three major reduction areas (up to 28% of the needed GHG emission reductions). Electric vehicles (EVs) have an important role to play in reducing the GHG emissions from personal transportation. As part of an effort to support the transition to electric and other zero emission vehicles, new zoning regulations will require the development of sites and buildings to be designed to support the installation of EV charging infrastructure. By ensuring EV readiness at the construction stage, future retrofit costs	• Prepare EV readiness regulations with consideration for all building forms (e.g. residential, commercial, industrial, institutional and standalone parking facilities) for incorporation into Zoning Bylaw 20001.

Action	Outcome	Why	Approach
		can be minimized or completely mitigated.	
3. Incorporate solar-ready requirements into the Zoning Bylaw	New buildings are designed in a way that facilitates and optimizes the installation of a solar photovoltaic (PV) system • Resilient Buildings	Buildings—residential, commercial and institutional—make up 38% of Edmonton's total greenhouse gas emissions and were identified in Edmonton's Community Energy Transition Strategy (2021) as one of the three major reduction areas (up to 19% of needed GHG reductions). As part of an effort to support the use of renewable solar energy, new zoning regulations will require buildings to be designed in a way that facilitates and optimizes the installation of a solar photovoltaic (PV) system. Solar PV installations on existing buildings often require additional retrofits to enable effective installation. By ensuring solar readiness at the construction stage, future retrofit costs can be minimized or completely mitigated.	• Prepare solar readiness regulations with consideration for all building forms (e.g. residential, commercial, industrial and institutional) for incorporation into Zoning Bylaw 20001.

4. Pursue options for resilient landscaping practices on private property	Landscaping is designed to reduce vulnerability to climate risks
	
	• Resilient Site and Landscaping Design
		Edmonton is warming at a faster rate than the global average. Climate projections indicate that Edmonton will experience changing precipitation patterns along with an increase in extreme weather events in the city. This means an increase in heavy rainfall events but a decrease of rain and an increased likelihood of drought conditions during the summer.
		
		Urban landscaping and green infrastructure can play a key role in mitigating and adapting to the impacts of climate change in many ways, including providing habitat for species, managing stormwater runoff, sequestering carbon, and reducing the heat island effect.
		
		In an effort to expand green infrastructure and support climate resilience on private property, opportunities to incentivize, educate and regulate landscaping will be pursued.
		
		A Council motion was passed during the October 23, 2023 Zoning Bylaw 20001 Public Hearing to include an analysis on the landscaping provisions as part of the Zoning Bylaw's one-year review report and to
			• Assess current landscaping programming, processes, and resources to identify:
			  ○ Opportunities to increase Zoning Bylaw compliance levels of new residential developments
			  ○ Public education, partnerships, capacity building, and other initiatives to increase resilient landscaping on existing residential properties
			• Assess landscaping regulations and identify opportunities to increase resilient landscaping, including:
			  ○ Increased use of drought-resistant and native species
			  ○ Increased use of low impact development (LID)
			  ○ Preservation of existing trees
			  ○ Increased tree count and canopy coverage
			  ○ Increased naturalization and permeable area
			  ○ Increased topsoil depth

Action	Outcome	Why	Approach
		provide amendment options to further implement the work of climate resilience in planning and development, if necessary.	○ Increase to minimum soft landscaping area
5. Update the Floodplain Protection Overlay in the Zoning Bylaw	New development is resilient to river flood events • Resilient Neighbourhoods • Resilient Site and Landscaping Design • Resilient Buildings	The Government of Alberta recently updated provincial flood maps. Flood maps identify where water will flow during a flood, and what land could be flooded during different sizes of floods. Flood maps can inform land use planning decisions, emergency management operations and sustainable floodplain initiatives. In response to the work by the Province, a local study is currently underway to assess the North Saskatchewan River flood risk in Edmonton to more accurately capture climate projections. This study will be completed in the 3rd or 4th quarter of 2024. Once the study is completed, the Floodplain Protection Overlay in Zoning Bylaw 20001 will need to be updated. The purpose of the overlay is to mitigate the potential negative effects of a flood event and ensure the safety of those living within the defined floodplains of the North Saskatchewan River and its tributaries.	• Update the North Saskatchewan River flood risk mapping for the City of Edmonton to reflect future climate projections. • Update the Floodplain Protection Overlay in Zoning Bylaw 20001 to align regulations with best practices for development within flood risk areas.
6. Introduce new regulations for wildfire risk areas in the Zoning Bylaw	New development is designed and constructed to reduce vulnerability to urban wildfire events • Resilient Neighbourhoods • Resilient Site and Landscaping Design • Resilient Buildings	Edmonton is warming at a faster rate than the global average. Scientists predict that Edmonton will be exposed to higher temperatures, drier summers, more extreme precipitation events, and more variable extreme weather events. With Edmonton predicted to have an overall warmer and drier climate, it is anticipated that there will be increased incidences of wildfire events in Edmonton. There is a need to reduce vulnerability to wildfires. Adding a Wildfire Risk Overlay in Zoning Bylaw 20001 will help minimize the impact of wildfires to people, property and infrastructure along the wildland-urban interface.	• Develop a Wildfire Risk Overlay in Zoning Bylaw 20001 to identify properties in wildfire risk areas and prepare regulations to mitigate the potential negative effects of a wildfire event and ensure the safety of those living in lands that may experience wildfire risks. • Consider FireSmart and wildfire-ready best practices for the Edmonton context to help protect homes, buildings and neighbourhoods from the growing threat of wildfires.

Action	Outcome	Why	Approach
7. Incorporate climate resilient standards into the City's Design and Construction Standards	New infrastructure is designed and built to support the energy transition and adapt to the effects of climate change • Resilient Neighbourhoods	Edmonton's Community Energy Transition Strategy (2021) identified that greenhouse gas (GHG) emissions associated with transportation and urban planning, as well as buildings, can account for up to 47% of Edmonton's needed emissions reductions. Design and Construction standards ensure that all City infrastructure is constructed to a consistent standard for operation and maintenance. They guide road and landscaping design as well as installation of power, water, and drainage infrastructure. Integrating climate resilient standards within the City's Design and Construction Standards can enable resilient neighbourhood development and renewal in the face of future climate shocks and stresses. Resilient Design and Construction Standards could lead to improved electrical service requirements, landscaping requirements for drought-resistant and native plant species, and improved drainage infrastructure.	• Conduct comprehensive review of all standards to identify opportunities and provide recommendations to incorporate climate resilient standards. • Develop a roadmap for phased updates to each volume of the Design and Construction standards. It is anticipated that these updates will occur over this budget cycle (2024 to 2026) and the next budget cycle (2027 to 2030). • Update Design and Construction Standards to incorporate climate resilient requirements.
8. Expand the scope of the Climate Resilience Policy and Procedures to guide city-wide development	Local climate action is supported with clear and consistent direction • Resilient Neighbourhoods • Resilient Site and Landscaping Design • Resilient Buildings • Resilient City Building Processes	Council Policy C627 - Climate Resilience Policy currently outlines clear procedures for City-owned and managed buildings. There is a gap in climate-focused guidance for public lands, parks, infrastructure and for neighbourhood design. Updates to the Climate Resilience Policy, as well as drafting of Administrative Procedures, that focus on filling in those gaps should provide guidance for Administration to further expand climate resilient development.	• Incorporate neighbourhood design, infrastructure, public land and parks into Council Policy C627 - Climate Resilience Policy. • Develop additional Administrative Procedures to provide direction on how Administration is expected to activate C627.

Action	Outcome	Why	Approach
9. Incorporate climate resilience into the Terms of Reference that guide new neighbourhood design	New neighbourhoods are designed and built to support the energy transition and adapt to the effects of climate change • Resilient Neighbourhoods	Two of the four major sources of GHG emissions in Edmonton are buildings—residential, commercial and institutional—and transportation, totaling 69% of Edmonton's emissions. Area Structure Plans (ASPs) and Neighbourhood Structure Plans (NSPs) guide future development of lands, including designating land uses, establishing a circulation network (i.e., transportation, pedestrian, bicycle, etc.), and identifying open space systems and natural areas. These plans are guided by a Terms of Reference to ensure that the fundamental principles for creating and developing a community are met to build communities that are healthy, vibrant and sustainable. Decisions made today about how we design and build our city, transportation systems, infrastructure and energy will set the course for our future greenhouse gas emissions. Updates to the Terms of Reference can help to set the path forward for a low carbon city and ensure sustainable urban planning practices. A Council motion was passed in September 2023 to require the Terms of Reference be updated to adequately address greenhouse gas impacts and climate resilience.	• Update the Terms of Reference for ASPs and NSPs to align with Council Policy C627 - Climate Resilience Policy. • Include climate resilience criteria in the Terms of Reference for new neighbourhood plans (i.e. ASPs and NSPs), and substantial amendments to existing plans in effect. • Identify and update technical study requirements and policy direction as needed to support the changes in the Terms of Reference.
10. Identify and pursue opportunities to enable development of low-carbon district energy systems	District Energy Opportunity Areas are planned and developed to connect to District Energy • Resilient Neighbourhoods • Resilient Buildings	Commercial, institutional and residential buildings together are the largest emitting sector in Edmonton; as of 2022, they accounted for 36% of Edmonton's total greenhouse gas (GHG) emissions. To accelerate the decarbonization of new construction in Edmonton, it is essential that both building energy performance and transformation to low-carbon district energy systems be considered and optimized. District Energy Systems play an important role in reducing GHG emissions from space heating and cooling, and preparing Edmontonians for impacts of a changing climate. The District Energy Strategy estimates approximately 25% of all new residential construction in Edmonton through to when the population reaches 2 million will occur within District Energy Opportunity Areas. To support building decarbonization, appropriate policy and regulatory	• Identify the appropriate policy and regulatory tools to facilitate connection (or readiness to connect) of new construction to District Energy in Opportunity Areas. • Develop guidance for enabling connection to District Energy for the various typologies of Opportunity Areas.

Action	Outcome	Why	Approach
		tools will need to be identified to facilitate connection (or readiness to connect) of new construction to District Energy Systems in Opportunity Areas.	
11. Pursue options for preserving natural areas through neighbourhood design	Natural areas are preserved and protected through neighbourhood design • Resilient Neighbourhoods • Resilient Site and Landscaping Design	Natural areas, such as tree stands and wetlands, act as carbon sinks which contribute to the reduction of greenhouse gasses and also mitigate the impacts of climate change by reducing overland flood risks and urban heat island effect. Various planning tools are used to protect and acquire natural areas. Once identified for protection, they are recognized throughout all planning stages to ensure that expectations around protection and buffering are known, and that subsequent engineering supports the viability of these features. This issue is most relevant for Edmonton's future growth area, which are currently designated for future development. There are policies in place to generally support natural area retention, but early identification of key assets will better integrate them into engineering considerations and early constraint identification. With respect to acquisition, ravines, wetlands and flood areas are typically preserved through Environmental Reserve (ER) during the land development process. Areas that do not meet the definition of ER, such as tree stands, must be acquired differently. Municipal Reserve (MR) can be used, but must be balanced against other parkland priorities such as schools and playgrounds. There is a dedicated fund that may be used for this purpose, but it is currently pre-allocated, with no additional opportunities. As a result, newly identified features in already planned neighbourhoods cannot be protected without removing other parks, and no proactive acquisition can occur in the future growth areas while land values are low.	• Explore options to consider the preservation of natural areas and natural infrastructure in neighbourhood design and development at the earliest stages of planning work, including future growth areas and non-statutory servicing studies. • Explore additional funding for the Natural Area Reserve fund to purchase additional, high-value natural assets that cannot be retained through existing planning tools.

Action	Outcome	Why	Approach
12. Develop a Climate Risk Index for Edmonton neighbourhoods	Decision making leads to more equitable and resilient outcomes • Resilient Neighbourhoods	The project to develop the Climate Risk Index (CRI) is designed to assess and track exposure, vulnerability, risk and resilience to climate change at the neighbourhood scale in Edmonton. The indicators represent a mix of human and natural systems as well as the built environment. Upon completion of this work, the outcomes of the Index can help to shape planning and policy decisions at the local level to enable more equitable and targeted resilience-building measures.	• Develop a Climate Risk Index to assess and track exposure, vulnerability, risk and resilience to climate change at the neighbourhood scale in Edmonton.

13. Foster awareness of climate resilient development through public education and outreach	Edmontonians are empowered to address climate change
	• Resilient Site and Landscaping Design
	• Resilient Buildings
	• Resilient City Building Processes
		The City's climate strategies include goals and actions where some are best achieved by the City, some by external partners, some by local businesses and some by the citizens we serve.
		
		To address the climate change emergency and protect our quality of life, health, and economy, we need to take this opportunity to interact with the public and make the effort to share and promote information on climate action. There is an opportunity to support and enable climate resilient and energy efficient development through educational resources for the public and development industry.
			• Integrate building and neighbourhood resilience measures within the Community Education and Activation Strategy (to be developed).
			• Develop resources to educate the public on climate risks and opportunities for action related to development such as:
			  ○ Climate resilient landscaping and site design
			  ○ Energy-efficient building design
			  ○ Wildfire risk mitigation measures
			  ○ Flood risk mitigation measures
			  ○ Sustainable demolition practices
			• Develop education packages on grants and incentives for green development and retrofits.

Action	Outcome	Why	Approach

14. Pursue opportunities to leverage grant funding for climate resilient development	Climate resilient development and retrofits are accessible to Edmontonians
	
	• Resilient Buildings
	• Resilient City Building Processes
		The City has a target to reduce community-based net greenhouse gas (GHG) emissions by 50% by 2030 and achieve net zero per person GHG emissions by 2050. Achieving these targets will require community buy-in and collective action. Previous grant programs, such as the Solar Rebate Program and the Home Energy Retrofit Accelerator (HERA) Program have successfully resulted in over 16 MegaWatts of rooftop solar installations and over 2,000 participants in energy upgrades.
		
		Grants provide an opportunity for the City of Edmonton to exercise controls over development that are otherwise limited through provincial legislation and to increase accessibility of climate resilient retrofits.
		
		Exploring opportunities to improve existing grants and leverage future grant funding can increase accessibility of climate resilient retrofits to ensure Edmonton's most vulnerable communities are benefiting from climate resilient buildings.
			• Launch a Low Income Energy Improvement Program
			• Update current development grant programs to include a climate improvement requirement where equitable and effective.
			• Explore new opportunities for grant programs that incentivize alignment with higher Tier building and energy codes and/or improve resilience to climate impacts. Examples include:
			  ○ Alberta Climate Ready Homes Project
			  ○ Solar Rebate Program for multi-family buildings

15. Build organizational change within Administration through education and collaboration	Decision making is guided by a climate lens
	
	• Resilient City Building Processes
		Climate expertise varies across different teams in the planning and development continuum. Varying levels of understanding can stand as a barrier to consistent application of the City's Climate Strategies and Climate Resilience Policy.
		
		The Climate Planning and Strategy group is not currently included in most development application reviews. Including this group will build staff's working knowledge on climate change, improve consistency, and provide a natural feedback loop to improve how climate policy is written and applied to front line services.
		
		An internal "Climate Champions" program would further strengthen staff's use of climate policy and improve interdepartmental information-sharing and education.
			• Add the Climate Planning and Strategy group to circulation processes where feasible and effective:
			  ○ Development permits, subdivision applications, rezoning applications, plan amendments
			  ○ City development projects (i.e. neighbourhood renewal, open spaces development)
			  ○ Policy and guideline development
			• Establish climate resilient standard operating procedures for planning and development processes to build internal knowledge and capacity.
			• Develop a "Climate Champions" program with representatives from each work unit to streamline information sharing and foster internal collaboration.

Outcome Matrix

#	Action	Resilient Neighbourhoods	Resilient Site and Landscaping Design	Resilient Buildings	Resilient City Building Processes
1	Streamline the permitting process for climate resilient development				●
2	Incorporate EV-ready requirements into the Zoning Bylaw		●	●	
3	Incorporate solar-ready requirements into the Zoning Bylaw			●	
4	Pursue options for resilient landscaping practices on private property		●		
5	Update the Floodplain Protection Overlay in the Zoning Bylaw	●	●	●	
6	Introduce new regulations for Wildfire Risk Areas in the Zoning Bylaw	●	●	●	
7	Incorporate climate resilient standards into the City's Design and Construction Standards	●			
8	Expand the scope of the Climate Resilience Policy and Procedures to guide city-wide development	●	●	●	●
9	Incorporate climate resilience into the Terms of Reference that guide new neighbourhood design	●			
10	Identify and pursue opportunities to enable development of low-carbon district energy systems	●		●	
11	Pursue options for preserving natural areas through neighbourhood design	●	●		
12	Develop a Climate Risk Index for Edmonton neighbourhoods	●			
13	Foster awareness of climate resilient development through public education and outreach		●	●	●
14	Pursue opportunities to leverage grant funding for climate resilient development			●	●
15	Build organizational change within Administration through education and collaboration				●