

## Environment and Climate Review

This is a critical time for environmental and climate action. The Intergovernmental Panel on Climate Change (IPCC) has said that to achieve a global 1.5°C (degrees Celsius) or 2°C (degrees Celsius) carbon budget implies rapid, deep, and, in most cases, immediate greenhouse gas (GHG) emission reductions in all sectors.<sup>1</sup> As well, efforts are needed to adapt and prepare for the growing impacts of a changing climate. Decisions made today about how the city is designed and built will, in part, set the course for Edmonton’s future climate resilience.

The Growth Management Framework has implications for environment and climate in three key areas:

- i) Supporting Energy Transition and Adapting to a Changing Climate
- ii) Supporting Resilience of Food System;
- iii) Supporting Protection of Natural Areas and Green Infrastructure.

For each of these areas, the table below outlines various environmental and climate risks and opportunities.

<b>Supporting Energy Transition and Adapting to a Changing Climate</b>	
The location, form, design and timing of development can significantly impact community greenhouse gas emissions and climate risk exposure. Encouragement of development in the redeveloping area and the establishment of compact, complete and climate resilient communities in developing areas are currently the best options for sustainable growth.	
<b>Proposed Actions</b>	<b>Environment and Climate Risk/Opportunity</b>
The results of monitoring and forecasting of “required” metrics within the developing area would be used by Administration to recommend to Council that statutory planning	<p>The identified “required” metrics encourage the development of complete communities, which can provide some climate benefit in comparison to premature development in the future growth area such as enabling lower travel distances by private vehicles and more efficient delivery of City services like transit, waste collection and snow clearing.</p> <p>Until regulations, programs and/or processes to increase climate resilience are developed, adopted and implemented, the future costs</p>

<sup>1</sup> Intergovernmental Panel on Climate Change. *AR6 Synthesis Report: Climate Change 2023*. March 20, 2023. p. 46.

<p>of future growth areas can begin. "Required" metrics identified include: dwelling units, commercial services and parks.</p> <p>Updating of the Terms of Reference (TOR) for statutory plans is planned and will integrate opportunities to improve climate resilience of newly planned areas.</p>	<p>to retrofit buildings and improve infrastructure to meet the City's climate resilience goal will continue to increase. The action being taken to update the TOR for statutory plans to incorporate considerations for the integration of climate adaptation and energy transition can reduce future costs for both the City and homeowners.</p> <p><b>Considerations for Compact and Complete Communities</b> The City Plan calls for transitioning to a higher density built form. Standards, investments and incentives that encourage compact development throughout the city can result in emission reductions and delay emissions during this critical time where solutions to deliver on carbon neutral goals are being pursued and help avoid increased future costs.</p> <p>The dwelling unit metric is currently calculated as the number of dwelling units in the developing area compared to the refined capacity. Monitoring that also considers planned capacity and The City Plan's regional density targets can provide increased transparency.</p>
<p>The proposed approach includes monitoring "tracked" metrics for the development areas that could include:</p> <ul style="list-style-type: none"> <li>● Fire halls</li> <li>● Libraries</li> <li>● Recreation facilities</li> <li>● Constructed schools</li> <li>● Affordable housing</li> <li>● Redeveloping area infill</li> <li>● Transit service</li> <li>● Arterial roads (future metric)</li> <li>● Developed parks (future metric)</li> </ul>	<p>The inclusion of "tracked" metrics could inform decisions related to City investments in services and infrastructure. Tracking transit service and actioning investment in this area supports Edmonton's low-carbon goals in The City Plan.</p> <p><b>Considerations for Compact and Complete Communities</b> The City Plan identified that fewer than 25% of new residential units were added to established areas of the city (2020) and set a target of achieving a cumulative 50% of net new dwellings being added in established areas to support population growth to 2 million. The City Plan includes incremental targets for housing unit growth through redevelopment for different population horizons. Reporting on the progress of infill relative to these interim targets when presenting this tracked metric could support enhanced decision making such as identifying any corresponding corrective actions that the City could take. An analysis could be completed to understand whether incorporating infill into "required" metrics could further foster increasing density or alternatively have a negative impact on the city's growth.</p> <p><b>Considerations for Preparing for a Changing Climate</b> Climate change is likely to put additional strain on communities with aging built infrastructure systems, including transportation, buildings, water and sanitation, electricity, and information communication technology systems. The 2019 Canadian Infrastructure Report Card,</p>

	<p>which assesses the condition of Canada’s municipally-owned infrastructure, has identified that Canada’s publicly owned infrastructure is at risk and will require significant attention in the coming decades. There is an opportunity for future “tracked” metrics to include consideration of the state of existing infrastructure from a climate perspective and to develop a forward looking investment strategy that supports building and maintaining climate resilience for complete communities. This information could be considered alongside implications of investment in new infrastructure.</p>
<p><b>Supporting Resilience of Food System</b>          Conservation of agricultural land to reduce its loss and fragmentation contributes positively to the resilience of the food system.</p>	
<p><b>Proposed Actions</b></p>	<p><b>Environment and Climate Risk/Opportunity</b></p>
<p>The proposed approach includes evaluating substantial completion along with the requirement for Council to decide (based on Administration’s recommendation) when planning for the future growth area will commence.</p>	<p>Much of the future growth area is currently zoned for agriculture. The Regional Agricultural Master Plan<sup>2</sup> (RAMP) notes that the majority of the area is “prime agricultural land” and that it is almost entirely designated in RAMP as "Agriculture in Future Transition Lands" or “Policy Area 3”, which includes lands designated for future growth in the next 25 – 50 years. It is noted that there are some areas within Edmonton boundary that are Policy Area 1: Rural Agriculture. Maintaining agricultural production in the future growth area for as long as possible has climate benefits.</p> <p>Agricultural lands in the portions of the future growth areas that are designated for non-residential use can currently be converted for non-residential use and the substantial completion standard does not introduce new limitations for this type of development.</p> <p>The Climate Resilient Edmonton: Adaptation Strategy and Action Plan focuses on climate risks for Edmonton; however, it is recognized that climate changes could have global impacts on food systems. While further study is required to understand what these impacts could mean for the Edmonton region, having a reliable and secure food system contributes to our resilience to a changing climate.</p>
<p><b>Supporting Protection of Natural Areas and Green Infrastructure</b>          Development of land at the urban edge consumes and alters natural assets, such as grasslands, forests and water bodies. These assets typically help mitigate impacts from high rainfall events, reduce urban heat island effect, increase biodiversity, maintain water quality, and offer other risk-reducing services.</p>	

<sup>2</sup> Edmonton Metropolitan Regional Board. *Regional Agricultural Master Plan*. 2021.

Proposed Actions	Environment and Climate Risk/Opportunity
<p>The proposed approach includes evaluating substantial completion along with the requirement for Council to decide (based on Administration’s recommendation) when planning for the future growth area will commence.</p>	<p>The proposed approach for substantial completion thresholds do not incorporate consideration of the carbon sequestration benefits or ecosystem services in the future growth area.</p> <p><b>Considerations for Natural Areas and Green Infrastructure:</b> Edmonton’s Community Energy Transition Strategy estimates that approximately 17 per cent of emissions reductions required will need to come from carbon capture and carbon sequestration by nature-based solutions. Additionally, healthy ecological functioning can help adapt to a changing climate by providing important services, such as stormwater management, water and air quality improvements, reduction of urban heat island effects, and others. These important nature-based solutions will require conservation and restoration in order to contribute to climate goals.</p> <p>Work has been initiated on the Climate Resilience Planning and Development Framework, which will identify and implement actions to integrate climate adaptation and mitigation action into the city’s urban planning and development continuum. Developing tools on potential loss of natural assets will provide information that can inform development decisions.</p>