

**Environment and Climate Expanded Review Section for UPE02445**

This attachment details the links between proposed changes to the Capital City Downtown CRL and The City Plan with additional considerations for implementation work where applicable:

<b>GHG Emissions</b>	
Related Catalyst Project(s):	Environment and Climate Interaction:
Transit Infrastructure; River Valley Promenades (100 Street Pedestrian Bridge); Green and Walkable Downtown	<p>Catalyst projects that reduce auto-dependency would support the City's target of 50% of all trips being made by transit and active transportation by 2040 in Pathway 3 of the Community Energy Transition Strategy. Increased participation in active and public transportation is a key mechanism to meet the City's 2050 carbon neutrality goal, as the transportation sector in Edmonton accounts for approximately 30% of city-wide GHG emissions.</p> <p><u>Consideration:</u> To encourage the electrification of Edmonton's transportation system and align with The City Plan Directive 4.4.1.2, Administration could consider exploring new incentives to develop electric vehicle charging infrastructure in areas with high potential usage but currently lacking sufficient access.</p>
Downtown Infrastructure Fund	<p>Compared to other neighbourhoods, those living in Edmonton's core emit less GHG emissions per capita<sup>1</sup>. Investing in shared public infrastructure could stimulate mixed-use private development, creating denser housing options with convenient access to work and shopping in the Downtown CRL area. This could result in further GHG emissions reductions as a result of shorter commute times and increased access to public and active transportation.</p> <p><u>Consideration:</u> District energy development within the downtown boundary has the potential to decarbonize</p>

<sup>1</sup> Welegedara, N. P. Y., Agrawal, S. K., Gajjar, S., & Joshi, N. (2021). Variations in direct greenhouse gas emissions across neighbourhoods: A case of Edmonton in Canada. Environmental Challenges, 5, DOI:100280.

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	<p>heat and cooling systems for all buildings connected to the district energy node. As a key action in the Community Energy Transition Strategy, Administration could consider how the continued expansion of district energy infrastructure could potentially connect up to 50 buildings at full build-out, reducing GHG emissions by approximately 61,000 tonnes.<sup>2</sup></p>
Event Park	<p>City support for the creation of entertainment facilities would promote urban vibrancy and could include a host of climate-resilient design options.</p> <p><u>Consideration:</u> Administration could consider including minimum utilization requirements for low embodied carbon or recycled materials. Additional requirements could include incorporating energy-efficient and water conservation design, promoting renewable energy sources, and ensuring convenient access to public and active transportation options.</p>
Attainable Housing Program	<p>The City can reduce community-level GHG emissions and address housing shortages by promoting the construction of new affordable housing and/or encouraging the repurposing of existing City-owned buildings in the downtown core. While both initiatives improve urban density through infill development, the adaptive reuse of existing structures has lower embodied carbon by prolonging the lifecycle of materials and minimizing the amount of waste sent to landfills.</p> <p><u>Consideration:</u> When developing the program, Administration could ensure that new construction aligns strategically with the City's climate resilience goals. The City's Affordable Housing Investment Program mandates that new affordable housing developments achieve a 20% or greater reduction in energy consumption relative to the Building Code. However, the conversion of existing commercial spaces to new housing could utilize deep</p>

<sup>2</sup> City of Edmonton. (2023, June 23). Downtown District Energy Initiative (IIS01386). [Council Report]. City of Edmonton.

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	retrofits to further increase energy efficiency. These retrofits would reduce community-level GHG emissions, and contribute to a “just transition” towards a low-carbon society as defined by the UN’s Committee for Development Policy <sup>3</sup> .
<b>Natural Infrastructure</b>	
Related Catalyst Project(s):	Environment and Climate Interaction:
Jasper Avenue New Vision; Green and Walkable Downtown; Warehouse Park; Public Open Space Amenities and Placemaking	<p>In addition to added flood protection, the presence of green space is negatively correlated to urban heat islands, providing cooling effects and reduced surface temperatures in the built environment<sup>4</sup>. Urban residents can benefit from a range of ecosystem services provided by natural infrastructure while simultaneously supporting biodiversity through enhancing wildlife habitat.</p> <p><u>Consideration:</u> Urban ecology research continues to emphasize the importance of native vegetation for the conservation of biodiversity in dense urban spaces<sup>5</sup>. Administration could consider how the inclusion of native plants in landscaping installations can act as a biological refugia for specialist pollinators and wildlife species who are the most susceptible to habitat loss and fragmentation.</p>
<b>Contaminated Sites</b>	
Related Catalyst Project(s):	Environment and Climate Interaction:
Brownfield Remediation	The Capital City Downtown CRL area has a variety of active and brownfield sites within its boundaries that may require

<sup>3</sup>United Nations Committee for Development Policy. (2023). Just transition. Excerpt from Report on the Twenty-Fifth Session.

<sup>4</sup> Rahman, M. A., Stratopoulos, L. M. F., Moser-Reischl, A., Zölch, T., Häberle, K-H., Rötzer, T., Pretzsch, H., & Pauleit, S. (2020). Traits of trees for cooling urban heat islands: A meta-analysis. *Building and Environment*, 170, DOI: 106606.

<sup>5</sup> McDonald, R. I., Aronson, M. F. J., Beatley, T., Beller, E., Bazo, M., Grossinger, R., Jessup, K., Mansur, A. V., Puppim de Oliveira, J. A., Panlasigui, S., Burg, J., Pevzner, N., Shanahan, D., Stoneburner, L., Rudd, A., & Spotswood, E. (2023). Denser and greener cities: Green interventions to achieve both urban density and nature. *People and Nature*, 5, 84–102.

	<p>environmental site assessments and remediation where required.</p> <p><u>Consideration:</u> Infrastructure improvements and redevelopment projects may be complicated and time-intensive where environmental sampling reveals soil contamination. Provincial regulations requiring contaminant management, including possible remediation, may apply and would lead to additional work before redevelopment or change of use is possible. Existing City processes and standards must be adhered to, as these support development in an orderly and safe manner to protect public health and the environment.</p>
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**Linkages to The City Plan:**

- 1.4.1 Support Edmontonians’ transition to a low-carbon future in their daily lives.
- 1.4.2 Ensure Edmonton’s air, land and water are safe and clean.
- 2.4.1 Support ecological function and energy efficiency of Edmonton’s built environment.
- 4.4.1 Support a low-carbon mobility system.