

### Environment and Climate Review

Carbon capture and nature based solutions (including tree planting and naturalized areas) are an important pathway in Edmonton's City Plan, Energy Transition Strategy, and the Carbon Budget. Carbon sequestration from trees and natural infrastructure are both climate mitigation and adaptation measures, in addition to supporting biodiversity and improving water quality.<sup>1</sup>

Benefits include:

- Reduction in flooding, stormwater management, and polluted water discharges. Some of the biggest economic value can come from green stormwater infrastructure reducing the amount of built stormwater infrastructure like concrete, metal, and plastic pipes, basins, and tanks - avoiding the cost and emissions associated with those materials.<sup>2</sup>
- During periods of extreme heat, the cooling effect of nature makes it safer to be outdoors and indoors, mitigating the urban heat island effect, and contributing to health equity.
- The cooling effect of trees may reduce the energy required for air conditioning during hot summer days. In the winter, trees can block wind and lower heating requirements. This supports reduced electricity and natural gas consumption and the associated emissions.
- Naturalized areas and natural area tree stands provide important habitat for flora and fauna in an era where biodiversity is under threat. Additionally, linear green spaces in cities can serve as urban wildlife corridors that reduce habitat fragmentation and maintain or enhance biodiversity.

Although not explicitly mentioned in this report, Edmonton's City Plan and Urban Forest Asset Management Plan consider not only the importance of the number of trees and tree stands but just as importantly, the ecosystem and biodiversity context of our urban forest.

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<sup>1</sup> Government of Canada, The Power of Trees, accessed Aug 28, 2024

<https://www.canada.ca/en/campaign/2-billion-trees/the-power-of-trees.html>

<sup>2</sup> Andrea M. Bassi, Ronja Bechauf, Liesbeth Casier, and Emma Cutler, How Can Investment in Nature Close the Infrastructure Gap?, IISD 2021

<https://nbi.iisd.org/wp-content/uploads/2021/10/investment-in-nature-close-infrastructure-gap.pdf>

A 2022 RMI study of the value of urban nature indicates that investment in the natural urban areas has a substantial economic benefit that is often not quantified.<sup>3</sup>

In addition to work already underway or planned, the City of Edmonton could consider the following in order to protect the value of the River Valley and Ravine assets:

1. Continued communication programs with Edmontonians to reinforce information about the benefits of nature and trees, as well as how to choose and care for trees on private property. This could include information that speaks about biodiversity and ecological connectivity, as well as climate change mitigation and adaptation benefits, and tree stands and natural infrastructure rather than only individual trees.
2. To support the communication work, complete a study to quantify the benefits of natural infrastructure so this can be communicated to Edmontonians. There are often economic benefits of trees and nature that can be quantified and shared for greater awareness so that Edmontonians can better understand the benefits of trees and our natural environment. Cities like Toronto, West Vancouver, and Saskatoon have undertaken such studies.<sup>456</sup>
3. Retention of existing tree stands and natural areas may help the City to achieve its canopy goal and the associated environmental benefits faster and more cost-effectively than relying solely or significantly on planting new trees. This approach also has the added benefit of improved biodiversity outcomes. The City could consider retaining more areas of high ecological value in its inventory as well as acquiring tree stands and areas of higher ecological value in future growth areas.
4. Ensure attention and resourcing is in place to enforce current and future landscaping requirements in support of our climate resilient landscape

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<sup>3</sup> Julia Meisel, Mia Reback, Michael Donatti, Zach Clayton, Emma Loewen, Lindsay Rasmussen, Jacob Korn, and Rushad Nanavatty, Growing to Its Potential: The Value of Urban Nature for Communities, Investors, and the Climate. RMI, 2022, <https://rmi.org/insight/growing-to-its-potential/>

<sup>4</sup> Ecosystem Service Values of the City of Toronto Ravine System, July 2018 <https://pub-trca.escribemeetings.com/filestream.ashx?DocumentId=5227>

<sup>5</sup> West Vancouver's Natural Assets [https://westvancouver.ca/sites/default/files/dwv/assets/environment/docs/natural-assets/DWV\\_Natural\\_Capital\\_Assets.pdf](https://westvancouver.ca/sites/default/files/dwv/assets/environment/docs/natural-assets/DWV_Natural_Capital_Assets.pdf)

<sup>6</sup> City of Saskatoon, Natural Capital Asset Valuation Pilot Project, May 2020 <https://www.saskatoon.ca/sites/default/files/documents/ncav-report-final-2.pdf>

- (action 4) and 20 per cent tree canopy (Urban Forest Management Plan) goals.
5. Continue to fund technology to measure and monitor the City's targets with respect to the number of trees and tree canopy. Using the same technology that also supports the compliance of tree retention on private property could be economically efficient.
  6. Continue to incorporate and deepen Indigenous traditional ecological knowledge (TEK) into the City's tree programs. This is an opportunity to acknowledge the original caretakers of the land, combine Indigenous perspectives and TEK with our current approach to land use. This approach may lead to improved outcomes and stronger relationships with Indigenous communities.