BIG MOVE 8

HEALTHY URBAN ECOSYSTEM

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An ecosystem is a community of living organisms, such as plants, animals, and microbes, that interact with one another and with non-living components of their environment, such as air, water and minerals. Healthy ecosystems can help address climate change by sequestering carbon (e.g. in the leaves of trees and the roots and soil of native grasslands).

The use of green infrastructure can buffer climate impacts. Healthy soils and rain gardens absorb rainfall and help prevent flooding and erosion, while trees and other vegetation provide urban cooling through evaporation and shade. Native plants have important cultural and spiritual significance for local Secwépemc peoples and increasing their use helps to restore local ecosystems.

Kamloops is surrounded by a diverse mix of grasslands and dry forest interspersed with wetlands, seasonal streams, the North and South Thompson Rivers, and Kamloops Lake, which provides habitats for a large variety of insects, birds, and wildlife. Urban ecosystems include natural areas found in our extensive system of parks, waterways, and riparian corridors as well as landscaped features such as street trees and gardens. This Big Move focuses on strategies to enhance urban ecosystems through diverse means that range from tree planting to regenerative agriculture and the use of green infrastructure, which can also improve carbon sequestration and increase resilience to climate change impacts. Residents will also benefit from increased interactions with nature and the life-supporting services, such as air and water purification, that it provides.

CO-BENEFITS

- Ecosystem Preservation
- Increased Carbon Sequestration
- Enhanced Resilience

TARGET

To enhance and restore urban ecosystem health to improve carbon storage capacity and resilience to climate change.

8A - Urban Ecosystems for Climate Resilience

GOAL:

To enhance our urban ecosystem's carbon storage capacity while supporting biodiversity and resilience to climate change.

ECONOMIC CONSIDERATIONS:

- Estimated incremental cost to increase the urban forest canopy target from 20% to 30% is $75,000/year.[i]
- Every dollar invested in trees returns $2–$5 in benefits.[ii]
- The City maintains nearly 16,000 trees in parks and on boulevards, with an estimated value of $6.7 million.[iii]
- Trees increase property values and are good for business, creating more attractive and comfortable residential and commercial areas.
- Enhancing resilience to climate change can reduce the potential financial and health impacts of extreme weather events.

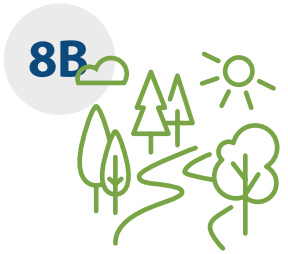
ACTIONS:

- ❑ Set a new target of 30% by 2050 while continuing current progress towards increasing the city's tree canopy cover to 20% by 2036.
- ❑ Integrate broader local ecosystems (e.g. grasslands) and climate change adaptation considerations into an update of the Urban Forest Management Strategy, which currently focuses on trees.
- ❑ Provide public education to encourage landscaping and gardening using native species, plants that attract pollinators, integrated pest management, and Firesmart landscaping practices in wildland/urban interface areas.

PROJECTED ANNUAL GHG REDUCTIONS BY 2050:

*While not modelled, urban ecosystems make important contributions to energy and emissions reductions, including providing passive solar cooling through shading and acting as carbon sinks. Kamloops' urban forest sequesters an estimated 43,460 tonnes of CO_2e annually and stores over one million tonnes of CO_2e.

Supporting*



8B - Protect and Heal Nature

GOAL:

To protect, enhance, and restore ecosystem health.

ECONOMIC CONSIDERATIONS:

- Ecosystem protection and restoration can cost-effectively enhance the provision of ecosystem services such as erosion control, soil water retention, and water purification.
- Kamloops has an ideal climate to support regenerative agriculture, which can result in healthier soil that is more resilient to drought and floods and leads to higher yields.

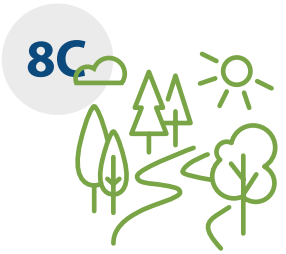
ACTIONS:

- ❑ Undertake ecosystem restoration projects on City-owned land (e.g. wetland restoration and creation of wildlife habitat using native plants).
- ❑ Encourage investments in local biodiversity conservation projects that also support carbon sequestration (i.e. grasslands conservation, native tree plantings).
- ❑ Support regenerative agricultural practices that increase soil carbon storage (e.g. through education and partnering on pilot projects on City-owned land).

PROJECTED ANNUAL GHG REDUCTIONS BY 2050:

*This strategy was not modelled for emissions reductions but healthy grasslands and forests effectively capture and store carbon dioxide through photosynthesis. Regenerative agricultural practices that promote soil health and regeneration also increase its carbon sequestration and storage capacity.[v]

Supporting*



8C - Green Infrastructure

GOAL:

To utilize green infrastructure techniques to enhance green space; stormwater management; and air, soil, and water quality.

ECONOMIC CONSIDERATIONS:

- The cost to enhance green space, stormwater management, and urban tree mediums with ongoing infrastructure upgrades and maintenance is estimated at $100,000/year (in addition to current budget).[vi]
- Green infrastructure-based storm water management systems can reduce capital costs for developers, including lower costs for site grading, paving, and smaller or eliminated piping and retention facilities.[vii]
- Green infrastructure can decrease the costs of damage to property and infrastructure from climate change impacts (i.e. when its use decreases potential flood damage from extreme precipitation events).

ACTIONS:

- ❑ Undertake new green infrastructure pilot projects to trial emerging techniques (e.g. more cost-effective ways of ensuring adequate soil volumes for optimal plant growth) and integrate successful measures into infrastructure and development projects on public lands.
- ❑ Update street standards to incorporate requirements for street trees, native vegetation, sufficient soil volumes, and other green infrastructure to promote long-term plant health, urban cooling, and rain water retention.
- ❑ Update the City's Landscape Guidelines to ensure that landscaping developed on City rights-of-way (e.g. boulevards) use green infrastructure technologies, support the City's tree canopy goals and use sufficient soil volumes and native vegetation where appropriate.

PROJECTED ANNUAL GHG REDUCTIONS BY 2050:

*This strategy was not modelled as it is expected to have modest GHG reductions. However, trees, green roofs, and vegetation can help reduce urban heat island effects by shading building surfaces, deflecting radiation from the sun, and releasing moisture into the atmosphere, which reduces energy consumption and associated emissions.

Supporting*

TOTAL BIG MOVE 8

PROJECTED ANNUAL EMISSIONS REDUCTIONS

(tCO_2e) BY 2050, BY SECTOR

SUPPORTING

The emissions reductions resulting from this Big Move have not been modelled as the focus of these strategies is on improving carbon sequestration and the capacity to adapt to climate change impacts such as heat waves and flooding.

[i] "CCAP Economic Analysis Summary," City of Kamloops.
[ii] "Urban Forests," BC Climate Action Toolkit, accessed March 15, 2021, https://www.toolkit.bc.ca/Plan-Do/Urban-Forests.
[iii] "Urban Forest Management Strategy," City of Kamloops, October 2016, https://www.kamloops.ca/sites/default/files/docs/our-community/urbanforestmanagementplan.pdf.
[iv] Ibid.
[v] Christopher J. Rhodes, "The Imperative for Regenerative Agriculture," Science Progress 100, no.1 (2017): 80–129.
[vi] "CCAP Economic Analysis Summary," City of Kamloops.
[vii] "Green Infrastructure Cost-Benefit Resources," United States Environmental Protection Agency, last modified November 12, 2020, https://www.epa.gov/green-infrastructure/.