

## ALTERNATIVE LANDSCAPE OPTIONS FOR BOULEVARDS AND TURF

### RECOMMENDATION

That the March 21, 2022, City Operations report CR\_8442, be received for information.

#### Report Purpose

#### Information Only.

In response to the Council motion made on July 6, 2020, Administration is sharing information on existing initiatives and programs that incorporate lower maintenance or alternative landscape treatments to traditional turf mowing, as well as five alternative landscape treatments that have been explored in more detail (naturalization, low growing alternatives to turf grass, urban farming, artificial turf grass, and permaculture), including costs, savings, benefits and other considerations.

### Previous Council/Committee Action

At the July 6/8, 2020, City Council meeting, the following motion passed:

That Administration provide a report on options to transform boulevards and turf with low maintenance permaculture plantings, and further low maintenance beautification, diversification, and cost savings efforts, short-medium and long term.

### Executive Summary

- In addition to existing landscape maintenance, beautification and greening initiatives the City offers, Administration has identified five options that are already occurring or could be explored as alternative landscape options for boulevard and turf maintenance.
  - These options are Naturalization (passive and planted), Permaculture, Parkland Urban Farming, Low Mowing Grass Alternatives (e.g. wildflowers or seed mixes other than turf grass), and Artificial Turf.
- A review of the costs and benefits associated with the identified alternatives shows that:
  - Naturalization *without active planting* is the option with the lowest capital and ongoing operational costs.
  - Traditional turf grass still offers lower ongoing maintenance cost advantages when compared to other alternatives.

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- Low-growing alternatives to grass offer some immediate cost savings but are limited and only suitable for specific locations.
- Naturalization *with tree and shrub plantings* also offers cost savings in the long term but requires higher capital investment upfront.
- Permaculture also requires high initial investment and has ongoing maintenance costs associated with the care of those landscapes.

## REPORT

City beautification and greening initiatives impact community vitality and have positive impacts on tourism and business areas, while providing an enhanced impression of safety and security. Maintaining healthy and vibrant open spaces is critical in achieving the strategic goals of ConnectEdmonton and is aligned with the City's Corporate Outcomes. The value of parks and green spaces as an important part of a Healthy City has been especially highlighted during the COVID-19 pandemic, with increased use of parks and trail systems across North America. Parks and open spaces contribute to the personal, physical and mental wellness of Edmontonians. Parks and open spaces also support the Service Objective - Deliver Excellent Services to our Community - providing safe and enjoyable experiences for park users; and the Supporting Objective - Manage the Corporation for our Community.

The parks and open space network contains more than 4,000 hectares of turfgrass, approximately 400,000 trees, 1,200 sports fields, 225,000 shrub beds, 1,059 hectares of naturalized areas and 1,800 hectares of naturally wooded areas. Edmonton's network of parks, open spaces and natural areas support celebration, ecology and wellness and makes a quantifiable contribution to the long-term livability of our city. The Urban Parks Management Plan guides the acquisition, development, maintenance, preservation and use of parkland. It provides strategic direction for all river valley and ravine parkland as well as all school and park sites outside the river valley. The urban forest, including park and boulevard trees, naturalized areas, and natural areas are part of the City's green network and managing and growing these spaces is guided by the City Plan, the Green Network Strategy, Urban Forest Management Plan and Urban Forest Asset Management Plan.

This report presents a summary of alternative landscape options for boulevard and turf maintenance that were investigated by Administration and compared to traditional turfgrass maintenance requirements. A comparison of costs and savings are presented in Attachment 1 and benefits and considerations are presented in Attachment 2. Additionally, the City of Edmonton offers a number of existing initiatives and ongoing programs that beautify Edmonton's landscape, involve the community, and provide alternative or low maintenance for boulevard and turf management. Photos of existing initiatives and programs are featured in Attachment 3.

### Existing Initiatives and Pilot Projects

A number of existing programs and pilot projects involve ways of maintaining turf and boulevards that are considered alternatives to traditional turf maintenance.

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- ***Bloomin' Boulevards:*** This is a partner program between Business Improvement Areas (BIAs), local greenhouses and the City to jointly order, place and maintain planter barrels and/or hanging baskets during the spring and summer, as a means of beautification in public urban areas and communities throughout Edmonton.
- ***Alternate Ground Cover Pilot:*** Alternative ground covers may offer cost savings through reduced maintenance and better drought tolerance as well as offer environmental benefits such as improved habitat and soil quality while providing a look similar to conventional sod. Pilot sites in Beaumaris, Eastwood, Inglewood, and Malmo Plains neighbourhood renewal areas have been selected to test clover/hardy grass mixes in 2022. Results will be evaluated in order to provide recommendations to guide future use of alternative ground covers as part of the Neighbourhood Renewal Program.
- ***Edmonton Grads Park Project:*** Implemented in 2020, this project contains a naturalized section running along a pedestrian pathway in Grads Park using various native flowers and grasses that provide biophilic or natural design while requiring little annual maintenance. Planting low maintenance native flower species increases aesthetics and biodiversity, and will attract and support pollinators such as solitary bees, hummingbirds, butterflies, moths, and native beetles.
- ***Urban Tree Canopy Expansion Program - Median Planting Initiative:*** In 2021, Administration planted trees along medians at 153 Avenue and 101 Avenue. As a pilot, Administration planted a low-maintenance sod in select locations, with the goal of reducing turf maintenance and reducing mowing in high-risk zones. Administration plans to monitor and adjust the product used this season so that we can expand the application of low (or no) mow sod in narrow medians as an opportunity to plant more trees and reduce maintenance in high-risk zones as the tree canopy expansion continues.
- ***New Guidelines for Community Gardens and Edible Tree Projects:*** Administration is currently developing guidelines to support landscaping projects using edible plants proposed by the community, developers, or as part of City-led projects. Similar to how community gardens are currently operated, the City supports and encourages local food production with edible trees and shrubs with the responsibility of planting, establishment, and maintenance of these assets resting with the community or stakeholder groups. Maintenance agreements between community groups and the City for these areas provide cost-effective alternatives to conventional service delivery.
- ***Root for Trees Program:*** The Root for Trees program increases tree planting within the city on public and private land through partnerships with corporations, individual residents, and community groups. Since the program was launched in 2013, 29,896 volunteers have planted 290,447 trees, shrubs and wildflowers in naturalized areas. Volunteer opportunities provide cost-effective alternatives to conventional service delivery, as well as a safe avenue to engage with Edmontonians and build a sense of community. The Root for Trees program has the following objectives: increase naturalization and landscape tree plantings, Increase awareness

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of the environmental, economic, social and health benefits of trees, and increase public education opportunities.

### Alternative Landscape Options for Boulevards and Turf

In addition to the initiatives mentioned earlier in the report, Administration has investigated the following alternative landscape options in more detail:

- Naturalization;
- Permaculture;
- Parkland urban farming;
- Low mowing grass alternatives;
- Artificial grass.

Naturalization is a common landscape technique already used city-wide, while permaculture, parkland urban farming, low mowing grass alternatives and artificial grass have been used in Edmonton for more targeted uses.

**Naturalization:** Naturalization is an intentional, multi-phased, ecologically-based approach to landscape management used to transform highly-maintained land to a more natural condition. An often misunderstood approach, naturalization is a landscape strategy that has been a focus in Edmonton since the early 1990s. The 1994 Naturalization Master Plan informed where and how naturalization should be implemented in parks and open spaces, and along roadways. Naturalization in Edmonton is implemented operationally, through capital and developer projects, and through volunteer programs such as Root for Trees. Increasingly, new park and open space developments are incorporating naturalization into their designs.

Naturalization is a process that takes several years to fully realize. Converting mowed areas to naturalization follows three stages. In the first stage of naturalization, mowing levels are reduced and weeds regulated under the *Alberta Weed Control Act* are managed. The second stage of naturalization may involve planting native trees and shrubs, or species well suited to Edmonton's climate if the location is suitable for planting. The third stage of naturalization sees additional planting of trees, shrubs and wildflowers to increase biodiversity. In the long run, naturalization leads to lower maintenance costs for mowing, trimming and weed control but also provides other environmental, social, infrastructure and economic benefits (Attachment 1).

Naturalization is instrumental to meeting the City Plan target of planting two million trees and the Urban Forest Management Plan target of 20 per cent canopy coverage and supports Edmonton's Climate Change Adaptation and Resilience Strategy. Since 2013, Administration has naturalized 368 hectares of City-maintained turf and has planted 771,809 trees and shrubs in naturalized areas. In addition to traditional planting, special naturalization projects such as pollinator and food forest plantings have been implemented through the Root for Trees and Naturalization programs.

To aid understanding of the environmental and community benefits of naturalization, in 2021 Administration implemented a communications plan focused on naturalization. This communications plan will be delivered again in 2022. While working on a new Naturalization

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Strategic Plan, Administration will also carry out public engagement in 2022 to collect feedback on how and where future naturalization projects are implemented.

**Permaculture:** According to the Edmonton Permaculture Guild, permaculture is the harmonious integration of landscape and people. Permaculture design employs a set of ethics and principles to connect people to the ecology and potential of a landscape and promotes the efficient use of land resources. These ethics are:

- Care for the earth;
- Care for the people;
- Reinvestment of the surplus.

Administration obtained a quote for a permaculture project from a local not-for-profit to determine installation and maintenance costs for each option (Attachment 1). The initial capital investment or establishment cost is usually higher than establishing and maintaining natural turf, and benefits such as food production would be seen after multiple years.

**Parkland Urban Farming:** Turf inventory could be transitioned into urban farming areas to produce food and other agricultural products, or allow grazing. Converting turf to urban farms would reduce maintenance by Administration as farmers/contractors would be responsible for the management of these areas. Considerations include land use requirements, development permits, zoning, agreements and by-laws. Risks and mitigation measures would need to be identified to ensure farming activities do not result in unintended negative impacts on the environment and surrounding communities.

**Low Growing Grass Alternatives:** Some turf sites with low traffic can be planted with ornamental grasses that do not require mowing. Turf alternatives such as mosses, thymes, yarrow, chamomile and creeping charlie can be planted in suitable sites to reduce the frequency of mowing activities. This option can be implemented in the medium-term (two to three years). It will require Administration to identify sites that are suitable and trials or pilots would have to be carried out to determine the viability of this option before expanding to larger areas.

**Artificial Turf Grass:** Initial establishment costs and ongoing operational costs are generally higher than live turf, depending on the application. Although it may be assumed that synthetic turf requires no maintenance, it does require different maintenance compared to natural turf grass. Artificial turf is an alternative that is worth consideration in small areas where it is challenging to maintain traditional turf grass, or where turfgrass experiences repetitive damage due to use (e.g. small fenced dog parks), or damage from salt off of roads. Municipalities such as Fort Saskatchewan and Sherwood Park currently use artificial turf/grass in selective locations such as traffic circles, intersections, crossings and narrow boulevards. The City of Edmonton uses artificial turf in the fenced dog park at Alex Decoteau Park, and for some premier sports fields.

### Budget/Financial Implications

The cost and/or savings per hectare to implement each alternative landscape method is presented in Attachment 1 and compared to traditional turfgrass. Existing initiatives and programs mentioned within this report rely on existing capital and operational funding for

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implementation. Further detailed cost analysis would be required if Administration were to implement any new initiatives.

Overall, traditional turf grass and naturalization without active planting are the options with the lowest initial establishment and ongoing maintenance costs. Urban farming and low growing alternatives to grass may have higher initial installation costs, but lower ongoing maintenance costs for the City. Permaculture and actively planted naturalization areas require high initial investment and also have ongoing maintenance costs associated with the care of those landscapes. Artificial turf also requires a high initial investment, and is recommended for use in small high use or small high damage locations, and for premier sports fields.

### **Community Insights**

Through a communications plan implemented in 2021, Administration increased communications about parks and open space service levels for tasks such as turf mowing, trimming, weeding, and naturalization and intends to enhance those communications in 2022. Administration has also intensified communication efforts to address community and residents' questions and concerns on naturalization activities. In 2022, Administration will carry out engagement activities to understand overall support and understanding for naturalization, how communities are impacted by naturalization, and to gather feedback on where and how naturalization will be implemented in the future. This feedback will be incorporated into work on the new Naturalization Strategic Plan.

### **GBA+**

GBA+ processes would be applied to the other four options (Permaculture, Parkland Urban Farming, Low Mowing Grass Alternatives and Artificial Grass) if they were implemented. This would ensure equality of outcomes and barriers to equity are removed. It will also include a thorough review of the impacts of any option on the community, contractors and City staff.

### **ATTACHMENTS**

1. Alternative Landscape Options-Cost Comparison
2. Alternative Landscape Options-Benefits and Considerations
3. Pictorial Examples of Existing or Ongoing Landscape Treatments, Initiatives and Pilots