

Zoning Actions to Increase Resilient Landscaping

The following actions are informed by a variety of factors including existing regulatory gaps, approaches used in other jurisdictions, engagement feedback, and input from internal subject matter experts. The actions also account for regulatory complexity and overlap with other bylaws, while prioritizing landscape practices that will improve plant survival, foster climate resilience, and livability.

Drought-Resistant and Native Plants

Drought-resistant plants are heat-loving species that can withstand periods of extreme heat and a lack of water once established. A native plant is a plant species that exists in a particular region without having been introduced by humans. Climate-adaptive plants can be native or non-native, but are known to survive changing climatic conditions like fluctuations in temperature and precipitation once established.

Current Regulations:

- The Zoning Bylaw currently does not require the use of drought-tolerant, native or climate adaptive plants.
- General landscaping regulations do require landscaping to be hardy to the Edmonton area, such as being able withstand colder temperatures, and suitable for the site conditions.

Proposed Action	Rationale
1. Introduce a minimum percentage for required plants to be drought-resistant, native, or climate adaptive.	• Drought-resistant, native and climate adaptive plants require less maintenance over time and are more likely to survive as the climate continues to change. • Incorporating these plants in landscape designs means less need for fertilizers, watering, or plant replacements; and more value for the dollar of investment.

Naturalization

Naturalization is an ecologically based approach to landscape management. In many cases, it is intended to transform highly maintained land, such as manicured lawns and ornamental gardens, into more naturally functioning plant communities. Naturalization prioritizes biodiversity and drought tolerance by incorporating native and climate-adaptive plants.

Current Regulations:

- The Zoning Bylaw does not currently have general regulations to address naturalization.
- To support diverse plantings, general landscaping regulations require the proportion of deciduous to coniferous trees and shrubs to be as close to 50:50 as reasonably practicable.

Proposed Actions	Rationale
2. Allow a percentage of required shrubs to be substituted with grasses or pollinator-friendly perennials that are drought-resistant, native, or climate adaptive. 3. Increase flexible plant diversity requirements above the 50:50 coniferous to deciduous ratio requirements.	• Greater plant diversity helps withstand impacts from plant diseases and pests that are becoming more prevalent as temperatures increase. This means fewer plant replacements, helping to reduce costs for property owners. Trees with a greater chance of survival contribute to and maintain the urban tree canopy. • More diverse plantings, particularly with native and pollinator-friendly plants, increase habitat value to wildlife and insects, supporting local ecological networks and systems.

Topsoil Depth and Volume

Topsoil depth refers to how deep topsoil extends below the surface within planting areas. Topsoil depths vary depending on what the area is intended for. Proper soil care, condition, and quantity is essential for sustaining healthy plants. When the soil is healthy, plants are healthy.

Current Regulations:

- The Zoning Bylaw does not specify minimum topsoil depth or volume requirements in the landscaping regulations.
- Landscaping regulations require that sufficient soil depth and volume be provided in planting areas, including planters and above ground parkades, to support suitable growing conditions, plant survival, and to accommodate landscaping intended for plant materials and ground cover.

Proposed Actions	Rationale
4. Embed minimum topsoil depth requirements that align with Volume 5 of the City's Design and Construction Standards where possible, and allow variation from minimums when a landscape plan is designed by a landscape architect. 5. Specify minimum soil volume requirements for trees in constrained planting areas, such as parking lot islands, planters and above ground parkades.	• Topsoil helps absorb water and maintain moisture for plants, and provides nutrients, microorganisms, and air pockets necessary to maintain healthy roots. • By specifying and ensuring sufficient soil depth, roots have ideal space to grow and spread, helping the living parts of the plant above the surface to thrive in changing weather and climatic conditions.

Soft Landscaping

Soft landscaping generally refers to both plants and ground cover (such as grass or surface treatments like mulch) that allow water infiltration and are capable of supporting living plants.

Current Regulations:

- The Zoning Bylaw defines soft landscaping as materials that allow water infiltration and absorption into the ground to reduce stormwater runoff and to be capable of supporting living plants. It also specifies what soft landscaping excludes, such as artificial turf, decking, bricks, and pavers.
- Small scale residential development requires a minimum soft landscape area equal to 25 to 30 per cent of the total lot area.
- Larger scale residential, mixed use, and non-residential development do not have soft landscaping area minimums. Generally soft landscaping provided for these developments occur in setback and amenity areas and parking lot islands.

Proposed Actions	Rationale
6. Improve the definition for Soft Landscaping to place greater emphasis on areas to support plant growth to further clarify areas not considered soft landscaping. 7. Adjust soft landscaping requirements for fee-simple row housing to address practical minimums for internal units. 8. Introduce soft landscaping minimum area requirements for more intensive residential and non-residential developments.	• Clarifying the definition of soft landscaping will help support a better understanding of what is and is not considered soft landscaping, leading to consistent decisions. • Adjusting soft landscaping requirements for fee-simple row housing will help reduce variances while ensuring minimum soft landscaping is provided for internal units, taking enforcement constraints into consideration. • Expanding soft landscaping area minimums to more zones will help larger-scale developments become more livable, pleasant spaces, while also reducing pressure on parks and roadways that have limited planting space. Providing more space for trees and plants can help lower temperatures and minimize the

	urban heat island effect. Landscaped areas with greater permeability absorb stormwater runoff, reducing pressure on traditional drainage infrastructure.
--	--

Low Impact Development

Low impact development (LID) is an approach to land development that works with nature to manage stormwater at its source. Instead of rainwater flowing directly into stormwater drains, LID uses plants, special soils, and natural landscape features to capture, filter, slow down, and absorb water.

Examples of LID include absorbent landscaping, rain gardens, bioswales, bioretention basins, box planters, green roofs, soil cells, and permeable pavers.

Current Regulations:

- The Zoning Bylaw does not have general requirements for LID. Surface drainage is regulated through Drainage Bylaw 18093 and EPCOR Waste Water Services Bylaw 20865 regulates how stormwater is discharged from private property to the public drainage system.
- Soft landscaping requirements for small scale residential development help absorb stormwater runoff and reduce the amount of impermeable surface area on the site.
- Soft landscaping regulations incentivize some forms of LID, such as green roofs, which can count towards the minimum soft landscaping area requirements.

Proposed Actions	Rationale
9. Incentivize tree preservation and LID by allowing them to count toward a higher amount of soft landscaping (paired with the proposed soft landscaping action #8).	• Incentivizing LID can help reduce pressure on the City's drainage infrastructure and reduce combined sewer overflows. • Plants, engineered soil, and other practices can also help filter out pollutants to improve

10. Reduce tree minimums when soil cells are provided in constrained and hard surface areas, such as parking lots and within pathways, and collect stormwater runoff from adjacent impervious surfaces.	the quality of water entering waterways. • LID also preserves and creates green space, providing habitat for urban wildlife and insects and supporting more livable, pleasant urban environments. • Higher quality conditions for trees in constrained areas through the use of soil cells can support better growing conditions and root development, which can lead to stronger canopy growth.
---	--

Tree Count and Canopy Cover

Tree count corresponds with the number of trees that may be on a site. Canopy coverage relates to how much of the site is covered by the canopy or spread of the tree. While the number of trees can contribute to canopy coverage, it is largely dependent on the type of tree selected. For example, an elm tree will have a much larger canopy compared to a columnar aspen.

Current Regulations:

- The Zoning Bylaw has minimum tree planting requirements for new developments but does not regulate canopy cover.
- Minimum tree planting requirements for small scale residential development are based on the width of a site (e.g., two trees for sites with a width between 8 m and 15 m) or the number of dwellings in a row house development (one tree per principal dwelling).
- For larger scale residential developments (e.g., multi-unit housing and cluster housing), mixed use, and non-residential developments, the minimum requirement is based on the total minimum setback area (one tree per 30 sq.m. of setback area).
- Additional minimum tree planting requirements apply:
 - along pathways (one tree per 10 m) and within landscape parking islands (e.g., two trees for islands up to 22 sq.m.) within surface parking lots;

- along pathways along internal roads (one tree per 10 m) in larger commercial and mixed use zoned sites; and
- public amenity areas or parks adjacent to streets (one tree per 30 sq.m.) in mixed use zoned sites.
- General landscaping regulations also incentivize tree preservation (e.g., one existing deciduous tree with a minimum 100 mm caliper can count toward two required trees).
- Minimum planting sizes at installation are 50 mm caliper for deciduous trees and 2 m height for coniferous trees.

Proposed Actions	Rationale
11. Reduce minimum tree size requirements for small scale residential development to reduce installation and financial barriers for new homeowners. 12. Shift minimum tree requirements from stems to canopy coverage. 13. Allow setback reductions when mature trees are preserved.	● Reducing minimum tree size requirements for small scale residential development will help lower costs and make it easier for homeowners and residents to install required trees without heavy equipment. ● Larger canopy coverage on a site (whether from one tree or multiple trees) provides multiple benefits, including providing shade and cooling, supporting urban wildlife, and promoting carbon sequestration. Canopy coverage also contributes to the City's urban tree canopy target of 20 per cent by 2071. ● Preserving mature trees maintains existing canopy cover faster than planting new trees and offers flexibility for applicants through reduced setbacks. Retaining trees and existing topsoil also enhances stormwater absorption,

	mitigating flood impacts during extreme rain events.
--	--

Landscaping in Parking Lots

Parking lots generally consist of large areas of hard surfacing (pavement), which contribute to increased temperatures, the urban heat island effect, greater stormwater runoff during rain events, and higher-traffic environments that make it challenging for plants to thrive.

Parking lots are semi-public spaces frequented by the public where safety and comfort are important. Plant diseases in parking lots can easily spread to other private properties or City assets like boulevard trees, providing added incentive to ensure plantings remain healthy and functional.

Current Regulations:

- Landscaped islands must be provided at the end of each parking aisle, and after a maximum of 20 parking spaces in a parking aisle.
- Islands must have a minimum width of 2.0 m and area of 11 sq.m. at the end of or within a single parking aisle or a minimum area of 22 sq.m. where at the end or within a double parking aisle.
- Landscaped islands must meet minimum planting requirements based on island size (e.g., two trees and four shrubs in islands greater than 11 sq.m. and up to 22 sq.m.).
- Pathways within surface parking lots require a minimum of one deciduous tree per 10 m along the length of the pathway.
- Performance-based regulations require landscaping to provide shade and enhance the appearance of surface parking lots and pathways. Trees and shrubs must also be provided along the perimeter of surface parking lots abutting streets and other sites, excluding sites in more intensive industrial zones.

Proposed Actions	Rationale
14. Increase minimum landscape parking island size to provide more space for trees and soil.	• Increasing landscape parking island sizes will help ensure trees and plants have access to sufficient soil and space to grow,

15. Allow multiple trees to be substituted for fewer larger canopy trees in parking islands (dependent on action #12 to shift from regulating stems to canopy coverage). 16. Allow larger, consolidated landscaped islands in place of smaller islands to provide more soil access and space for trees and shrubs.	which can increase plant survival and reduce replacement costs. • Allowing multiple trees to be substituted for larger canopy trees (e.g., two smaller trees for one larger canopy tree) gives the larger tree access to a greater amount of soil, increasing its chance of survival and providing greater canopy coverage. Larger canopy trees in parking lots help reduce ambient temperatures and provide a more comfortable environment for pedestrians. • Allowing flexibility in how and where parking islands are provided and encouraging larger consolidated planting areas in lots can lead to better outcomes for plant survival and tree canopy cover.
--	---

Next Steps

To support implementation and develop draft text amendments, Administration will undertake further targeted engagement with city-building partners, landscape professionals, local greenhouses, and EPCOR. Engagement will focus on establishing appropriate percentages and ratios for the proposed actions.

Proposed actions to expand soft landscaping area requirements to more zones, shifting from tree counts to canopy, and introducing low impact development incentives are anticipated to take longer to implement to allow for further analysis and scenario testing to determine appropriate standards. Proposed phasing and implementation considerations are outlined in Attachment 2.