Memo: City of Edgewater Water Efficient Landscaping Standards Draft Concepts
To: Edgewater Sustainability Board & Planning & Zoning Commission
From: Paige Johnson, City of Edgewater & Lindsay Rogers, Western Resource Advocates
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Overview: Edgewater is currently making considerable investments in the replacement of existing cool season turfgrass with waterwise and drought resistant landscaping alternatives. However, the City does not have code related to water efficient landscape and irrigation requirements. During a January 2023 City Council retreat and March 2023 City Council work session, Council recognized that the redevelopment process presents an opportunity to reduce water use in Edgewater by requiring water wise landscaping and irrigation practices from the start. Western Resource Advocates (WRA) will support the City of Edgewater in creating a new water efficient landscape ordinance to reduce outdoor water demand in new development and redevelopment. This ordinance will ensure that Edgewater is doing its part to drought-proof landscape investments and support water supply resilience in the face of climate change impacts.

The purpose of this memo is to outline a variety of potential landscape code options, based on research from other Colorado communities and identified best practices. The options described below are not intended to list final recommendations, rather, this is a list of opportunities that will be further honed based on discussion with the Sustainability Board and P&Z Commission and other stakeholder feedback.

Potential Landscape Standards Options

1. Living Plant Material Requirements
2. Non-living Permeable Groundcover Requirements
3. Turf Limitations
4. Plant List & Approved Grass List
5. Water Wise Plant Requirements
6. Hydrozone Requirements
7. Landscape Water budget
8. Soil Amendment Requirements
9. Mulch Requirements
10. Irrigation System Criteria
11. Landscape/Irrigation Certified Professionals
12. Irrigation Maintenance Requirements

1. Living Plant Material Requirements

a. Require a minimum amount of living plant material at maturity in landscaped areas for all development types.
b. Justification

i. While a living plant material requirement doesn't directly result in water savings, this standard results in other important landscape benefits including: reduced heat island effect, aesthetics, pollinator habitat, etc.

c. Sample Code
   i. 50% minimum living materials including shrubs, perennials, ornamental grasses, groundcover plants, and turf grasses. *(Aurora, CO)*
   ii. For Street frontage landscapes, buffers, and parking lot perimeter landscapes – basically high visibility areas, 75% of the area must be live vegetation. *(Grand Junction, CO)*

2. Non-living Permeable Groundcover

a. Allowances and limits for landscaped areas to be non-living, permeable materials (e.g., organic mulches, gravel, decorative and permeable pavement).

b. Justification
   i. It's important to find a balance between non-living groundcover and living plant material. Allowing for a greater % of non-living groundcover could have the effect of reducing landscape water demand, it's also typically easier and less expensive to install and maintain than living plant material.

c. Sample Code
   i. Allows up to 50% non-living materials including river rock, crushed rock, organic mulches such as shredded bark, gravel, cobbles, walks, decorative pavement, and artificial turf or other non-living materials. *(Aurora, CO*)
   ii. Up to 25 percent of the area required to be landscaped may be covered with mulch, pavers, decorative concrete *(Thornton, CO)*

3. Non-Functional Turf Limitations

a. For all new development, set requirements for maximum amounts of an area where traditional, cool season turf grass is allowed.

b. Justification
   i. High water use, non-functional turf limitations are potentially the most impactful standard we can implement to reduce landscape water demand.

c. Sample Code
   i. Turf grass prohibited in common areas, curbside landscaping, front yards and golf courses. Backyards restricted to the lesser of 45% or 500 sq ft. Turf is allowed in active or programmed recreation areas. *(Aurora, CO)*
   ii. High-water demand landscapes (including cool season turfgrass) banned from street medians, parking lot islands, slopes greater than 4:1, stormwater detention ponds, and any space less than 8 feet wide. Cool season turf is limited to 50% of total landscaped area in residential projects and 35% of non- residential or mixed-use projects. *(Arvada, CO)*
   iii. Kentucky Bluegrass is prohibited throughout the community, alternative turfgrass species (e.g., buffalo grass, Dog Tuff) limited to 500 sq ft in backyards for single family residential. *(Castle Rock, CO)*

iv. Lawn or turf area shall not exceed 10 percent of the overall landscape area of a project site. *(Sedona, AZ)*
v. The installation of new turf in residential front yards is prohibited; Turf is not an allowable plant material within public or private common open space unless it meets the definition of "usable". (For example, they're defining non-usable as medians, streetscapes, parking lots, entryways, and perimeter landscaping). *(Henderson, NV)*
vi. Turf is not allowed on slopes greater than 25% when oriented towards hardscape (Sacramento, CA)
vii. All new development is required to limit high-water turf grass to 30% and the total amount of high-water use landscaping to 50% of the required landscaped area. *(North Glenn, CO)*

4. Plant List & Approved Grasses List

a. Recommend that all plant materials be selected from a City-approved Plant list, and specifically call out alternative grass species for consideration given Kentucky Bluegrass limitations. The City could develop its own list or reference an existing plant list (e.g., Plant Select, CSU Extension, neighboring cities).
b. Justification:
    i. The list is a resource for developers, landscapers and property owners. It can encourage the installation of low water, native plant species and it can categorize plant species by water use.
c. Sample Code
    i. The required plant list features plants that are considered water-wise or low water use plants, unless listed as riparian; includes three categories: native, adaptive, and riparian plants. *(Sedona, AZ)*
    ii. Plant material must be selected from Town's approved plant list; plant materials meet or exceed the plant quality and species standards of the American Standard for Nursey Stock. *(Castle Rock, CO)*

5. Water Wise Plant Requirements

a. Require that a minimum amount (e.g., 25%, 50%, etc.) of living plant material in identified landscaped areas be selected from the non-irrigated/very low- or low-water use category of an approved Plant List
b. Justification
    i. Water wise and native plants have a significantly lower water demand than turfgrass and other high water use plants and have many associated benefits such as providing pollinator and wildlife habitat.
c. Sample Code
    i. A minimum of 50 percent of the plants on a development site shall be native species identified in the Administrative Manual *(Sedona, AZ)*
    ii. Water-wise landscaping is required on all development, private or public, in recognition of our semi-arid climate and limited amount of water available for outdoor uses. *(Thornton, CO)*

iii. At least 50 percent of each category of plants (i.e., large trees, small trees, evergreen trees, and shrubs) that are used to meet the landscaping requirements of this Article shall be listed as Xeric on the approved plant list. *(Centennial, CO)*

6. Hydrozones

a. Require that landscape plans group plants by "hydrozone". Hydrozones group plants with similar water use in the same areas.

b. Justification

i. Hydrozones allow for proper, efficient irrigation. Hydrozones means grouping plants in the landscape according to categories based on their water usage (ex. non-irrigated, water-conserving, and non-water conserving); and these plants are served by a valve or set of valves with the same irrigation schedule.

c. Sample Code

i. Plants are to be hydrozoned with plants of a similar hydrozone (for example, low with low; very low with very low). Plants of a very low hydrozone are not to be planted in a moderate to high hydrozone. *(Castle Rock, CO)*

ii. All non-single-family landscapes must be divided into water conserving (non-turf), non-water conserving (turf), and non-irrigated areas (e.g., pavement). A separate hydrozone plan is required for submittal with the landscape plan. *(Aurora, CO)*

7. Landscape Water Budget

a. Require that the average landscape water demand of all development is below a specific gallons/sq ft/growing season. For example, since high water use plant material uses ~18 gal/sq ft in Edgewater, require landscapes be designed to use less than 10 gal/sq ft/season on average across the landscape. Can include exclusions for edible crops.

b. Justification:

i. Beyond a turf limit, a landscape water budget limits the amount of high-water use landscaping installed and thus, the amount of water that can be applied to the landscape during the irrigation season.

c. Sample Code

i. The total irrigation water need for all hydrozones cannot exceed a Maximum Applied Water Budget of 7.5 gallons/season/sq-ft of irrigated landscape area unless special features are included (e.g. green stormwater infrastructure, graywater) *(Aspen, CO)*

ii. Require inclusion of a water budget chart that shows the total annual water use, which shall not exceed an average of fifteen (15) gallons/square foot/year for each water tap *(Fort Collins, CO).*

8. Soil Amendment

a. Requirements to add physical material to the soil to improve porosity, permeability, aeration, and draining.

b. Justification

i. Incorporating compost and other soil amendments into a landscape has important benefits including: up to 20% water savings, improved plant growth and increased stormwater retention for the soil, pest suppression and reduced need for fertilizers.

c. Sample Code
   i. Min. 4 cubic yards of organic matter soil amendment required for turf, trees, shrubs, perennials and annuals; Soil amendment tilled to min. depth of 6 inches *(Thornton, CO)*
   ii. Develop exception for native seeds/plants to use 2 cubic yards per 1,000 square feet *(based on research from City of Centennial, CO)*

9. Mulch

a. Set requirements to add organic or inorganic mulch to landscaped areas, including depth and volume requirements.
b. Justification: Similar to soil amendment, helps to retain water and reduce soil evaporation.
c. Sample Code
   i. Organic mulch applied at depth of 4 inches, 1 cubic yard per 80 sq ft; inorganic mulch applied at a depth of 2 inches. *(Castle Rock, CO)*
   ii. Rock mulch shall be installed and maintained at a minimum depth of 2 inches and a maximum depth of 4 inches on all planted areas except where groundcover plants are fully established. *(Henderson, NV)*

10. Irrigation System Criteria

a. Set requirements for commercial and large-scale developments to improve irrigation efficiency.
b. Justification
   i. Irrigation system design and installation is critical because even the most water wise landscaping won't save water if it's not being irrigated efficiently and effectively.
c. Sample Code
   i. All required landscape areas shall be provided with a permanent and adequate means of underground irrigation. *(Sedona, AZ)*
   ii. All applicants shall provide automatic irrigation systems for landscaped areas; applicants shall install automatic rain shutoff sensors to all controllers in all irrigation systems *(Aurora, CO)*
   iii. An irrigation construction plan shall graphically depict, and describe through appropriate notes, an efficient irrigation design; each irrigation zone on the irrigation construction plan should be designed to water plants with similar water and environmental requirements. *(Thornton, CO)*
   iv. Landscaped areas shall be provided with a WaterSense labeled smart irrigation controller which automatically adjusts … in response to changing weather conditions. *(JVWCD, UT)*

v. Smart Irrigation Controllers (as defined by the Irrigation Association) are required and shall be installed according to manufacturer recommendations. They shall apply the appropriate amount of water to maintain healthy growing conditions. *(Castle Rock, CO)*

11. Certified Landscape/Irrigation Professionals

a. Require certified landscape/irrigation professionals to perform some landscape/irrigation activities in the city (e.g., on large projects or commercial properties for landscape and/or irrigation design).

b. Justification:

i. Trained and certified landscape and irrigation professionals have the tools and training they need to design, install and design water wise landscapes and irrigation systems.

c. Sample Code

i. "A landscape company working on non-residential properties in Castle Rock is required to be registered through Castle Rock Water and designate one or more Responsible Landscape Professional(s) who represent the company and is directly responsible to ensure compliance with all criteria set forth in the Water Use Management Plan and the Landscape and Irrigation Criteria Manual. The Responsible Landscape Professional must obtain, and keep current, a Qualified Water Efficient Landscaper (QWEL) certification and be registered through Castle Rock Water. *(Castle Rock, CO)*

ii. The irrigation system shall achieve a 75 percent distribution uniformity efficiency rating as demonstrated through an independent audit performed after installation by a Certified Irrigation Auditor, or as certified by the Irrigation Designer and accepted via the Town's Irrigation Design Affidavit. *(Castle Rock, CO*)

All landscape irrigation audits shall be conducted by a third-party Certified Landscape Irrigation Auditor. Irrigation audits shall not be conducted by the person or company who installed the irrigation system. *(Aspen, CO)*

12. Irrigation & Landscape Maintenance Requirements

a. Require specific irrigation and landscape maintenance practices.

b. Justification:

i. A well-maintained landscape and irrigation system can reduce water waste from leaks and inefficiencies and the system as well as supporting community aesthetics.

c. Sample Code

i. All irrigation systems shall be maintained including backflow assembly testing, leak repair, head adjustment, etc.

ii. All replacement plants shall conform to the city's approved plant list and landscaping standards

iii. Set recommendations for turf mowing height (e.g., 3 ½ Inches)