



# Xeriscaping Follow Up

April 8, 2024

# Purpose and Intent

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- Review current xeriscaping status.
- Discuss proposed changes to code.
- Solicit feedback from Council on numerous areas.



# Prior Xeriscaping Efforts

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- On July 10, 2023, staff debriefed Council on the Growing Water Smart Workshop and associated Water Smart Action Plan and held a preliminary xeriscaping discussion with Council.
- Council approved a motion seeking to pause review and approval of all landscaping permits that pertain to xeriscaping for a period of 90-days until regulations could be established.
- This item was scheduled to go to Council on October 9, 2023, but was continued to early 2024.



# Staff Involved

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- Staff members from Community Development, E3, Public Works, and the City Manager's Office were involved in this project.
- SACWSD, SACFD, and the Sonoran Institute were also involved in the review process.



# Xeriscaping: Benefits

- There is an average annual savings of 12.5 gallons of water per square-foot of converted turf.
- A 500 square-foot turf conversion will save around 6,000 gallons of water per year.
- An average-sized front yard turf conversion will save between \$70-\$100 in maintenance costs on an annual basis.
- Xeriscape can increase property value by as much as 15%.

\*Source: Colorado Water Conservation Board and Colorado WaterWise



# Xeriscaping: Current State (City)

- Sec. 21-7510 (3):
- Rear yards: no requirements
- Front and side yard requirements:
  - Two trees
  - 12 shrubs
  - 75% live plants
  - Turf limit  $\leq 50\%$
  - One mulch type
- Tree lawn requirements:
  - Sod
  - Trees



# Xeriscaping: Current State (City)

- Sec. 21-7550 (7):
  - Xeriscape design principles may be incorporated whenever appropriate in accordance with the requirements identified in the Planting Standards.
  - Tree lawn planting designs in industrial areas may include planting designs other than turf grass.



# Xeriscaping: Current State (City)

- Sec. 21-7510 (2):
  - Landscape areas may include the following elements: (a) Turf grass. High-use areas should be planted with irrigated turf grass. Non-irrigated, shortgrass prairie grasses or other adapted grasses that have been certified as Xeriscape landscaping, may be established in remote, low-use, low-visibility areas.





# Xeriscaping: Current State (State)

- The State of Colorado has recently adopted two xeric-centric laws within the past year:
  - SB23-178: Requires HOAs to loosen guidelines on drought tolerant plants, vegetable gardens, and the use of non-vegetative turf grass backyards.
  - SB24-005: Beginning in 2026, this bill will prohibit local governments from allowing the installation, planting, or placement of nonfunctional turf, artificial turf, or invasive plant species in non-residential areas.



# Xeriscaping: Suggested Changes

- Suggested changes have been modeled after surrounding municipalities and Colorado best practices.
- Landscape Areas:
  - a) Standards
    - i. Allow alternatives to turf:
      - a) Rock
      - b) Mulches
      - c) Native grasses and other approved plants
  - b) Xeric designs can be used for the following:
    - i. Detention Landscaping
    - ii. Parking lot landscaping
    - iii. Other primary landscape areas



# Xeriscaping: Suggested Changes

- Applicability:
  - Residential
  - Non-residential
  - ROW landscaping (tree lawn)
- Required Review:
  - Landscape Plan
  - Exceptions
  - Inspections



# Xeriscaping: Suggested Changes

- Standards/Approval Criteria:
  - Live plant area requirement
  - Plant materials and rock/mulch types
  - Temporary irrigation
  - Artificial turf?



# Xeriscaping: Suggested Changes

- Plants must be appropriate to the C3 climate and will be selected from the Approved Plant List.
- Plants with similar water requirements must be grouped together.
- Hardscaping elements are okay if water can pass through (drainage plan required).
- Tree lawns may contain xeric plant material.



# Xeriscaping: Suggested Changes

- Automatic irrigation zones must be retrofitted to water remaining grass adequately and irrigate the new landscape efficiently.
  - Drip irrigation is preferred. If overhead sprays are used, high-efficiency nozzles are required. Hand watering and semi-automatic irrigation is permissible.
- Trees must have dedicated irrigation.
- Soil amendment is required in areas that are cleared and set to hold plant material.
  - This included plant-based compost, manure-based compost, organic and inorganic materials.



# Xeriscaping: Suggested Changes

- All xeriscaping applications would require the applicant to submit a plan that addresses drainage impact.
- Inspections:
  - Initial inspections provide an opportunity to ask questions and address any installation issues.
  - Inspections would be scheduled after plants, irrigation, soil amendments, and hardscapes have been installed, but before the mulch goes down.



# Xeriscaping: Suggested Changes

- The following would be inspected:
  - Plant type/size matches the plant list, and plant locations match the approved design.
  - Plant holes have appropriate backfill of soil.
  - Use of approved soil.
  - Irrigation system including backflow prevention device and rain sensors are installed, in compliance with SACWSD watering schedules, if applicable.
  - Site is free of weeds and hazards.
  - Edging is present to separate beds from turf sections.
  - Erosion control BMPs in place where needed and public ROWs are clean.



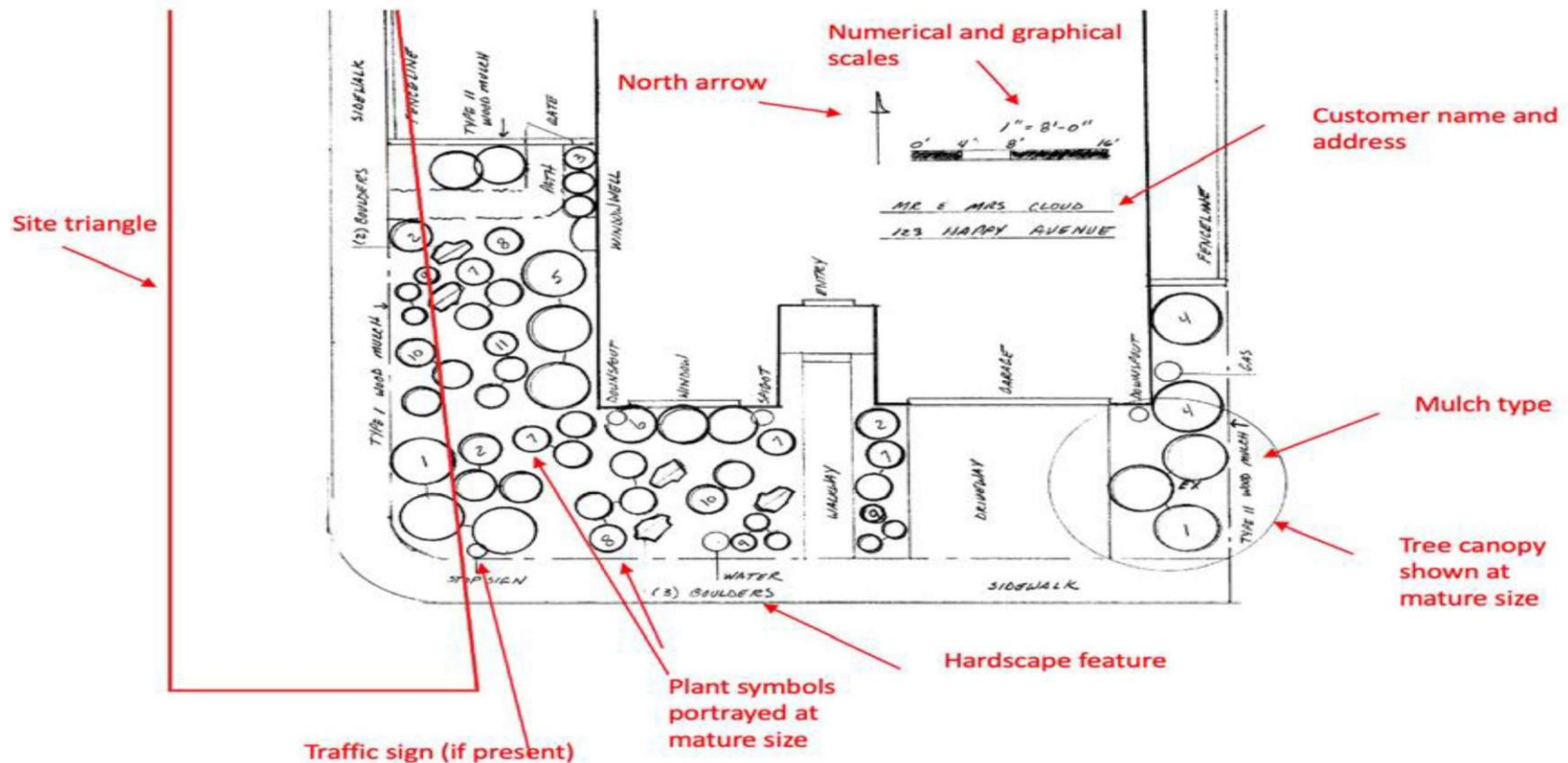


# Xeriscaping: Best Practices

- All participants must have a landscape design approved prior to beginning installation or demolition.

## Design Example

This design includes all requirements listed in the previous section. Important elements have been identified in red.



# Xeriscaping: Best Practices

- If Council is supportive of improving xeriscaping requirements, staff recommends that at least one xeriscape demonstration garden be built in the City.
  - Several municipalities have at least one example garden, including Boulder, Fort Collins, Aurora, and Adams County.
  - Growing Water Smart technical assistance grant was awarded for design of a demonstration garden on City-owned property.
    - Actual garden would need to be budgeted for.
    - RFP for design contractor has been posted.
    - Seeking additional grant funding for this project.
- Staff can also explore opportunities for non-functional turf conversion.



# Approved Plant List

- The City's Approved Plant List for xeriscaping includes 19 trees, 23 shrubs, six vines, and six native grasses.
- All plants on the list are suitable for Colorado's semi-arid climate.
- Many plants on this list are fire-resistant.
- Staff will review the list on a regular basis with external resources, such as the Botanic Gardens and SACWSD, to ensure it is up to date.



# Native Grasses

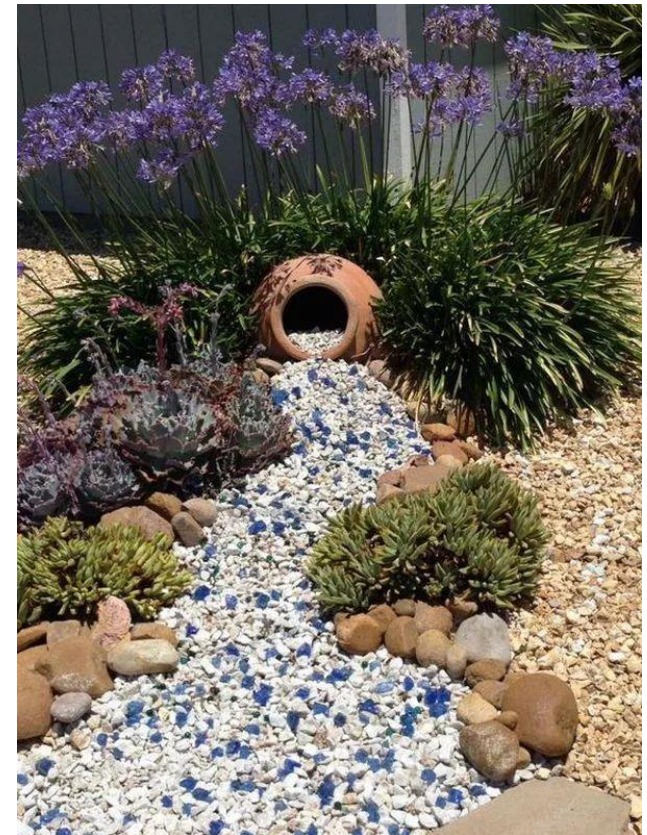
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- Would be permitted in yards, medians, parking islands, tree lawns, and other low-use areas.
- Increase biodiversity and require little or no irrigation.



# Rocks

- Would be permitted as mulch in xeric designs.
- Can provide architectural interest to gardens and can be effectively used as borders in conjunction with other materials.
- Best Management Practices:
  - Rock used as mulch should be less than 1/2" in diameter.
  - Rocks should not be artificially colored or sprayed with a tint.
  - Rocks should be lighter in color to reduce heat exacerbation effect.
  - At full plan maturity, rocks should comprise <50% of the garden.



# Artificial Turf

- Sec. 21-7515 (4) of the LDC states: “partial or entirely synthetic material designed and manufactured to simulate living turf grass shall be prohibited, with the exception of public or private recreation fields.”
- There are many residential areas in the City that have installed artificial turf, even though it is disallowed in the LDC.



# Artificial Turf: Surrounding Municipalities

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- Aurora: Allows artificial turf in front and backyards, commercial developments, street buffers, and dog parks.
- Thornton: Allows artificial turf in the backyard, side-yards that aren't visible to the public, and up to 25% of the front yard.
- Arvada: Allows artificial turf in the backyard and side-yard if it is not visible to the public.
- Cities that do not allow artificial turf for residential landscaping include Parker, Littleton, Erie, and Lakewood.



# Artificial Turf: Pros

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- Decreases water usage since no live plants are present.
- Eliminates the need for fertilizers and other gardening chemicals.
- Low maintenance for property owners.

\*Source: Western Resource Advocates





# Artificial Turf: Cons

- Can reach temperatures up to 80° higher than ambient air temperature, exacerbating heat island effect.
- Crumb rubber fill contains approximately 200 harmful chemicals, including PFAS.
- Has a lifespan of less than 10 years and is expensive to install, maintain, and replace.
- Does not provide natural drainage during storms.
- Can become moldy and does not naturally disinfect from pet or wildlife waste.
- Does not provide carbon removal or other environmental benefits of live plants.
- Negative impacts on soil health.
- Impacts landfill after useful life.
- Contributes to microplastic pollution.



\*Source: Western Resource Advocates and Growing Water Smart Managers

# Artificial Turf: Best Practices

- If Council desires to allow artificial turf, then the City should add the following best practices for artificial turf in the Land Development Code:
  - Inclusion of living plant requirements
  - Permissible locations and live plant buffers
  - PFAS-free turf requirement
  - List of allowable types and materials to require use of higher quality artificial turf
  - Limited percentage of yard

\* Proposed BMPs are modeled after surrounding municipalities, including Brighton and Thornton.



# Artificial Turf BMP Examples, If Allowed

- Allowed only on lots developed with a single-family detached, single-family attached dwelling, or PUD.
- Prohibited on all other residential lots.
- Allowed in rear yards only.

## **IF** allowed in front yards:

- Artificial turf may extend to the front property line if a minimum three-foot buffer is installed between the artificial turf and the sidewalk along a street.
- Buffers shall be permeable, consisting of wood mulch, gravel, or small rock.
- Living plant materials are required when artificial turf is installed on the lot outside of the rear landscape area.



# Artificial Turf: Best Practices

- Required Tree Equivalents in front artificial turf:
  - Requires existing or new plant materials located in the front / publicly visible side areas.
- First 750 square feet of artificial turf:
  - 1 Tree Equivalent;
  - Each additional 250 square feet of artificial turf: ½ Tree Equivalent.
- Existing tree requirements for landscaping still remain.

## One Tree Equivalent



2-inch caliper  
deciduous



6-foot  
evergreen

OR

## 10 shrubs

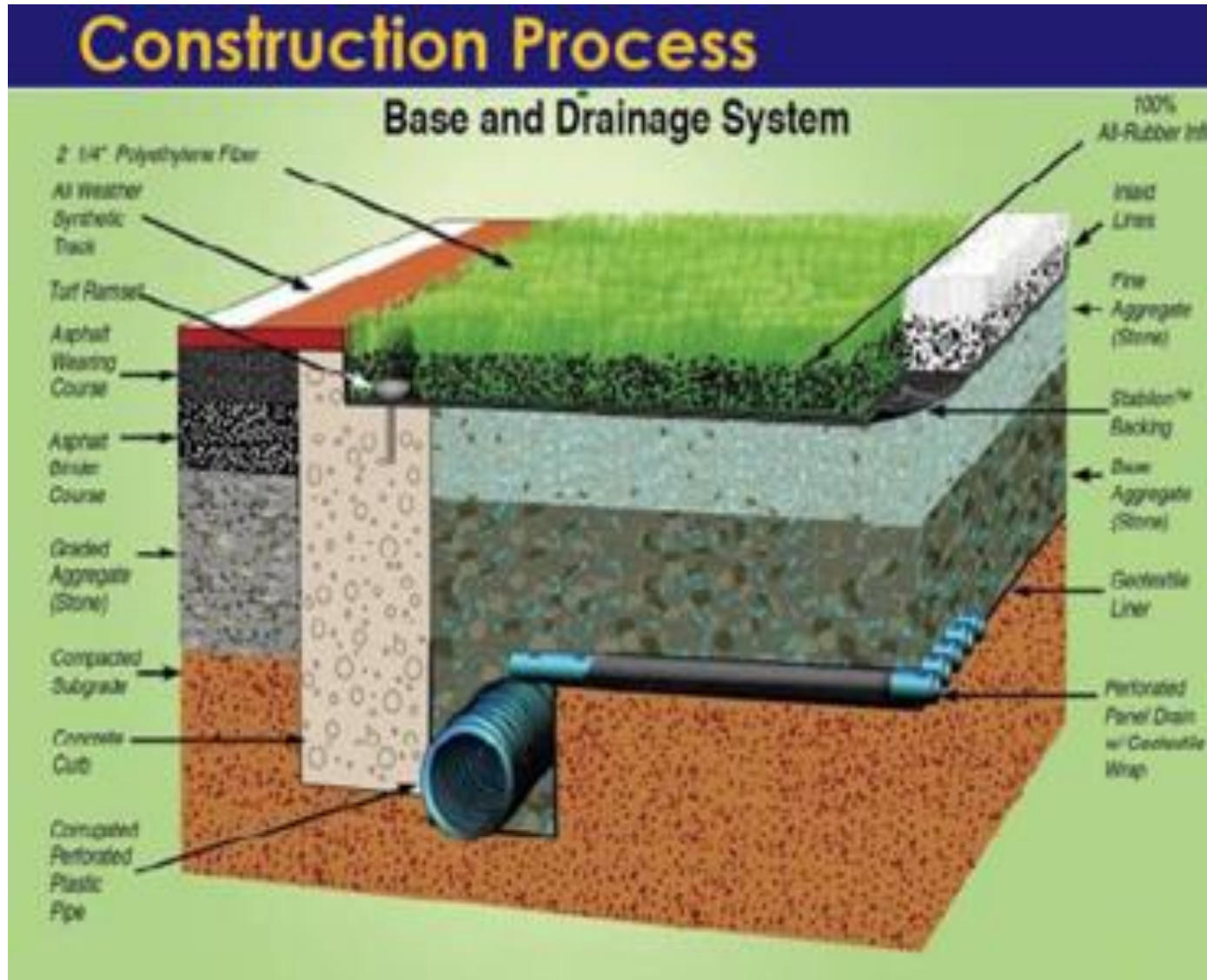


OR

## 20 ground covers or ornamental grasses



# Artificial Turf BMP Design Example



1. Excavation of everything on the field.
2. Grade and compact subgrade.
3. Install a perimeter drain around the field.
4. Backfill with 3/4" drainage stone.
5. Place geotextile fabric over subgrade
6. Add 6" of drain stone, compact and laser grade
7. Install concrete curbing and nailer board around the perimeter to anchor the artificial turf
8. Install AstroTurf

The picture to the left is a dissection of what is explained above. This picture is a good representation of the layering that goes into making the artificial turf system work.

# Council Direction

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- Does Council support code allowing the conversion of front yards and tree lawns to xeriscape?
- Does Council support a code requirement for new development to include a certain percentage of xeriscaping?
  - Multi-family and commercial inclusion?
- Does Council support non-functional turf conversion of City-owned land utilizing grant funds until this can be budgeted for?



# Council Direction Continued

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- Does Council wish to allow artificial turf for residential use?
  - If yes, does Council accept the proposed Best Management Practices?
  - If yes, should artificial turf only be allowed in certain areas of the yard? (i.e., side, back, front)



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# Discussion

