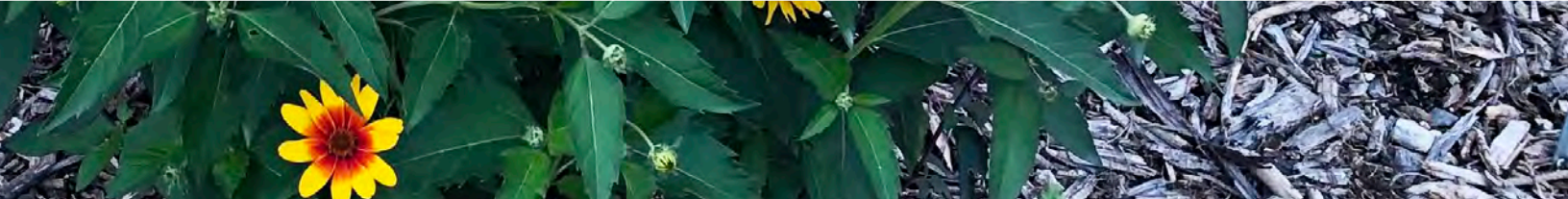
WELLINGTON WATERWISE

LANDSCAPE AND IRRIGATION DESIGN MANUAL

TOWN OF WELLINGTON

April 2022

FINAL DOCUMENT




Low Impact Development (LID)
Rain Garden
Fort Collins
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INTRODUCTION

BACKGROUND

Wellington's population has more than doubled in the decade from 2010 to 2020. The Town is expected to continue to grow and include both residential and commercial developments, as well as associated parks, open space, and streetscapes. Residential land uses consume the most water as compared to other types of land uses, largely in part due to outdoor irrigation. Reducing water use for residential outdoor watering is identified as one of the most effective strategies for conserving the Town's treated water supplies. Reducing outdoor irrigation for other land use types is also desirable. The 2018 Water Efficiency Plan identifies a goal of lowering the Town's treated water demand by 5% between 2018 and 2023, and a total of up to 10% by 2027 (2018 Water Efficiency Plan).

Irrigation associated with landscape plantings in residential areas uses the most water. This includes private properties, streetscapes, and developed parks. "Xeriscape" is the strategic application of the minimum amount of irrigation water that is required to sustain the level use that a site receives, or to sustain key, highly visible, ornamental features that could not survive without supplemental water. These strategies have been promoted for more than 35 years by many organizations and government agencies in Colorado, although property owners and the development community have been slow to embrace xeriscape principles. The reasons for not applying the principles of Xeriscaping include a culture that perceives beauty based on "abundant green", which is imported from other areas of the country where the climate is different, and where precipitation is higher. Water, including for irrigation purposes, has also been relatively inexpensive in northern Colorado, which is a disincentive to conserve the resource.

Some communities in Colorado have taken bold steps to reduce water consumption that is associated with irrigating landscapes. They may have specific requirements for maximum amounts of water that can be applied, special plant lists, design criteria for landscaping and irrigation systems, and submittal requirements associated with zoning changes or obtaining building permits or water taps. This design manual highlights some of the most applicable examples of what has been implemented in other municipalities and proposes various tools that can be employed to conserve water supply for the Town.

PURPOSE

This Landscape and Irrigation design Manual (the Manual) is intended to provide information for designers and property owners to create landscape designs that provide an attractive, comfortable environment for users while minimizing maintenance needs and reducing water use. The Manual was developed by conducting research into comparable communities, developing a list of best practices, and involving community stakeholders, to create specific recommendations for implementation of best practices for specific site types.

PROCESS

PUBLIC INPUT

Introduction

The effort to develop this Design Manual and the corresponding Landscape Standards included in the Wellington Land Use Code, began with outreach to the community. This effort included discussions with key stakeholders as well as online polling as described herein.

Stakeholder Outreach

Stakeholders included developers, engineers, builders, and landscape architects with experience designing and developing in the Town of Wellington as well as parks and recreation staff and Homeowner's Associations. These discussions resulted in a two lists representing needs for regulatory changes in the Town's Land Use Code and needs for programming such as education, resources and incentives. Primary themes from stakeholder outreach are outlined below:

Elements to include in the Land Use Code:

- Restrict amount of irrigated turf
- Provide recommended plant list
- Require all open spaces not used for athletic fields or play to be native grass
- Specify a maximum allowable irrigated area on large lots
- Require certain percentage of streetscapes to be xeriscape
- Provide a alternative grass option for lawns
- Require waterwise irrigation systems

Elements to be included as a Town Program:

- Promote irrigation system audits or updates
- Easy access to materials such as free mulch
- Rebates for reducing existing water usage
- Demonstration xeriscape garden
- Connect residents and businesses to available resources
- Offer a garden in a box program
- Encourage retrofitting existing landscapes

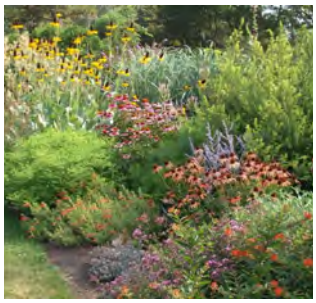
Online Polling

On April 30th, a poll was launched to understand the community's perception of low water (xeric) landscapes. A total of 203 responses were received in the two weeks the poll was open.

The poll asked two questions with the same series of images:

Q1 - Which of these landscapes represents xeriscape or low water landscape?

The top two choices included the following:



Q2 - Which of these landscapes would you prefer to see in Wellington?

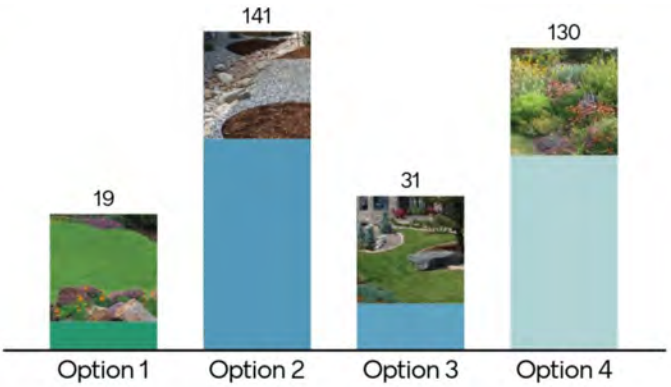
The top choice included the following:

The conclusion to be drawn from this exercise is that although the image representing all rock and no landscape was identified as representative of xeriscape, the preference is for a more lush, green, colorful landscape palette. The least preferred option chosen was the image representing primarily turfgrass. These responses along with the stakeholder feedback directly influenced the resulting Design Manual and Code Standards.

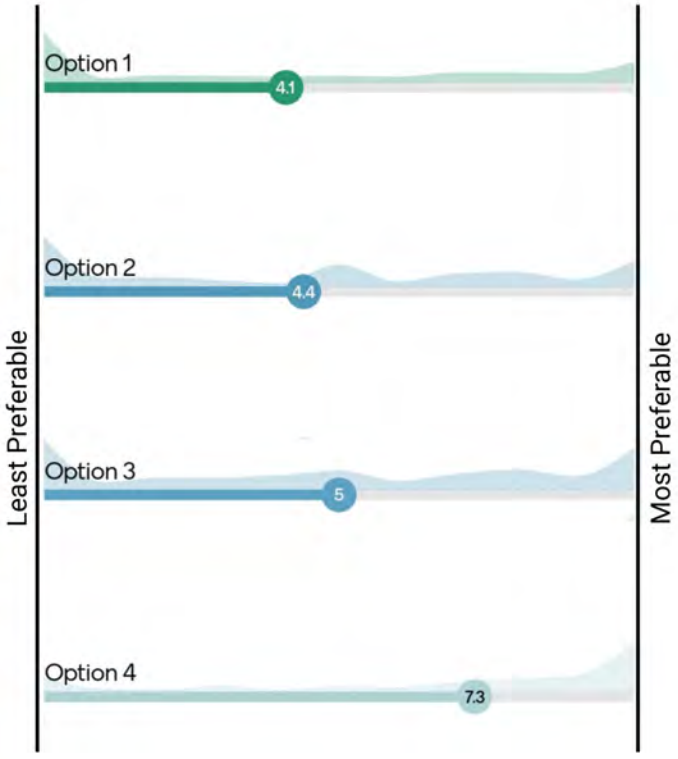
Summary of Feedback

Below is a snapshot of the results from the online polling conducted in April of 2021. Respondents were able to select all that applied in question 1 and were asked to rank the options in question 2 from least preferred to most preferred.

Q1: Which of these landscapes represent a xeriscape or low water landscape?



Q2: Which of these landscapes would you prefer to see in Wellington?



PROCESS

CASE STUDIES

Case studies of comparable municipalities and advisory groups was completed to gain insight into current best practices in landscape and irrigation design and management for water conservation.

Aurora, CO

Overview

The City of Aurora includes a Landscape Reference Manual that supports Chapter 4.7 Landscape, Water Conservation, and Stormwater Management, of the Unified Development Code (UDC). Additionally, the City has a waterwise demonstration garden to exhibit the preferred planting and irrigation techniques.

Details

- Requires permits for installation of turf or irrigation with an area greater than 250 sq. ft.
- Requires compost amendment must be added to the soil before a permit will be issued.
- Include a plant list ranking plant material by water use including a list of plants that require no supplemental water.
- Native vegetation does not need an automatic irrigation system.
- UDC includes section specific to Site Design for Low Impact Development
- UDC requires a variety of plant material including native drought-tolerant vegetation, and perennial and annual flowerbeds.

Centerra, CO

Overview

A showcase for sustainable development, Centerra is a 3,000-acre master-planned community in Loveland, CO. The development includes Landscape and irrigation Design Guidelines to ensure that every single development meets the established water conservation goals.

Details

- Provides principles of general landscape design and planting layout for water conservation such as limiting the use of high water turfgrass.
- Describes proper soil preparation techniques.
- Describes proper mulching techniques.
- Describes hydrozones.
- Includes guidelines on preservation or mitigation of existing vegetation.
- Provides an extensive plant list which lists characteristics such as flower color, blooming season, size, sun/shade needs and water needs.
- Provides irrigation design and construction criteria including guidance for operation, maintenance, and trouble shooting.

City of Aurora Waterwise Garden

Colorado Springs, CO

Overview

The Colorado Springs Landscape Code and Policy Manual Water is divided into four basic sections including general information on Code sections and policy numbers, plan requirements for signature landscapes, site category requirements, and a design manual for signature landscapes.

Details

- Conservation is mentioned throughout the guidance document. Some of the major water conservation goals include:
  1. Use of xeriscape principles;
  2. Use of site-specific plant material matched to soil type and microclimate;
  3. Conservation of indigenous plant communities;
  4. Promotion of landscapes that require minimal supplemental irrigation; and
  5. Prohibition of restrictive covenants requiring turf grass due to water demand.
- Includes a detailed list of suggested plants to use for the region.
- Requires professional qualifications to develop an irrigation plan.
- Includes hydrozones which take into account water demand, slopes, and microclimates.

Erie, CO

Overview

The Town of Erie, Colorado not only includes landscape regulations specific to water conservation per the details below, but additionally, the Town recently retrofitted their own municipal building landscape to remove much of the high water use turf grass in lieu of a more xeric landscape as a demonstration of the principles within their Land Use Code.

Details

- Landscape plans are required to follow design treatments to facilitate water conservation. Treatments include:
  1. Appropriate turf selection to minimize the use of bluegrass;
  2. Use of mulch to maintain soil moisture and reduce evaporation;
  3. Zoning of plant materials according to their microclimate needs and water requirements;
  4. Improvement of the soil with organic matter if needed;
  5. Efficient irrigation systems;
  6. Proper maintenance and irrigation schedules; and
  7. Recirculation of water for decorative water features.

Colorado Springs Utilities Xeriscape Demonstration Garden

Erie Town Hall

PROCESS

Parker, CO

Overview

The City of Parker Land Development Ordinance Landscape Regulations include several xeriscape requirements.

Details

- Due to excessive watering requirements, seed mixtures or sod containing large percentages of Bluegrass or other traditional turf grasses are to be limited in use. Traditional turf grasses are defined as Bluegrass (Poa pratensis) and turf type tall fescue (Festuca arundinacea) and cultivars thereof.
- Traditional turf grasses shall only make up fifteen percent (15%) of any required on-site landscaping for commercial and industrial uses. Where recreational components are included, the Planning Director may approve a greater amount of turf grass area. The applicant must demonstrate that the additional turf grass areas are being used in high-traffic areas such as athletic fields, children's play areas, parks and courtyards.
- Traditional turf grasses are prohibited for use on any interior parking lot landscaping.
- Preferred turf grasses include Buffalo Grass (Buchloe dactyloides) and Blue Grama (Bouteloua gracilis). Other native seed and seed blends will be considered that satisfy the requirements of this Section. There is no limitation on the use of preferred turf grass species

Colorado Growing Water Smart, The Water-Land Use Nexus Guidebook

Overview

Growing Water Smart is a program developed by the non-profit Sonoran Institute in partnership with the Lincoln Institute of Land Policy's Babbit Center for Land and Water Policy with the goal of realizing watershed health and community resiliency. In addition to providing workshops for communities across the west, they prepared the referenced document which provides a long list of basic principles to support water efficient landscaping, green infrastructure, & low impact development.

Details

- Conduct an assessment of saving potential by comparing annual water demands on a new property against an older property or properties with comparable area, plantings, and
- In order to approve new development, there must be:
  An estimate of the amount of water supply needed for build out.
- A description of the source of the water supply.
- An estimate of the yield from the source under various hydrological conditions.
- Water demand management measures to be used.
- Any additional information the local government may require.

Sustainable Garden by American Design & Landscape

Colorado Water Conservation Guide

Overview

This is a citizen's guide to conserving water in Colorado which goes into detail about Colorado's fluctuating water supply/demand as well as how to be more efficient with water use in Homes and Cities. In addition to listing interior water savings techniques such as plumbing fixtures and appliances, there is guidance on ways to save with exterior water use per the details below.

Details

- Consider reuse of both potable and non-potable water
- Micro-irrigation (drip or microsprays) is estimated as up to 95% efficient irrigation technique as they deliver water directly on or below the soil surface.
- Includes a table with different types of irrigation technology and where they are most efficient.
- Efficient water use depends on management as much as the equipment utilized.
- Irrigation controllers can help residents use up to 50% less water by controlling the amount of time and water placed on the landscape.
- Non-irrigated native seed areas are not included in Composite Landscape Water Use Rating calculations.

Smart Growth Water-Efficient Landscape Design

Overview

"Water-Efficient Landscape Design is meant to serve as an alternative or supplement to the landscape design section of the Model Land Use Code for Colorado's Small Communities". The document provides a section dedicated to definitions of irrigation and other related terms.

Design Standards

- Landscapes shall use the following xeriscape design principles to facilitate water conservation:
  1. Well-planned planting schemes;
  2. Appropriate turf selection to minimize the use of bluegrass;
  3. Use of mulch to maintain soil moisture and reduce evaporation;
  4. Use plantings and berms to create outdoor rooms in common open space areas.
  5. Zoning of plant materials according to their micro-climatic needs and water requirements;
  6. Improvement of the soil with organic matter if needed;
  7. Efficient irrigation systems; and
  8. Proper maintenance and irrigation schedules .

BEST PRACTICES

PLANTING DESIGN

Good planting design can reduce water use and long-term maintenance needs. The best practices highlighted below primarily result from the case study research performed.

Planting Beds

- Replacing irrigated turf with planting beds will reduce irrigation requirements and can ease maintenance commitments.
- Planting beds can be used to cover small areas where spray irrigation is inefficient.

Low Water Bluegrass Alternatives

- Replacing bluegrass with low water turf grass alternatives in areas that are not primarily used for foot traffic can achieve a similar landscape character while saving annual water use over the replaced area.

Shade Trees

- Providing shade trees to lawn areas or planting beds provides heat regulating benefits which can slow the evaporation of moisture therefore resulting in a reduction in irrigation needs.

Micro-climates or Hydrozones

- Avoid relying solely on irrigation to provide water to high water use plants.
- Create depressions or direct runoff to man-made or naturally occurring low spots to create conditions where species with higher water use requirements can thrive.
- Locate planting beds downhill from large impervious areas like parking lots or hard surface sports courts to take advantage of the runoff while capturing sediment.

High Water Plant Exclusion

- Avoid plants and planting/irrigation design that requires high levels of water use for an irrigation zone when the remainder of the zone would survive with a lesser amount of water.

Tactical Water Use

- Limit high and moderate use plant material to the most heavily used and visible areas.
- Design for low and no water use at parcel edges and low traffic areas.
- Use an irrigation budget to directly water high impact trees and shrubs via drip or bubble systems instead of spraying turf.
- Planting beds can be used to improve privacy or screen visually undesirable areas like trash and maintenance facilities.

Water Use Groups

- Group plants with similar water use requirements to prevent over watering of low-use plants in irrigation zones that require more water.

Focus on Species Diversity

- Use a variety of plant materials including the use of native varieties or species that do not require supplemental water.
- Refer to the suggested plant list in the appendices.
- Non-native species should only be used to achieve design objectives that are not possible through the use of native species. Species with non-native origins are more likely to have higher water requirements than native species.

IRRIGATION DESIGN

Design irrigation systems to use less water and apply water to the landscape more efficiently.

Similar Water Use

- Group plants with similar water use into irrigation zones to avoid over watering lower water use plants.

Non-Potable Water

- Use not-potable water where possible to conserve drinking water for domestic uses.

Overspray

- Irrigation spray heads should be calibrated to avoid overspray onto impervious surfaces such as walks and drives and into walls, fences, buildings, and other structures.

Overwatering

- The amount of irrigation water applied to the landscape shall be the minimum amount required to maintain healthy plant life. Deep watering is encouraged.

Irrigation Timing

- Irrigation should occur between the hours of 7pm-7am to allow infiltration and to avoid excessive evaporation.

Drip Irrigation

- Use drip irrigation infrastructure wherever possible. Minimize areas requiring overhead spray irrigation.

Tree and Shrub Supplemental Irrigation

- Trees and shrubs not in areas receiving spray irrigation should receive individual irrigation via drip or bubbler systems.

Even Distribution

- Design all overhead spray irrigation systems to provide even distribution of sprayed water taking into account wind, landforms, vegetation, and other obstructions.

Establishment Watering

- Certain tree and shrub species can be planted outside of permanent irrigation zones if they receive supplemental watering while establishing root systems, approximately two to three years.

Efficient Equipment

- Install rain sensors to ensure that spray heads turn off while it is raining
- Use smart sensor controllers that are tied to weather applications.
- Where overhead spray heads are necessary, use efficient nozzles such as the Hunter MP Rotator.

BEST PRACTICES

GREEN INFRASTRUCTURE

Green infrastructure is an approach to water management that protects, restores, or mimics the natural water cycle. Incorporating green infrastructure is an effective way to reduce water usage and improve water quality.

Bioswales and Rain Gardens

- Capture stormwater by adding curb cuts to parking lots and streetscapes and depressing the planting area to allow for water to infiltrate rather than run off.
- Provides filtration of runoff before it returns to water courses or enters storm sewer systems.
- Can be planted attractively as a primary feature in the landscape.

Rain Barrels

- Store rainwater locally for later use, reduce irrigation draws and maximize efficiency of use of naturally occurring water.
- Follow applicable state laws with regards to amount of capture allowed and timing of release.

Permeable Pavement

- Incorporate permeable pavement instead of traditional hardscape to restore groundwater resources and reduce the amount of stormwater captured and conveyed off-site.

SOIL AMENDMENT AND COVER

Amending the soil properly prior to planting and using the right mulch can go a long way to reduce the water requirements of a landscape.

Soil Amendments

- Improve soil structure and moisture retention though the addition of composted organic material.
- Many Colorado communities require a rate of three cubic yards per 1000 square feet of landscape area integrated into the native soil to a depth of eight inches.
- Additional techniques include mixing one third compost with two thirds native soil in each planting hole.

Mulch

- Weeds cannot be avoided no matter the mulching technique. The best approach for water retention is to place three to four inches of shredded hardwood mulch on top of the soil in all planting beds.
- Trees planted in grass should include a mulched ring with a diameter of five feet around the trunk of the tree.

LANDSCAPE TYPES

DEFINITION OF LANDSCAPE TYPES

Landscape type is defined in this document by the amount of supplemental irrigation water required to sustain the plants in that landscape. The four landscape types are high, moderate, low, and xeric.

The amount of water is measured in gallons (gal) applied to a square foot (sf) of landscape over the irrigation season or year (yr).

The water requirement ranges to the right were derived by a calculation including the rate at which water evaporated from the soil locally in addition to known water requirements of plant species categorized by the landscape types herein.

Examples of the character and best applications of the landscape types used in this manual are shown on the following pages.

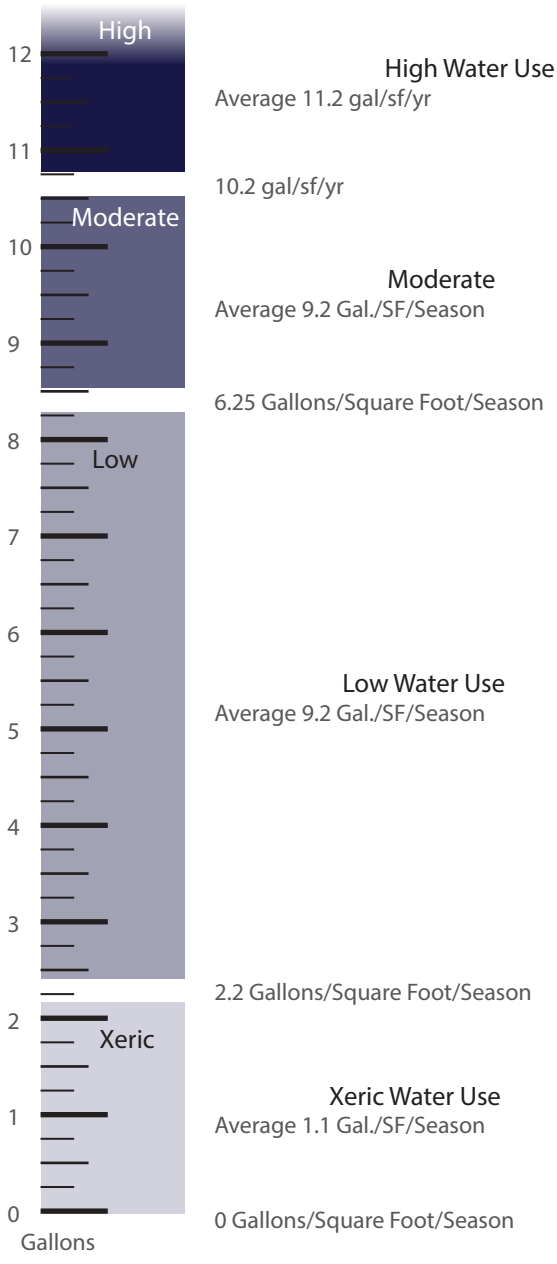
Average Water Use

There are many different ways to landscape a site. Reducing the area and amount of high water landscape types is the most effective way to reduce the overall water use of a site.

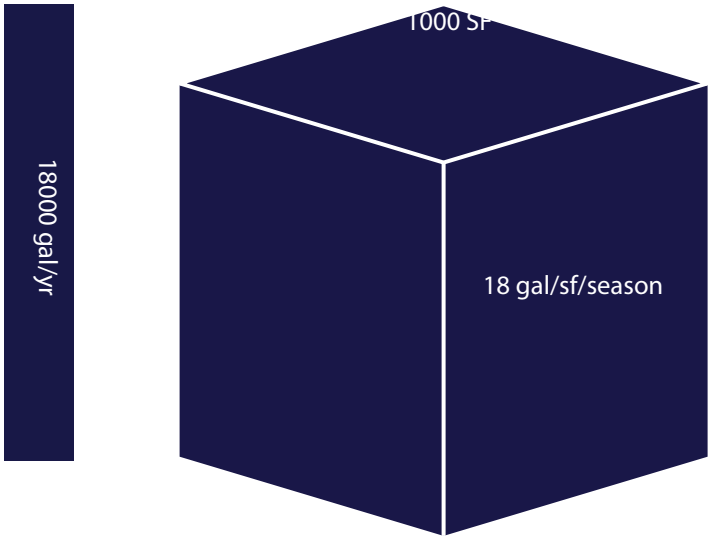
Site wide water use levels are determined by the average gallons per square foot per season applied across the site. This allows high water use areas to be balanced out with low and xeric areas, reducing overall water use.

Lot Average Water Use Reduction

The overall water usage of a property can be reduced by lowering the water usage of individual hydrozones and by increasing the ratio of lower water zones to higher water zones. Hydrozone means a portion of the landscaped area having plants with similar water needs that are served by an irrigation valve or set of valves with the same schedule.

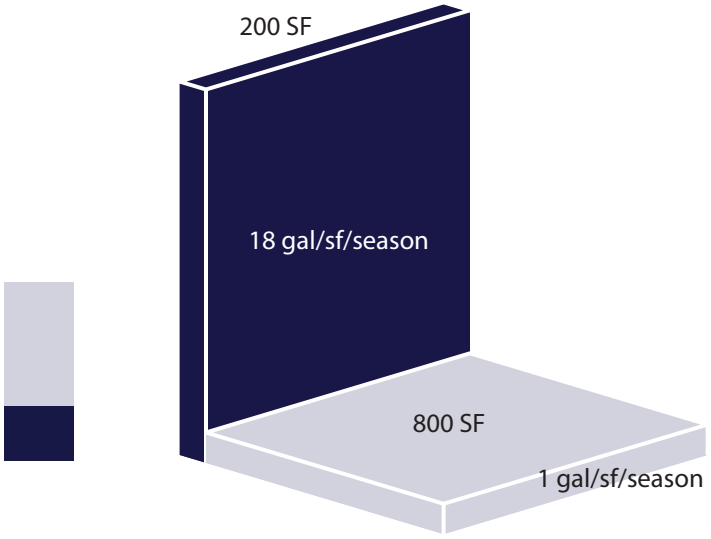


USING HYDROZONES TO REDUCE WATER USE



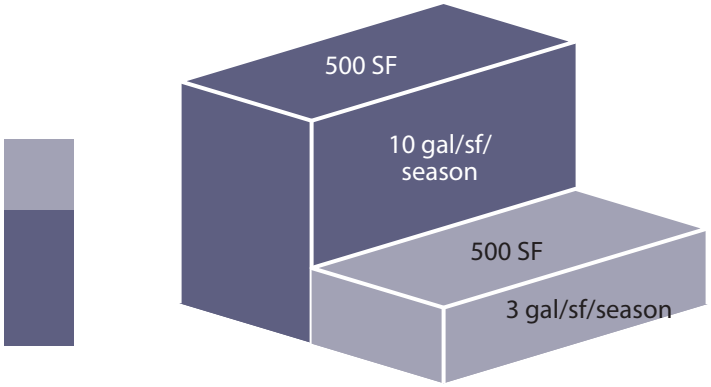
High Water, Large Area

A property that is landscaped exclusively with bluegrass can use several times the amount of water as the same size lawn landscaped using waterwise principles.



High Water, Small Area

A property with a high ratio of xeric to high water use landscape type can significantly reduce the overall water use of a site while preserving many of the visual and use benefits of irrigated bluegrass in high visibility or heavy foot traffic areas.



Balance of Moderate and Low Area

A landscape with a balanced ratio of medium to low water usage landscape types would fall into a medium hydrozone.

LANDSCAPE TYPES

HIGH WATER USE

Irrigated Bluegrass Park

Irrigated Bluegrass Lawn

Description

- The High Water Use Landscape type includes plants that require additional irrigation in excess of 10.2 gal/sf/season. This landscape is typified by bluegrass turf and annual planting beds.
- The total amount of water consumed by high water use landscape types is best limited by minimizing the total area covered by high water use plants.

Examples

Bluegrass Turf

- Traditional lawn areas watered by overhead spray irrigation.

Annual Flowers

- Typically planted in beds and watered heavily due to shallow root systems similar to bluegrass turf.

Shrubs, Grasses, Perennials, and Trees

- Consist of species found near water sources in nature such as birch trees, alder trees, willows, dogwoods, lily of the valley, ferns, and irises to name a few.

Best Applications

High Use, High Intensity, High Visibility Areas

- Maximize value and use of irrigated bluegrass by placing in high visibility, high traffic areas, specifically areas where it is shared by multiple users.
- Similarly, annual flowers are best used in small areas of high visibility for bright pops of color in the landscape.

MODERATE WATER USE

Moderate Water Use Planting Bed

Fescue Lawn

Description

- The moderate water use landscape type includes plants that require additional irrigation between 6.25-10.2 gallons/square foot/season. This landscape type is typified by, low water turf-type grasses, and some perennials, shrubs and trees.

Examples

Shrubs, Grasses, Perennials, and Trees

- Typically planted in beds and watered individually via drip or bubbler heads (not overhead spray).
- Consist of many of the more popular plant species such as maple trees, buckeye trees, crabapple trees, fruit trees, fir trees, euonymus, yew trees and shrubs, serviceberry, daphne, chokecherry, roses, spirea, bellflower, bleeding hearts, and peony.

Low Water Bluegrass Alternatives

- Turf type fescues that are maintained as lawns

Best Applications

Planting Beds

- Organize plants in planting beds and apply drip or bubbler irrigation to allow plants with higher water requirements to be watered with minimal waste.

Low use, High visibility areas

- Plant turf type fescue lawns instead of bluegrass turf in areas where the green lawn look is desired but there is no need to accommodate heavy foot traffic.

Specimen Planting

- Use high water shrubs, ornamental grasses, perennials and trees sparingly and plant species with high aesthetic value singly or in small groups and near other moderate water requirement plant material.

LANDSCAPE TYPES

LOW WATER USE LANDSCAPES

Native Grass Lawn

Low Water Planting Bed

Description

- The Low Water Use Landscape type includes plants that require additional irrigation between 2.2 and 6.25 gal/sf/season. This landscape is typified by low species that have adapted to our local climate as well as cultivars of native species that have been bred specifically to survive in our dry, high desert conditions.

Examples

Shrubs, Grasses, Perennials, and Trees

- Typically planted in beds and watered individually via drip or bubbler heads (not overhead spray).
- Consists of species such as honeylocust trees, kentucky coffee tree, hawthorn trees, some oak tree species, juniper, some pine species, spruce, barberry, butterfly bush, peashrub, lilac, cotoneaster, privet, ninebark, viburnum, potentilla, columbine, coreopsis, lavendar, lupine, coneflower, and veronica.

Low Water Bluegrass Alternatives

- Buffalograss, Blue Grama, and other native short growth prairie grasses.

Best Applications

Planting Beds

- Organize plants in planting beds and apply drip or bubbler irrigation.

Low Intensity Use Areas

- Use high and moderate water landscape types sparingly and group together for efficient watering.

Low Maintenance

- Amend soils with organic matter at rates appropriate to the landscape type (see land use code section 5.04.3) and use shredded hardwood mulch to keep weeds to a minimum, reduce evaporation of water from the soil, and keep the plant roots cool.

XERIC WATER USE LANDSCAPES

Xeric Residential Landscape

Native Plant Landscape

Description

- The Xeric Landscape type includes plants and inert materials that require less than 2.2 gallons/square foot/season of supplemental irrigation. This landscape type is typified by native grasses, perennials, shrubs, and trees as well as inert groundcover material that requires no irrigation.

Examples

Native Grasses

- Native short growth prairie grasses and wildflowers.

Shrubs, Grasses, Perennials, and Trees

- Consists of species such as tree of heaven, hackberry tree, some oak tree species, buckthorn trees, sumac, elm trees, western serviceberry, sage, mountain mahogany, rabbitbrush, apache plume, mockorange, forsythia, currant, some juniper species, cactus, many pine species, yucca, yarrow, delphinium, penstemon, wild geranium, aster, daylily, flax, and tulip.

Inert Material

- Wood or stone mulch without plants and accent boulders.

Best Applications

Areas with Irrigation Difficulties

- Use xeric plants in areas that are too small to be watered efficiently or where access to water is difficult or impossible, i.e. too far from or isolated from the irrigation source.
- Use accent boulders to provide texture and variety in planting beds.

Low/No Maintenance Areas

- Areas that are too large or difficult to maintain regularly should be planted with native species that require little to no oversight.

Areas with difficult growing conditions

- Include xeric landscape types alongside roads and in areas receiving very little sunlight (inert materials).

SITE TYPES

OVERVIEW

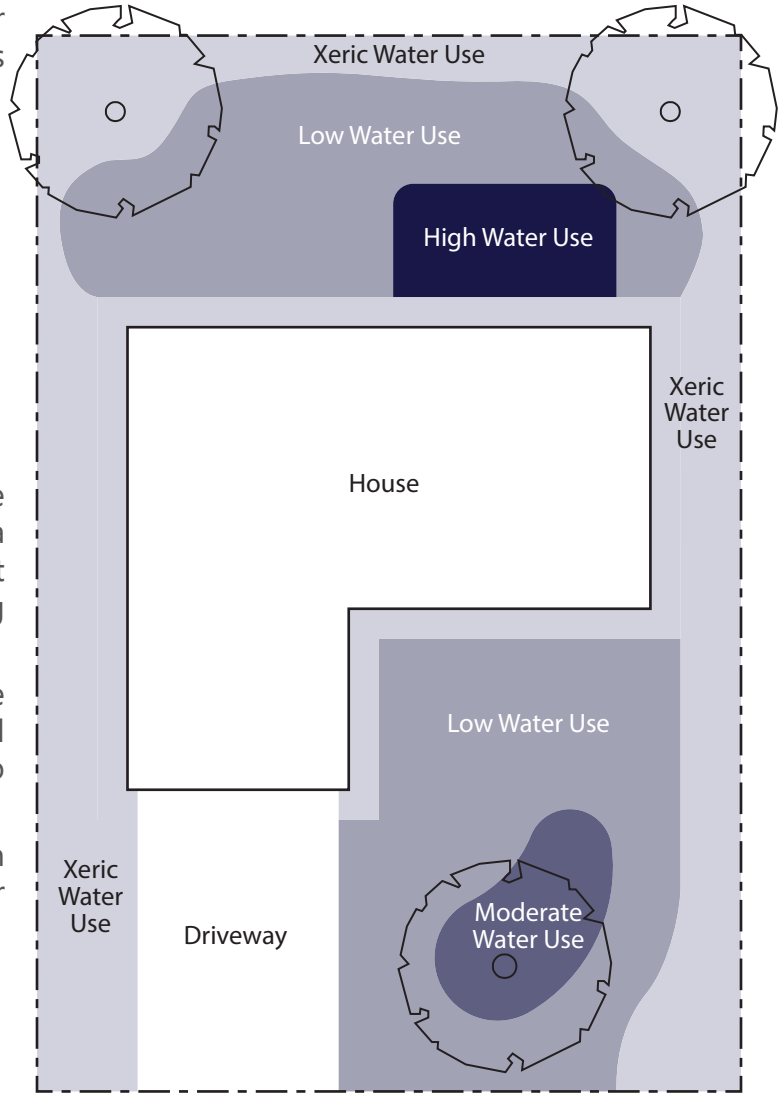
'Site Type' in this document refers to the character and use of a property. Site types covered by this document include:

- Parks and Open Space
- Streetscapes
- Multi-Family Residential
- Standard Lot Single Family Residential
- Large Lot Single Family Residential
- Nonresidential Development
- Industrial Development

For each type of site a graphic similar to the one at the right is used to conceptually illustrate a planting and irrigation design that implements best practices to minimize water use while preserving the aesthetic value of the site.

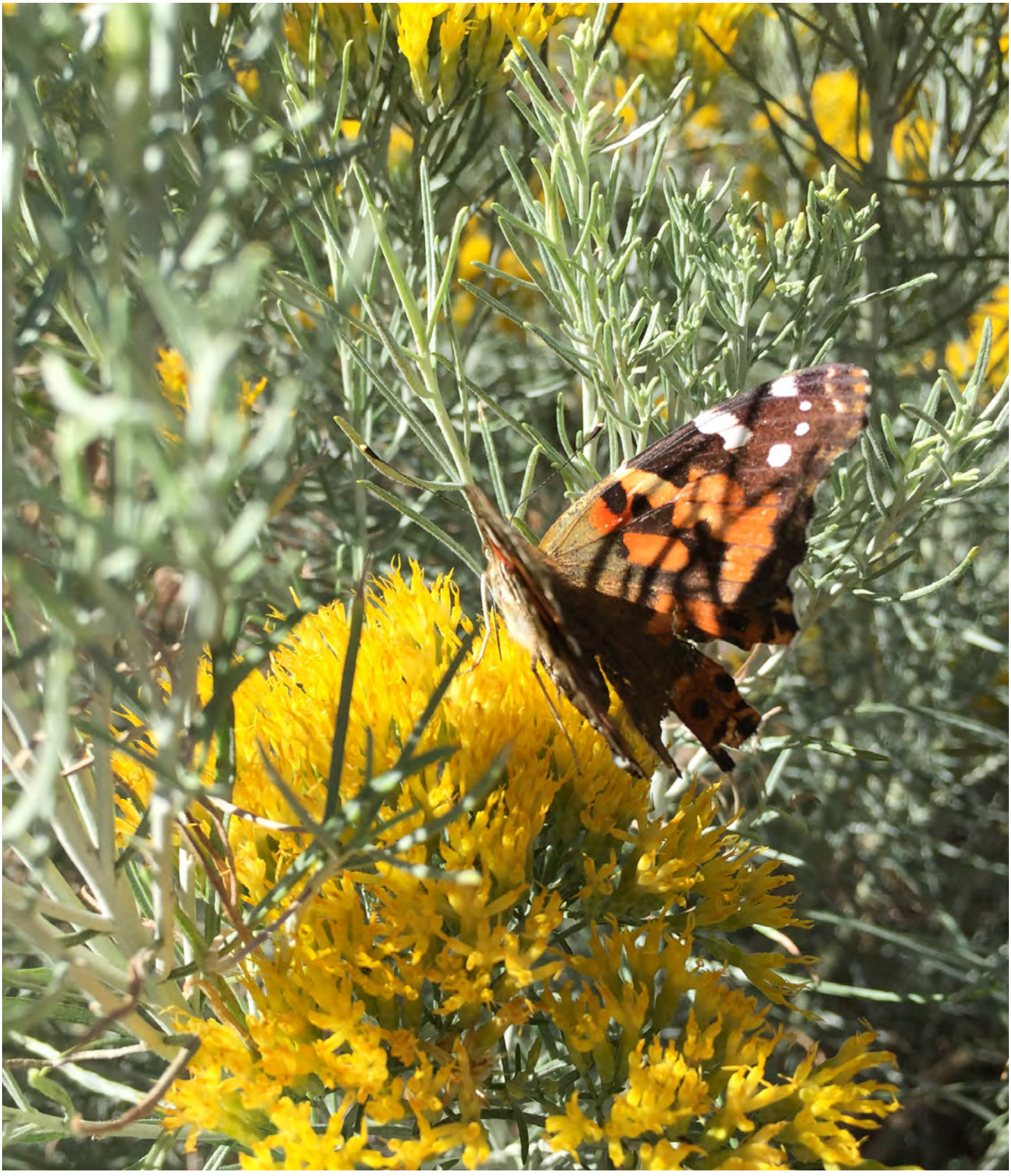
Images provide examples of what each landscape type can look like for each site type. Individual graphics are diagrammatic only and intended to convey design goals.

The graphics to the right show how water use can be reduced by minimizing the area of high water use landscape.



Water Use Landscape Types

- High Water Use
- Moderate Water Use
- Low Water Use
- Xeric Water Use



SITE TYPES

PARKS AND OPEN SPACE

High Water Use

Use irrigated bluegrass in areas with frequent, intensive use including sports field and play areas.

Moderate Water Use

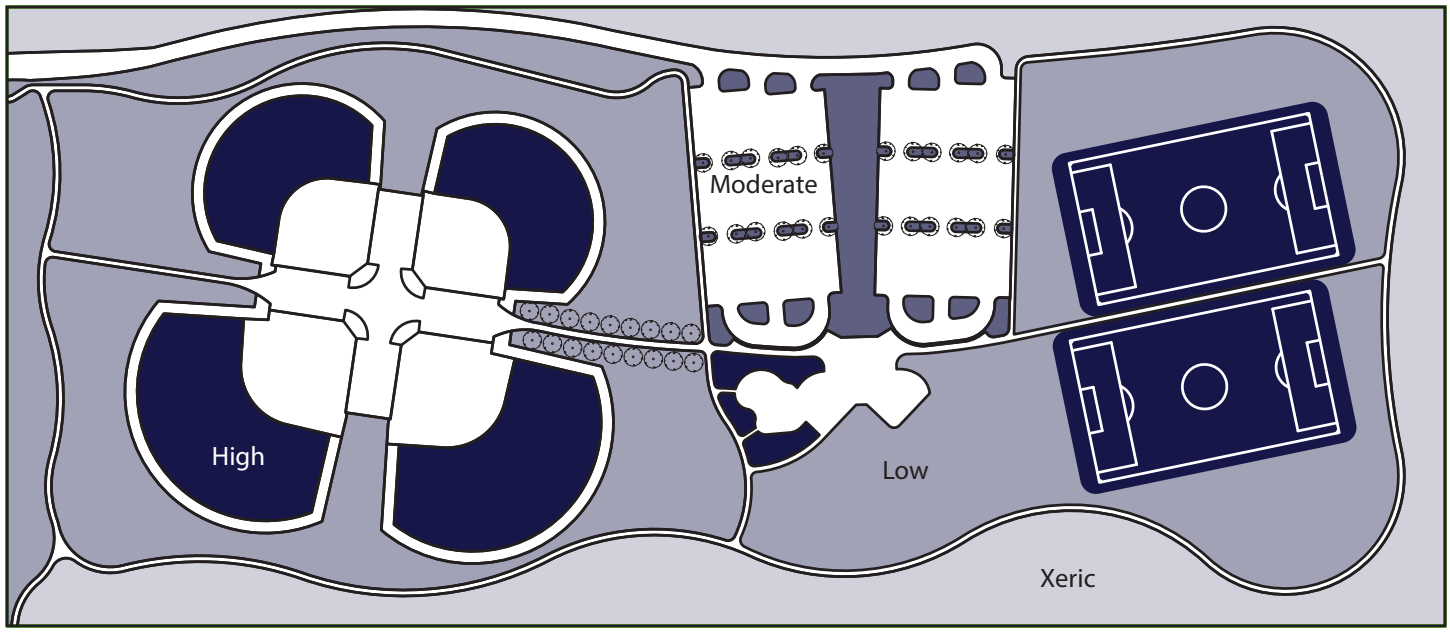
Incorporate planting beds and lower water turf alternatives along walkways and in low use/low traffic areas.

Low Water Use

Plant buffalo grass or blue grama and low water landscape types around the fringes of the site.

Xeric Water Use

Native plant material in passive areas, detention ponds and large open space areas to reduce water and maintenance requirements.



Water Use Landscape Types

High Moderate Low Xeric

These areas apply to all of the elements of parks and open space including detention ponds, active park space, passive park space, trail connections, and natural areas.

Above is an analysis of a large public park space with ballfields, parking lots, active play space, passive play space, trails, and native open space. The typical water usage for each scenario is illustrated to show the water cost savings with a more balanced approach of low to xeric design.

The preferred scenario is to only use high water turf grass where needed for high traffic play surfaces in combination with a lower water use turf such as a fescue mix in lower traffic areas, xeric planting beds around parking lots, and low to no water native trees, shrubs and grasses around the edges.

SITE TYPES

STREETSCAPE

High Water Use

Limit irrigated bluegrass to locations with high visibility, including gateways and entrances.

Moderate Water Use

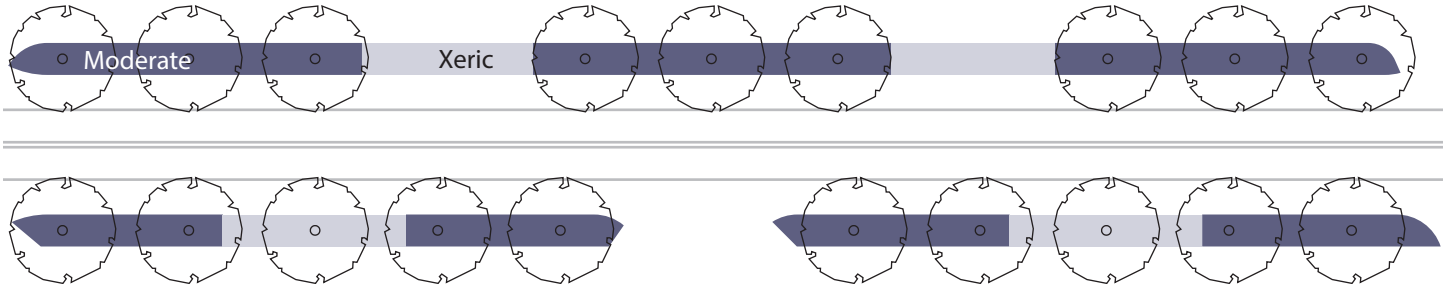
Mulch planting beds and install drip irrigation along roads and sidewalks can reduce required irrigation and maintenance of the more typical high water landscape type.

Low Water Use

Capture runoff from impervious surfaces to supplement direct rainfall and reduce irrigation volume requirements and allow sediments and pollutants to settle out of stormwater before reaching a drain inlet. Bioswales require hearty plants that are tolerant of salt and other chemicals found in road runoff.

Xeric

A mix of native and inert materials are appropriate for streetscapes because they don't require supplemental water, aren't affected by difficult growing conditions, and do not require as much maintenance as a higher water landscape type.



Landscape Types

Moderate

Xeric

The streetscape standards define planting requirements along public streets to improve right-of-way appearance and manage water use. The standards specify plant locations and spacing in consideration of the safety concerns of planting adjacent to roadways.

Species selection should take into account water use, maintenance requirements, potential hazards, and seasonal interest.

In general, streetscape landscape design should aim to reduce the use of turf grass and other high water usage species in favor of alternatives that require less maintenance and less water use.

SITE TYPES

MULTI-FAMILY RESIDENTIAL

High Water Use

Bluegrass should only be used in high visibility and high foot traffic areas.

Moderate Water Use

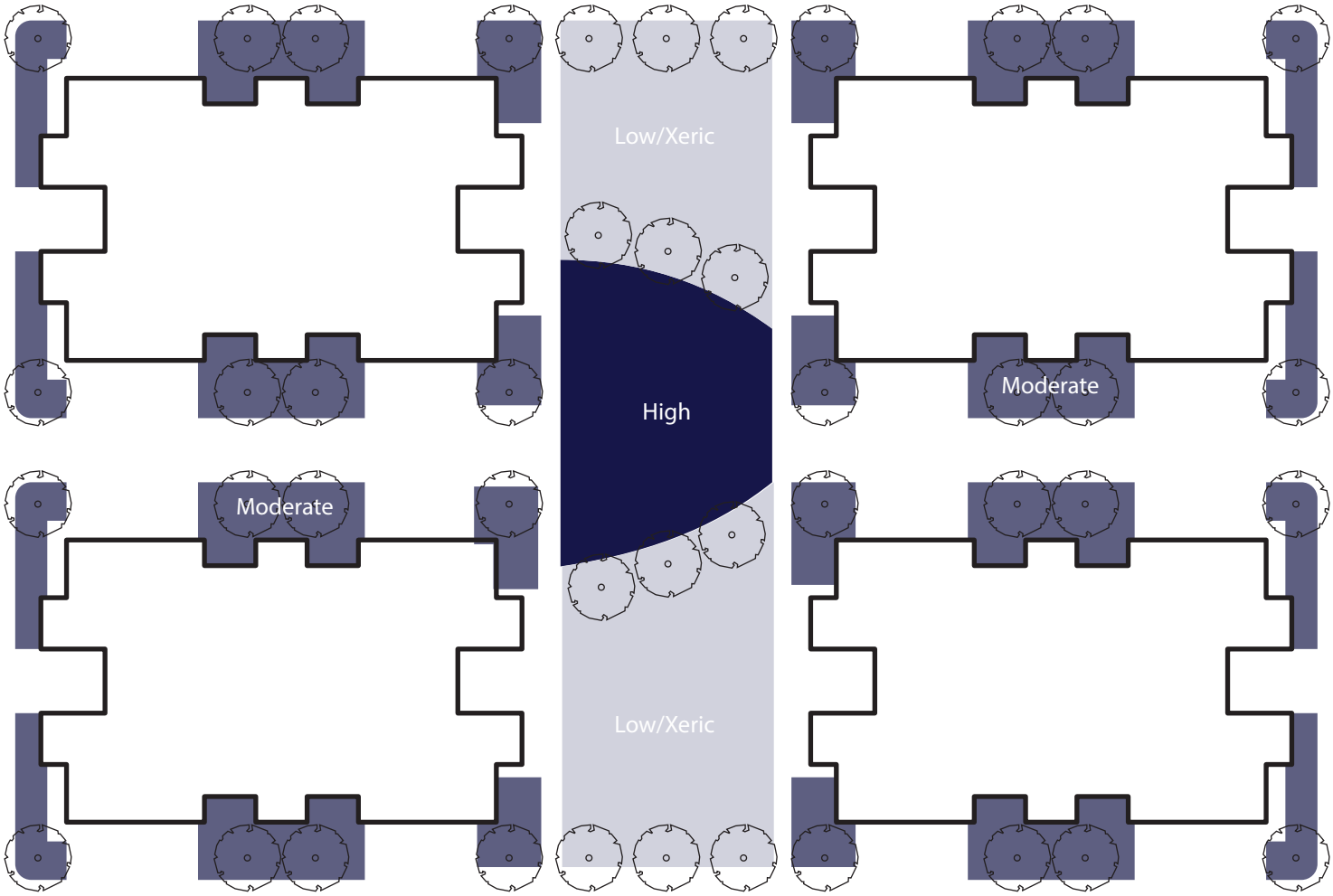
Planting beds to soften edges, improve visual character and create privacy.

Low Water Use

Replace bluegrass turf with lower water alternatives in low volume or infrequent traffic areas to achieve a similar landscape character while saving annual water use over the replaced area.

Xeric

Use native plants mixed with accent boulders for an attractive landscape that uses little to no supplemental water throughout the growing season.



Water Use Landscape Types

High Moderate Low Xeric

Multi-family landscape and irrigation standards apply to all multi-family and townhome developments. The standards in the Land Use and Development Code define the requirements for the size and character of planting areas to improve the appearance and function of landscape areas while maintaining water consciousness and integrating developments into surrounding neighborhoods.

Planting at multi-family developments should be focused at key areas including screening around mechanical areas and ornamental plantings around entrances and to provide visual interest along large featureless walls. Irrigated turf should be limited to active recreation areas and replaced with native grasses elsewhere.

Multi-family development standards also apply to shared parking lots and adjacent right-of-ways, both of which property owners are responsible for maintaining.

SITE TYPES

STANDARD LOT SINGLE FAMILY DEVELOPMENT

High Water Use

High water use areas and irrigated bluegrass should be limited to areas that are highly used and highly visible or where high water use specimen trees and shrubs are desirable.

Moderate Water Use

A mix of low to high water plant material which balances to a moderate water use to create full, vibrant planting beds.

photo credit: Creating Sustainable Landscapes, LLC

Low Water Use

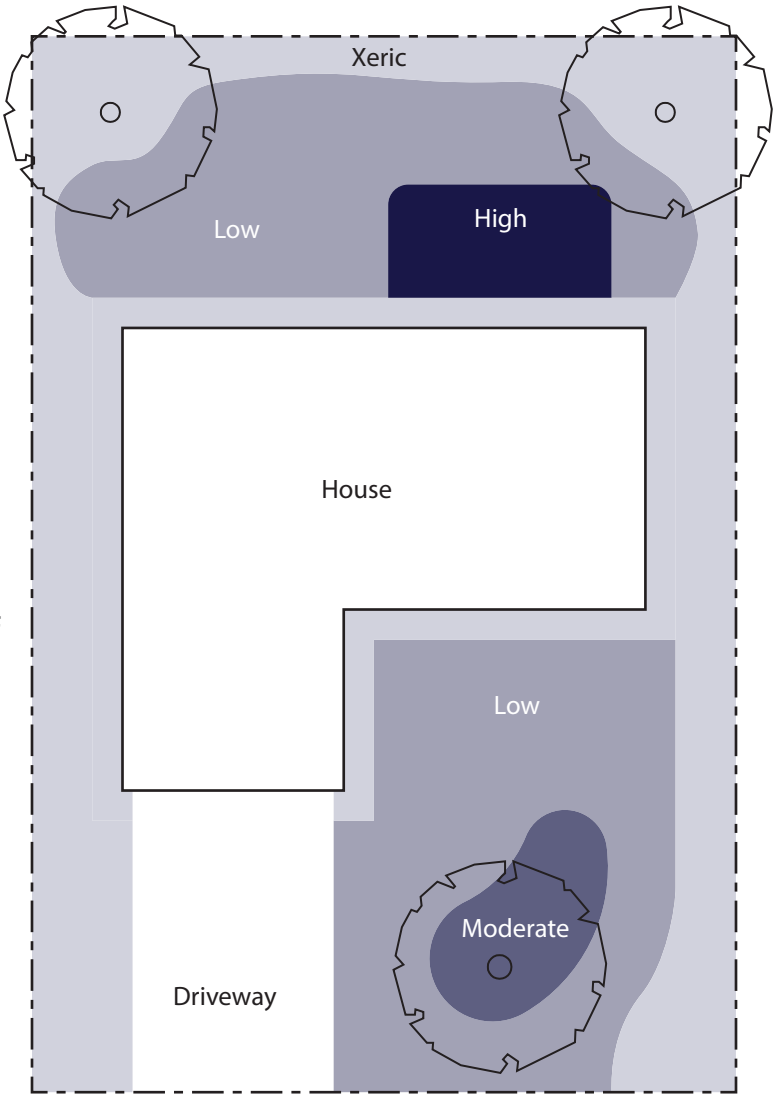
Plant areas that are highly visible but infrequently used in lower water bluegrass alternatives such as buffalo grass or blue grama.

Xeric

Plant native grasses around property boundaries or areas where low maintenance is desired.

This typology applies to all standard sized single family residential parcels in the Town from Downtown Neighborhoods to the outlying subdivisions with an average lot size of 6,000 to 8,000 SF.

To the right is an analysis of a typical parcel showing a range of planting scenarios from high water use (primarily bluegrass turf) to very low water use (primarily native plants that require little to no supplemental watering). The ultimate goal is to install a balanced landscape which includes no more than 50% bluegrass turf and organizes plant material into hydrozones, grouping plantings with similar water needs to allow for a more efficient watering system. It is not the intention to result in single family parcels that are covered in rock and little landscape, therefore a minimum of 75% of the front yard shall be covered in live plant material per the Land Development Code.



Water Use Landscape Types

- High
- Moderate
- Low
- Xeric

SITE TYPES

LARGE LOT SINGLE FAMILY DEVELOPMENT

High Water Use

Maintain irrigated bluegrass in frequently used and highly visible areas rather than using bluegrass as the primary groundcover as pictured above.

Moderate Water Use

Use lower water use bluegrass alternatives in low-use/high-visibility areas to reduce water use without sacrificing visual quality. Divide up turf areas with planting beds with a variety of watering requirements.

Low Water Use

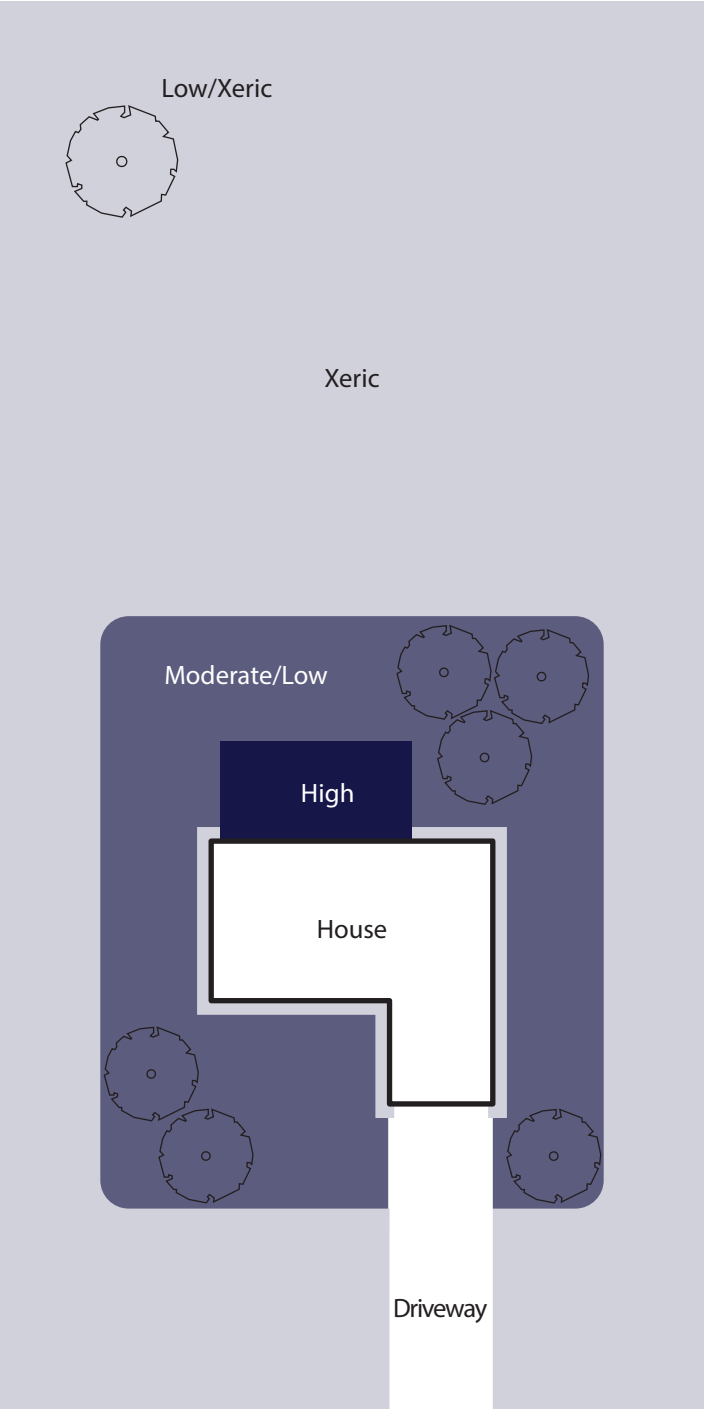
Plant large landscape beds with low water use landscape types. Plant the remainder of the yard in native grasses or buffalo grass and blue grama.

Xeric

Use a palette of native and xeric plant material close to the house. Plant large open spaces in native grasses and wildflowers that do not require supplemental water and can be left natural with little maintenance or mowed for a more manicured look.

This site type is large size single family residential parcels in the Town. To be considered large a parcel must exceed one half acre (1/2) in size.

The standards for large lot single family development aim to reduce overall water usage while preserving the natural character of the surrounding landscape. By recommending smaller areas of irrigated turf that are kept close to buildings and away from property edges the standards create larger, more contiguous areas of native plants that preserve the natural character of Wellington's rural surroundings while reducing water usage.



Water Use Landscape Types

- High
- Moderate
- Low
- Xeric

SITE TYPES

NONRESIDENTIAL DEVELOPMENT

High Water Use

Concentrate high water plant material such as bluegrass turf to strategic or high traffic locations such as building entries and gathering spaces.

Moderate Water Use

Target use of an irrigation budget to directly water high impact trees and shrubs via drip or bubble systems instead of spraying turf.

Low Water Use

Replace bluegrass with low water alternatives in low volume or infrequent traffic areas to achieve a similar landscape character while saving annual water use over the replaced area.

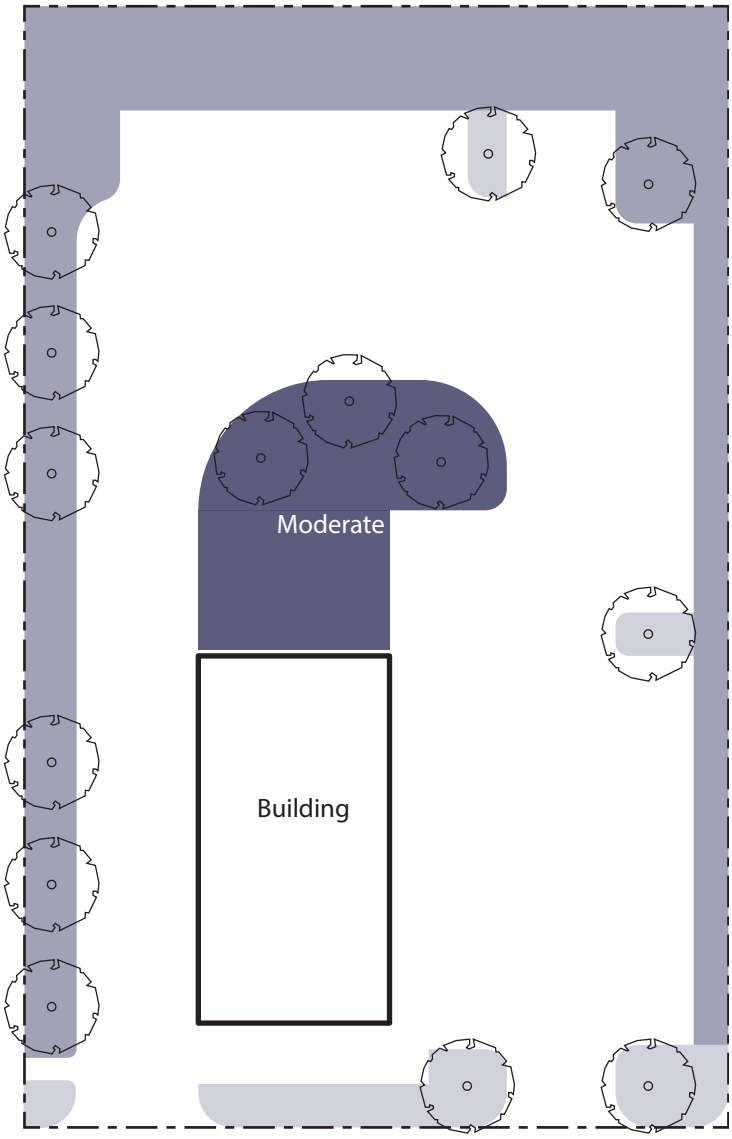
Xeric Planting

Use no water native plantings and low water use planting beds with drip irrigation in areas that are further from the irrigation source.

Nonresidential landscape and irrigation standards apply to properties zoned for nonresidential uses such as office, retail, restaurant, religious land use, schools, etc. Nonresidential zone districts define the requirements for the size and character of planting areas to balance appearance with water requirements and fit with neighborhood character.

Plantings on nonresidential lots should be focused around key areas of the site. For example, screening around loading and facility areas and ornamental around entrances and public facing places. High water use areas should be considered for maximum impact while remaining landscape area uses lower water plantings to reduce overall site water use.

Nonresidential standards also apply to parking lots and adjacent right-of-ways.



Water Use Landscape Types

- High
- Moderate
- Low
- Xeric

SITE TYPES

INDUSTRIAL DEVELOPMENT

High Water Use

Irrigation of high water requirement plants should be limited to areas that will achieve the maximum benefit for the amount of water used (i.e. employee break area, entrances and gateways).

Moderate Water Use

Direct watering of landscape screens through use of drip or bubble systems can maximize the landscape benefit per gallon of water used. Screening vegetation should be placed in landscape beds to reduce water use and maintenance requirements.

Low Water Use

Use low water use plant material in planting beds for perimeter treatments required by the Land Use and Development Code.

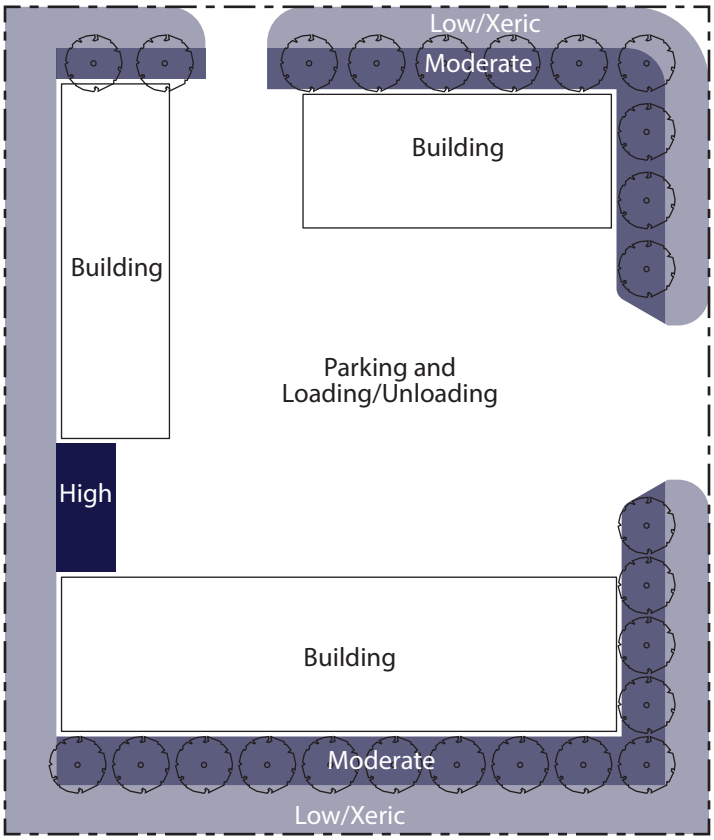
Xeric

Incorporate native plants, accent boulders, and rock mulch into required planting areas for low water use and lower maintenance.

Water usage on properties zoned for industrial use should focus on the development and maintenance of vegetation buffers and screening and landscape infrastructure such as bioswales and other stormwater and water quality management practices or shade plantings to reduce climate control energy expenditures.

Small areas for employee break spaces can be also be high water usage zones.

While commercial areas can benefit from the visual enhancements of additional plantings these benefits are of less impact in industrial areas and should be restricted to areas around street facing entries.



Water Use Landscape Types

- High
- Moderate
- Low
- Xeric

WATER SAVINGS WORKSHEET

You can use the formulas below to estimate your current water usage and potential water savings by switching to lower water use landscaping.

1. Find Total Landscaped Area

Total Parcel Area	_____	Acres
– Structures and Impervious Area	_____	Acres
Landscape Area	_____	Acres

2. Estimate Current Water Use

Estimate the percentage of total landscape area at each water use level

Estimate the annual water use of each water use area: (Total Landscape Area * Percentage of Landscape Area * Gal/SF/Year)

High Water Use Area	____ %	*	12 Gal/SF/Year	=	_____	Gal/Year
Moderate Water Use Area	____ %	*	9 Gal/SF/Year	=	_____	Gal/Year
Low Water Use Area	____ %	*	3 Gal/SF/Year	=	_____	Gal/Year
Xeric (No Water Use) Area	____ %	*	1 Gal/SF/Year	=	_____	Gal/Year

_____ Add water use by area to estimate total annual water use

3. Estimate Reduced Water Use

Estimate the percentage of total landscape area at each water use level after implementing lower water use practices.

Estimate the annual water use of each water use area: (Total Landscape Area * Percentage of Landscape Area * Gal/SF/Year)

High Water Use Area	____ %	*	12 Gal/SF/Year	=	_____	Gal/Year
Moderate Water Use Area	____ %	*	9 Gal/SF/Year	=	_____	Gal/Year
Low Water Use Area	____ %	*	3 Gal/SF/Year	=	_____	Gal/Year
Xeric (No Water Use) Area	____ %	*	1 Gal/SF/Year	=	_____	Gal/Year

_____ Add water use by area to estimate total annual water use

_____ Estimated Reduced Water Use - Estimated Current Water Use = Water Savings

ADDITIONAL RESOURCES

Sonoran Institute:
https://sonoraninstitute.org/
Advocates for water conservation including development of the Growing Water Smart Guidebook.

Colorado State University Extension
https://extension.colostate.edu/
Providing trusted, practical education to help you solve problems, develop skills and build a better a better future.

Northern Water
https://www.northernwater.org/
Promotes water conservation and methods for efficient water use for large-scale landscapes, HOA's, parks, cities, businesses and more.

City of Aurora
https://www.auroragov.org/business_services/development_center/codes_rules/landscaping
Aurora water works to ensure healthy yet efficient landscapes for both residential and commercial settings. Provides water-wise landscape classes and recommended low-water plants

Colorado Waterwise
https://coloradowaterwise.org/XeriscapeColorado/
A program of Colorado Waterwise that promotes xeriscape as a beautiful, water-saving approach to landscaping in our challenging climate and with our limited water resources.

Master Gardener - CSU Extension
https://cmg.extension.colostate.edu/gardening-resources/online-garden-publications/water-wise-landscaping-xeriscaping/
Master Gardeners enhance Colorado communities through outreach, education and environmental stewardship.

Denver Botanic Gardens
https://www.botanicgardens.org/
Demonstrates native and water-wise plantings within their gardens while hosting educational programs and additional resources for residential landscape design.

The Gardens on Spring Creek
https://www.fcgov.com/gardens/
12-acre botanic garden within the City of Fort Collins. Provides seasonal plant sales and educational classes for DIY landscapers.

High Country Gardens
https://www.highcountrygardens.com
Online resource for purchasing water-wise and native plants.


photo credit: Resource Central, Garden in a Box

RECOMMENDED PLANT LIST

TREES

Genus	Species	Common Name	Water Use
Acer	ginnala (all cultivars)	Amur Maple	L-M
Acer	grandidentatum	Bigtooth Maple	L-M
Acer	tataricum	Tatarian Maple	L-M
Aesculus	glabra	Ohio Buckeye	M
Aesculus	pavia	Red Buckeye	M
Aesculus	hippocastanum	Horsechestnut	M
Amelanchier	sp.	Serviceberry	
		Saskatoon Serviceberry	L-M
		Regent Serviceberry	L-M
		Autumn Brilliance Serviceberry	L-M
		Shadblow Serviceberry	L
Catalpa	speciosa	Western Catalpa	L-M
Celtis	occidentalis	Hackberry	Xeric
Cercis	sp	Redbud	M
Crataegus	spp.	Hawthorn	
	ambigua	Russian Hawthorn	L-M
	arnoldiana	Arnold's Hawthorn	L-M
	crus-galli	Cockspur Hawthorn	L-M
	crus-galli var. inermis	Thornless Cockspur Hawthorn	L-M
	douglasii	River Hawthorn	L-M
	mollis	Downy Hawthorn	L-M
	phaenopyrum	Washington Hawthorn	L-M
	succulenta	Fleshy Hawthorn	L-M
	virdia 'Winter King'	Winter King Hawthorn	L-M
Gleditsia	triacanthos inermis 'Imperial'	Imperial Honeylocust	L-M
	triacanthos inermis 'Shademaster'	Shademaster Honeylocust	L-M
	triacanthos inermis 'Skyline'	Skyline Honeylocust	L-M
	triacanthos inermis 'Sunburst'	Sunburst Honeylocust	L-M
Gymnocladus	dioica	Kentucky Coffeetree	L-M
Juglans	nigra	Black Walnut	L-M
Juniperus	spp.	Juniper (all types)	Xeric
Koelreuteria	paniculata	Goldenrain Tree	L-M
Malus	spp.	Apple and Crabapple	M

RECOMMENDED PLANT LIST

TREES

Phellodendron	amurense	Amur Corktree	L-M
Pinus	spp.	Pine	
	aristata	Bristlecone Pine	L-M
	cembroides edulis	Pinyon Pine	L-M
	flexilia	Limber Pine	M
	nigra	Austrian Pine	L
	ponderosa	Ponderosa Pine	L-M
	strobiformis	Southwestern White Pine	M
	sylvestris	Scotch Pine	L-M
Prunus	spp.	Cherries/Plums/Chokecherries	M
Pyrus	spp.	Pear (Ornamental)	M
	calleryana 'Aristocrat'	Aristocrat Pear	M
	calleryana 'Chanticleer'	Chanticleer Pear	M
	calleryana 'Stone Hill'	Stone Hill Pear	M
	fauriei	Fauriei Pear	M
	fauriei 'Korean Sun'	Korean Sun Pear	M
	ussuriensis	Ussurian Pear	M
	ussuriensis 'Prairie Gem'	Prairie Gem Pear	M
Quercus	spp.		
	alba	White Oak	L-M
	bicolor	Swamp White Oak	L-M
	gambelii	Gambel Oak	L-M
	imbricaria	Shingle/Laurel Oak	L-M
	macrocarpa	Bur Oak	L-M
	prinus	Chestnut Oak	L-M
	robur	English Oak	L-M
	robur 'Fastigiata'	Columnar English Oak	L-M
	undulata	Wavy Leaf Oak	L-M
Robinia	pseudoacacia	Black Locust	L
Sophora	japonica	Japanese Pagoda Tree	L-M
Syringa	pekinensis	Peking Lilac	L-M
Syringa	reticulata	Japanese Tree Lilac	L-M
Ulmus	frontier	Elm	M
	george washington		M
	triumph		

RECOMMENDED PLANT LIST

SHRUBS

Genus	Species	Common Name	Water Use
Acer	ginnala 'Bailey Compact'	Bailey Compact Amur Maple	L-M
Acer	ginnala 'Compactum'	Compact Amur Maple	L-M
Acer	ginnala 'Emeral Elf'	Emerald Elf Amur Maple	L-M
Acer	ginnala 'Flame'	Flame Amur Maple	L-M
Acer	tataricum	Tatarian Maple	L-M
Amelanchier	sp.	Serviceberry	
		Saskatoon Serviceberry	L-M
		Regent Serviceberry	L-M
		Autumn Brilliance Serviceberry	L-M
		Shadblow Serviceberry	L
Aronia	sp.	Chokeberry	M
Artemisia	spp.	Sage	
	cana	Silver Sagebrush	Xeric-M
	tridentata	Tall Western Sagebrush	L
Atriplex	canescens	Four-wing Saltbrush	Xeric-L
Berberis	spp.		
	mentorensis	Mentor Barberry	L-M
	thunbergii 'Atropurpurea'	Red Leaf Barberry	L-M
	thunbergii 'Bagatelle'	Bagatelle Barberry	M
	thunbergii 'Crimson Pygmy'	Crimson Pygmy Barberry	L-M
	thunbergii 'Rose Glow'	Rose Glow Barberry	L-M
Buddleia	davidii	Butterfly Bush	M
Caragana	spp.	Peashrub	
	arborescens	Siberian Peashrub	L-M
	arborescens 'Lobergii'	Fern-leaf Siberian Peashrub	L-M
	frutex 'Globosa'	Globe Peashrub	L-M
	maximowicziana	Maximowicz Peashrub	L-M
Caryopteris x clandonensis		Blue Mist Spirea	L-M
Ceanothus	fendleri	Mountain Lilac	Xeric-L
Ceratoides	lanata	Winterfat	L

RECOMMENDED PLANT LIST

SHRUBS

Cercocarpus	spp.	Mountain Mahogany	
	brevifolius	Little-Flowered Mountain Mahogany	Xeric
	intricatus	Littleleaf Mountain Mahogany	Xeric-L
	ledifolius	Curl-Leaf Mountain Mahogany	Xeric-L
	montanus	Common Mountain Mahogany	L-M
Chamaebatiaria	millefolium	Fernbush	Xeric-L
Chrysothamnus	sp.	Rabbitbrush	Xeric-L
Cotoneaster	spp.	Cotoneaster	
	acutfolia	Peking Cotoneaster	L
	apiculatus	Cranberry Cotoneaster	M
	apiculatus 'Tom Thumb'	Tom Thumb Cotoneaster	M
	dammeri 'Coral Beauty'	Coral Beauty Cotoneaster	M
	divaricatus	Spreading Cotoneaster	L-M
	horizontalis	Rock Cotoneaster	M
	horizontalis perpusillus	Ground Cotoneaster	M
	lucidus	Hedge Cotoneaster	L-M
Cowania	neomexicana	Cliffrose	L
Cytisus	spp.	Broom	
	scoparius 'Moonlight'	Moonlight Broom	L-M
	purgans 'Spanish Gold'	Spanish Gold Broom	L-M
Daphne	spp.	Daphne	M
Euonymus	spp.	Euonymus	M
Fallugia	paradoxa	Apache Plume	Xeric-L
Forestiera	neomexicana	New Mexican Privet	L-M
Hippophae	rhamnoides	Sea Buckthorn	L-M
Holodiscus	dumosus	Rock Spirea	L-M
Juniperus	spp.	Junipers	Xeric-M
Kolkwitzia	amabilis	Beautybush	L-M
Ligustrum	spp.	Privet	L-M
	obtusifolium var. regalianum	Regal Privet	L-M
	vulgare 'Cheyenne'	Cheyenne Privet	L
	vulgare 'Densiflorum'	Upright Privet	L-M
	vulgare 'Lodense'	Lodense Privet	L
Lonicera	spp.	Honeysuckle	

RECOMMENDED PLANT LIST

SHRUBS

	'honeyrose' (sp?)	Honeyrose Honeysuckle	M
	korolkowii var. floribunda 'Blue Velvet'	Blue Velvet Honeysuckle	M
	syringantha var. wolfii	Lilac-flowering Dwarf Honeysuckle	M-H
	tatarica 'Arnold Red'	Arnold Red Honeysuckle	L-M
	xylosteoides 'Clavey's Dwarf'	Clavey's Dwarf Honeysuckle	L-M
	xylosteoides 'Miniglobe'	Miniglobe Honeysuckle	L-M
Mahonia	repens	Creeping Grape Holly	L-M-H
Perovskia	atriplicifolia	Russian Sage	L-M
Philadelphus	spp.	Mockorange	
	lewisii	Lewis Mockorange	L-M
	microphyllus	Littleleaf Mockorange	L-M
Physocarpus	spp.	Ninebark	
	monogynus	Mountain Nineback	L-M
	opulifolius		L-M
	cultivars		L-M
Pinus	mugo	Mugo Pine	L
Potentilla	spp.	Potentilla	L
Prunus	spp.	Cherries/Plums/Chokecherries	
	besseyi	Western Sand Cherry	L-M
	fruiticosa	Ground Cherry	L-M
	tomentosa	Nanking Cherry	L-M
	virginiana	Native Chokecherry	L-M
Quercus	gambelii	Gambel Oak	L
Rhamnus	spp.	Buckthorn	
	frangula 'Asplenifolia'	Fern-leaf Buckthorn	L-M
	frangula 'Columnaris'	Columnar Buckthorn	L-M
Rhus	aromatica	Fragrant Sumac	
	aromatica 'Gro-Low'	Gro-Low Sumac	Xeric-M
	glabra	Smooth Sumac	L-M
	glabra var. cismontana	Rocky Mountain Sumac	L-M
	trilobata	Threeleaf Sumac	Xeric-L
	typhina	Staghorn Sumac	L-M
	typhina 'Lacinata'	Cutleaf Sumac	L-M
Ribes	spp.	Gooseberry/Currant	

RECOMMENDED PLANT LIST

SHRUBS

	alpinum	Alpine Currant	L-M
	alpinum 'Green Mound'	Green Mound Currant	L-M
	aureum	Golden Currant	M
	cereum	Wax Currant	L-M
	"Red Lake"	Red Lake Currant	M
	"Pixwell"	Pixwell Currant	L-M
Rosa	spp.	Shrub Roses	M
Robinia	pseudoacacia	New Mexico Locust	L
Rubus x tridel	"Beneden"	Beneden Thimbleberry	M
Shepherdia	sp.	Buffaloberry	Xeric-M
Spirea	spp.	Spirea	M
Symphoricarpus	spp.	Snowberry	L
	albus	White Snowberry	L
	chenaultii 'Hancock'	Hancock Coralberry	L-M
	doorenbosii 'Magic Berry'	Magic Berry Coralberry	L-M
	doorenbosii 'White Hedge'	White Hedge Snowberry	L-M
	occidentalis	Western Snowberry	L-M
	orbiculatus	Red Coralberry	L-M
	oreophilus	Mountain Snowberry	L
Syringa	spp.	Lilac	
	hyacinthiflora (all cultivars)	Early Lilac	L
	prestoniae (all cultivars)	Late Lilac	L-M
	vulgaris (all cultivars)	Common and French Lilac	L-M
Viburnum	spp.	Viburnum	
	lantana	Wayfaringtree	L-M
	lantana 'Mohican'	Mohican Viburnum	L-M
	lentago	Nannyberry	L-M
	rhytidophylloides 'Alleghany'	Allegany Leatherleaf Viburnum	L-M
Yucca	sp.	Yucca	Xeric-L

RECOMMENDED PLANT LIST

PERENNIALS

Genus	Species	Common Name	Water Use
Achillea	sp.	Yarrow	Xeric-M
Agastache	sp.	Hyssop	L-M
Ajuga	reptans	Bugleweed	M
Alcea	sp.	Hollyhock	L
Alchemilla	mollis	Lady's Mantle	M-H
Allium	sp.	Ornamental Onion	L
Alyssoides	utriculata	Bladderpod	L
Alyssum	montanum	Mountain Gold	L
Alchemilla	mollis	Lady's Mantle	L-M-H
Amsonia	hubrichtii	Blue Star	L-M
Anacyclus	depressus	Mt. Atlas Daisy	L
Anchusa	sp.	Bogloss	L
Anemone	sp.	Windflower	M
Antennaria	sp.	Pussytoes	L
Anthemis	tinctoria	Chamomile	M
Aquilegia	sp.	Columbine	M
Arabis	caucasica	Rock Cress	L
Arctostaphylos	santii	Emerald Queen Manzanita	L-M
Arctostaphylos	uva-ursi	Kinnikinnick	L
Arenaria	sp.	Sandwort	M
Armeria	maritima	Sea Pinks	M
Artemisia	frigida	Fringed Sage	Xeric
Artemisia	sp.	Sage	Xeric-L
Asclepis	tuberosa	Butterfly Weed	L
Aster	sp.	Aster	L
Aurinia	saxatalis	Basket-of-gold	L-M
Baptisia	australis	False Indigo	L-M
Belamcanda	chinensis	Blackberry Lily	M
Bergenia	cordifolia	Pigsqueak	M
Berlandiera	lyrata	Chocolate Flower	Xeric-L
Boltonia	asteroides	Starflower	M
Brunnera	macrophylla	Siberian Forget-Me-Not / Siberian Bugloss	M
Callirhoe	involucrata	Poppy Mallow	L-M

RECOMMENDED PLANT LIST

PERENNIALS

Calylophus	serrulatus	Sundrops	L
Calamintha	grandiflora	Beautiful Mint	L
Campanula	sp.	Bellflower	M
Centaurea	montana	Hardy Bachelor Button	L
Centranthus	ruber	Jupiter's Beard	L-M-H
Cerastium	tomentosum	Snow-In-Summer	L-M
Ceratostigma	plumbaginoides	Leadwort/Plumbago	L-M
	spp.	Garden Mum	L-M
Coreopsis	sp.	Tickseed	L
Cytisus x 'Lena'	x	Lena Broom	L
Delosperma	sp.	Ice Plant	L-M
Delphinium	sp.	Delphinium	M
Dianthus	sp.	Pinks	M
Diascia	intergerrima 'coral canyon'	Twinspur 'Coral Canyon'	M
Digitalis	sp.	Foxglove	M
Echinacea	purpurea	Purple Coneflower	M
Echinops	ritrp	Globe Thistle	L-M
Epilobium	sp.	Fireweed	L-M
Erigeron	sp.	Daisy Fleabane	L
Eriogonum	umbellatum	Sulphur Flower	Xeric-L
Eryngium	amethystinum	Sea Holly	L-M
Euonymus	fortune 'Coloratus'	Purple-leaved Wintercreeper	L-M
Eupatorium	greggii	West Texas Mist Flower	M
Euphorbia	epithymoides	Cushion Spurge	L
Gaillardia	aristata/grandiflora	Blanketflower	L-M
Galium	odoratum	Sweet Wodruff	M-H
Gaura	lindheimeri	Whirling Butterflies	L
Gazania	sp.	Hardy Gazania	L-M
Geranium	sp.	Hardy Granium	L-M
Geum	sp.	Geum	M
Goniolimon/ limonium	sp.	Statice	L-M
Gutierrezia	sarothrae	Snakeweed	M
Gypsophila	sp.	Hardy Baby's Breath	M

RECOMMENDED PLANT LIST

PERENNIALS

Hedera	helix	English Ivy	M
Helenium	autumnale	Sneezeweed/Helen's flower	M
Helianthemum	nummularium	Sun Rose	M
Heliopsis	helianthoides	False Sunflower	M
Helleborus	sp.	Lenten Rose	M-H
Hemerocallis	sp.	Daylily	M-H
Heuchera	sanguinea	Coral Bells	M
Hosta	sp.	Plaintain Lily	M-H
Hypericum	calycinum	St. John's Wort	M
Iberis	sempervirens	Candytuft	M
Iris	germanica (hybrid)	Bearded Iris	L-M
Knautia	macedonica	Red Pincushion	L
Kniphofia	uvaria	Red Hot Poker	L
Lamiastrum	galeobdolon	Yellow Archangel	M
Lamium	maculatum	Dead Nettle	M
Lavandula	sp.	Lavender	Xeric-M
Lavatera	thuringiaca	Tree Mallow	L
Leontopodium	alpinum	Edelweiss	L
Leucanthemum x superbum		Shasta Daisy	M
Liatris	sp.	Gayfeather	Xeric-L
Linum	perenne	Blue Flax	L-M
Lychnis	chalcedonica	Maltese Cross	M
Lychnis	coronaria	Rose Campion	L-M
Mahonia	repens	Creeping Grape Holly	L-M
Malva	alcea	Rose Mallow	M
Mirabilis	multiflora	Hardy Four-O-Clock	Xeric-M
Mondard	fistulosa menthaefolia	Native Lavender Bee Balm	M-H
Nepeta x faassenii	sp.	Catmint	L-M
Oenothera	sp.	Evening Primrose	Xeric
Origanum	sp.	Oregano/Marjoram	L
Osteospermum	sp.	Sun Daisy	L-M
Paeonia	lactiflora	Peony	M
Papavar	sp.	Poppies	L-M
Penstemon	sp.	Beardtongue/Penstemon	L

RECOMMENDED PLANT LIST

PERENNIALS

Perovskia	atriplicifolia	Russian Sage	L
Persicaria	affinis	Himalayan Border Jewel	L
Phlomis	cashmeriana	Jerusalem Sage	M
Phlox	subulata	Creeping Phlox	M
Platycodon	grandiflorus	Ballon Flower	M-H
Polemonium	caeruleum	Jacob's Ladder	M
Potentilla	sp.	Cinquefoil/Potentilla	L-M
Prunella	laciniata	Self Heal	L
Pulmonaria	sp.	Lungwort	M
Pulsatilla	vulgaris	Pasque Flower	L
Ratibida	columnifera	Prairie Coneflower	Xeric
Rosmarinus	officianalis 'Arp'	Lemon Rosemary	L
Rudbeckia	sp.	Black-eyed Susan	L
Salvia	sp.	Silver Sage	L-M
Salvia	officinalis	Garden Sage	L-M
Santolina	sp.	Lavender Cotton	L-M
Saponaria	sp.	Soapwort	L-M
Scabiosa	sp.	Pincushion	L
Sedum	sp.	Sedum/Stonecrop	L
Sempervivum	sp.	Hen and Chicks	Xeric-L
Solidago	sp.	Goldenrod	L
Stachys	lanata (S. byzantina)	Lamb's Ear	L
Stanleya	pinnata	Prince's Plume	L
Tanacetum	coccineum	Painted Daisy	L
Tanacetum	densum amani	Partridge Feather	Xeric
Tanacetum	niveum	Snow Daisy	L-M
Thymus	sp.	Creeping Thyme	L
Tradescantia	sp.	Spiderwort	M
Verbena	canadensis	Verbena	L
Veronica	sp.	Speedwell/Veronica	L
Vinca	sp.	Myrtle/Periwinkle/Vinca	L-M
Viola	corsica	Corsican Violet	M
Waldsteinia	ternata	Barren Strawberry	L
Zauschneria	arizonica	Hummingbird Trumpet	L
Zauschneria	garrettii	California Fuschia	L

RECOMMENDED PLANT LIST

VINES

Genus	Species	Common Name	Water Use
Campsis	radicans	Trumpet Vine	L-M
Celastrus	scandens	Bittersweet	M
Clematis	sp.	Clematis	M
Lonicera	japonica	Honeysuckle Vine	L-M
Fallopia (Polygonum)	aubertii	Silver Lace Vine	L
Parthenocissus	quinquefolia	Virginia Creeper	L-M

GROUNDCOVERS

Genus	Species	Common Name	Water Use
Antennaria	rosea	Pink Pussytoes	L
Cerastium	tomentosum	Snow-in-Summer	L-M
Delosperma	sp.	Hardy Ice Plant	L-M
Santolina	chamaecyparissus	Lavender Cotton	L-M
Polygonum	affine	Himalayan Fleeceflower	M-H
Sedum	spectabile	Showy Stonecrop	L
Sempervirens	sp.	Hens and Chicks	L
Thymus	pseudolanuginosus	Wooly Thyme	L-M
Veronica	pectinata	Blue Wooly Speedwell	L
Zinnia	grandiflora	Paper Flower	Xeric-L

RECOMMENDED PLANT LIST

ORNAMENTAL GRASSES

Genus	Species	Common Name	Water Use
Agropyron	cristatum	Crested Wheatgrass	Xeric-L
Andropogon	gerardii	Big Bluestem	L-M
Bouteloua	curtipendula	Sideoats Gramma Grass	L
Bouteloua	gracilis	Blue Gramma Grass	L
Buchloe	dactyloides	Buffalo grass	L
Calamagrostis	acutiflora	Feather Reed Grass	M
Chasmanthium	latifolium	Northern Sea Oats	M
Deschampsia	caespitosa	Hairgrass	M
Erianthus (Sacharrum)	ravennae	Hardy Plume Grass	L-M
Festuca	arundinacea	Tall Fescue	L-M
Festuca	ovina glauca	Blue Fescue	L-M
Helictotrichon	sempervirens	Blue Oat Grass	L
Imperata	cylindrica 'Red Baron'	Japanese Blood Grass	L-M
Miscanthus	sinensis	Maiden Hair Grass	M
Oryzopsis	hymenoides	Indian Ricegrass	L
Panicum	virgatum	Switch Grass	L
Pascopyrum	smithii	Western Wheatgrass	L
Pennisetum	alopecuroides	Fountain Grass	M
Pennisetum	setaceum 'Rubrum'	Purple Fountain Grass	M
Phalaris	arundinacea 'Picta'	Ribbon Grass	L-M-H
Schizachyrium	scoparium	Little Bluestem	L
Sorghastrum	nutans	Indian Grass	L
Spartina	pectinata	Prairie Cordgrass	M
Sporobolus	heterolepsis	Prairie Dropseed	M
Stipa	Sp.	Feather/Needle Grass	L

GLOSSARY

Terms and Definitions

Xeriscape
A strategic application of the minimal amount of irrigated water that is required to sustain the level use that a site receives, or to sustain key, highly visible, ornamental features that could not sruvive without supplemental water.

Low Impact Development (LID)
Refers to systems and practices that use or mimic natural processes that result in water infiltration, evapotranspiration or use of stromwater in order to protect water quality and associated aquatic habitat.

Hydrozones
The practice of clustering together plants with similiar water requirements in an effort to conserve water.

Inorganic Mulch
Mulches consisting of materials that typically don't decompose; stones, rock, plastics, landscape fabrics (geotextiles).

Organic Mulch
Any type of mulch that was once living and will decompose over time; wood chips, bark, straw, etc.

Typology
A study or analysis or classification on particular set of characteristics and styles.

Bioswales
channels designed to concentrate and convey stormwater runoff while removing debris and pollution.

Water Tap
A connection to a main water supply or source.

Microclimate
The climate of a very small or restricted area, especially when this differs from the climate of the surrounding area

Green Infrastructure
Management of wet weather flows that use these processes, and to refer to the patchwork of natural areas that provide habitat, flood protection, cleaner air and cleaner water.