Where we get our water?

Where we store our water?
How much water our city uses per year?
What programs we offer?
How much water we have saved over the years?
Colorado is a headwaters state, with the majority of the state’s rivers beginning high in the Rocky Mountains as snowmelt. One of the benefits of living in a state that relies primarily on surface water is that unlike groundwater, surface water is a renewable water source.

One of the drawbacks is that precipitation levels vary greatly from year-to-year making the majority of the state’s water supply relatively unpredictable – and highly prone to drought.

Do you know...
Aurora’s water system starts nearly 180 miles away and includes the use of reservoirs, the natural river system, pipes, tunnels and pumps, all of which help us pull the water we own from our three river basins and deliver it to Aurora.

Aurora receives 25% of its water supply from the Colorado, 25% from the Arkansas and 50% from the South Platte river basins.

Homestake, Turquoise, Twin, Spinney Mountain, Jefferson, Strontia Springs, Rampart Quincy, Pueblo, Aurora, Meredith, Henry

Do you know how much water the city uses?
The average annual distribution for the past three years is 16.6 billion gallons annually. About half of that water is used outdoors. Aurora has a semi-arid climate, and our snow and rain levels are about half of the average annual precipitation for the United States, so it’s important that we all do our part to help conserve water.

Do you know that we offer programs to help conserve water?
Do you know how much water the conservation division has saved?
...how much water the conservation division has saved?

448 million gallons or 7.2 billion cups of water

Combined water savings for 2016, 2017, 2018

Be sure to check out our fliers at the end of class to see how Aurora Water can help you save water and money.
Landscaping with Natives
Definition of native plant:
• Plants that have existed prior to European settlement
• Lives and grows naturally without direct or indirect human intervention
• Cultivars that have been bred for ‘improvements’, when natives are not available at garden nursery
• Semi-arid region from the plains to foothills and montane

Definition of local native plant:
Ecotype of native plant species grown from genetically local plant material. Adapted to a specific set of environmental conditions.
Many natural ecosystems exist inside in our state. The aspen and ponderosa spruce of the montane and the Utah juniper and scrub oak of the semi-desert shrublands cover large majorities of our land area. There are also the foothills, subalpine and alpine ecosystems.

Most of the plants in these areas are native, although many invasive species are crept in.

Due to the diversity of these ecosystems and the sunlight and weather conditions, not all native plants will thrive in an Aurora landscape.
The natural ecosystem of Aurora is that of the high plains/prairie. This ecosystem is primarily made of short-grass species. The climate is hot in the summer and highly variable in the winter. We receive about 15” of precipitation each year. It’s very windy. Few trees provide any shade, except along waterways. Even under these harsh conditions, however, many plant species thrive.

The benefits of using native species:

Adaptability. These plants evolved over thousands of years. They are used to our wild extremes and have adapted to the variations in climate, soil composition, insect pests, browsers, and fire.

Environmental. These plants flourish without fertilizers or synthetic pesticides which means there’s less polluted runoff. Also, many of these plants are drought tolerant, which conserves water.

Biodiversity. These plants provide food and habitat for native wildlife and keeps our region unique. Planting a native landscape deepens our appreciation of the intrinsic worth of natural communities.
Before you plant:
• Work with your existing conditions. If you have sandy soil, plant natives that prefer sandy soil. If you have clayey soil (majority of Aurora), plant natives that don’t need a lot of drainage.
• Add soil amendment only as a response to the kind of plants you’re designing with. Some natives don’t need any - or else they will suffer if the soil has too much organic matter.
• Supplemental water? Any plant will need to be watered while it’s establishing its root system. After that, for plants that are z-rated (don’t need supplemental water after establishment), watering can be tapered down to none.
• Know the plant’s growth habit so that you’re designing and planting appropriately.
Native Grasses
In design, grasses have a multitude of uses in a landscape: meadow, alternative groundcover, hedge, specimen, large grouping to anchor, edging, etc.
Panicum virgatum
Switch Grass

- Ornamental, bunch-form grass
- Hardy to 7000’ Sun
- Very tolerant poor soils, flooding and drought
- Mature size is 4’ high x 2’ wide
- Open, fine textured panicle
- Small, shiny seeds, pink blooms
- The Colorado State grass
- Bunch-form grass but over time can form a low-density turf
  - Mature height is 8-14”
- Available as seed or plugs
- Plant June – August
- Mow or leave standing
- Does not tolerate traffic
Bouteloua curtipendula
Side Oats Grama

- Ornamental, bunch-form grass
- Mature size is 2’ high and 1’ wide.
- Flowers and seeds on one side of stem
- Seeds are a showy orange
• Warm season grass
• Turf-form
• Mature height is 3-5”
• Dormant October to May
• Reproduces from stolons (above-ground roots) and seed
Schizachyrium scoparium
Little Bluestem

- Bunch-form grass
- Native to prairies, dry hills, open woods
- Mature size is 4’ high and 2’ wide
- Turns a beautiful copper/red in fall
- Will tolerate poor soil
- Spreads readily via seed
- Prefers full sun
• A dominant species in tall grass prairies
• Clump forming
• Mature size is 5-6’ tall and 2-3’ spread
• Beautiful summer and fall colors
• Prefers full sun
Sporobolus heterolepsis
Prairie Dropseed

- Mature size is up to 2’ tall and 2 ½ wide
- Prefers full sun
- Warm season grass
- Bunch-form grass
- Flowers in August and in September turns orange-rust color with frost
- First species introduced in prairie restoration
• Mature size is 6’ tall and 3’ wide
• Showy, dark yellow to tan flowers are high above clumps of blue-green foliage
• Foliage turns purple in fall
• Good winter interest
• May readily reseed
Native Shrubs
Shrubs and small trees are the mainstay of a xeric landscape. They provide great structure, anchor the design and greatly reduce garden maintenance. Choose shrubs that provide fall color, as well.
Rosa woodsii
Wood’s Rose

- Blooms from June through August
- Thorny
- Readily spreads to make dense stands and brambles
- Best for large areas
- Up to 6’ tall
- Adaptable to full or part sun
Rhus aromatica trilobata
Three-leaved Sumac

- Glossy, dark green leaves
- Dense, round shrub
- Clusters of yellow flowers in spring
- Matures up to a size of 6’ x 6’
- Very xeric
- Red fruits can be used as a lemony spice or to make lemonade
**Arctostaphylos uva-ursi**

Kinnikinnik

- Long-lived evergreen
- Mature size is 18” high and up to 4’ wide
- Very xeric
- Urn shaped blooms late spring
- Enjoys shade and acidic soil
- Mature height one half foot
• High drought tolerant evergreen
• Mature height is up to 2’ tall and spreads up to 5’
• Bright yellow, fragrant blooms mid-spring produce blue-purple fruit
• Gorgeous red and purple fall color
• Likes part sun to full shade
Cercocarpus ledifolius
Mountain Mahogany

- Long-lived, very xeric
- Multiple stem
- Inconspicuous flower
- Mature size is up to 8’ tall and 6’ wide
- Fuzzy, twisted seed tails in late summer
- Adapted to poor soils
Prunus besseyi
Western Sandcherry

- Mature size is up to 6’ high by 6’ wide
- Gray-green oval leaves form rounded shrub
- Profuse white flowers in late spring
- Purple-black fruit and red fall foliage
- Prefers full sun
- ‘Pawnee Buttes’ is a great groundcover form of sandcherry
Fallugia paradoxa
Apache Plume

- Mature size is 3’-6’ x 3’-6’
- Full sun
- Sparsely covered by small, finely divided leaves
- Single white, rose-like flowers all summer along side rose colored, feathery, tailed seeds
- Needs no water after establishment
Amelanchier alnifolia
Shadbush/ Serviceberry

- Approx. 12’ x 10’
- Sun to part shade
- Hardy to 10,000’
- Covered in showy white flowers early spring
- Beautiful fall color
- Multi-stem clump form
• Blooms bright yellow late summer to early fall
• Mature size is 7’ tall x 5’ wide but can grow larger if watered
• Full sun, well drained soil
• Attracts butterflies
• Does not need water after it’s established
• Mature size has a wide range of 3’-12’ wide to 3’-6’ high
• Full sun, hardy to 10,00’
• Highly aromatic
• Adds blue-gray color to the landscape
• Coarse, rigid structure
• Needs minimal watering after establishment
Rubus deliciosus
Boulder Raspberry

- Hardy to 9,000’
- Maturity is about 5’ x 5’
- Arching branches form loose, vase-shaped shrub
- Large single white flowers in late spring
- Thimble-like berries late summer
Symphoricarpos albus
Common Snowberry

- Long lived
- Mature size is about 4’x 4’
- Blooms early summer with tiny white/pink bell shaped flowers
- Snow white berries into winter
- Prefers full sun
- Adaptable to multiple soil types
Native Perennials
Perennials provide wonderful habitat for native wildlife. Keep in mind the following:
• Creating environmental conditions drastically different from those of the plant’s wild habitat can effect plant growth and longevity.
• Growth habit may change the plant’s form from erect to sprawling
• Profusion of blooms as a result of overwatering may lead to early death
**Asclepias speciosa**
**Showy Milkweed**

- Prefers full sun
- Moderately drought tolerant
- Adaptable to soil type
- Blooms early summer
- Mature height is up to 6’ tall
- Abundant seed production
- Monarch host
• Well-drained, sunny location
• Very xeric
• Blooms early summer through fall
• 2’ tall x 1.5’ wide
• Reseeds readily
• Does not need water after establishment
Oenothera caespitosa
Stemless Evening Primrose

- Blooms late spring to late summer
- Flowers open white and turn pink with age
- Low grower to 8”
- Very xeric
- Difficult to find at nurseries; you can substitute for Oenothera macrocarpa
Gaillardia aristata
Blanketflower

- Staple of xeric landscapes
- Blooms all summer; will bloom for 5 months with deadheading
- Does well in poor soil
- Needs full sun
- Up to 3’ tall and wide
Liatris punctata
Gayfeather

- Blooms June-August
- Mature size is up to 30” high by 18” wide
- Leave up for winter interest
- Wants full sun
- Needs some water for good flowering
Penstemon whippleanus
Whipple’s penstemon

- Beautiful, lesser known for landscaping
- Moderately drought tolerant
- Up to 3’ tall
- Blooms mid to late summer
- Will tolerate some shade
Solidago missouriensis
Goldenrod

- Blooms June through September
- Mature size is 30” tall by 36” wide
- Very drought tolerant
- Does well in places with poor soil
- Will tolerate part shade
Antennaria rosea  
Pussy Toes

- Excellent xeric groundcover, forming dense blue-green mats and between flagstone
- Blooms pink/white early summer
- Spreads at maturity to 1’ across and 4-6” tall
- Full sun
• Full sun, very xeric
• Mature size is up to 18” high and 12” wide
• Self sowing but not invasive
• Chocolate-like fragrance
• Shade intolerant
• Erect, then droops with age
• Wants good drainage
Callirhoe involucrata
Prairie Winecups

- Very xeric
- Full sun
- Up to 1’ tall and 3’ wide
- Decumbent, good as ground cover or hanging over walls. Best when planted amongst other plants with larger foliage
- Blooms cup shaped, magenta all summer
Scutellaria brittonii
Skullcap

- Native to dry, gravelly areas in foothills
- Blooms March to June
- Mature size is about 8” high by 8” wide
- Excellent choice for rock garden landscape
- Full sun, good drainage
Prunella vulgaris
Self-Heal

- Tolerates dry shade
- Up to 1’ tall and wide
- Reblooms with deadheading
- Needs moderate water
- Well behaved, mounding habit
Eriogonum umbellatum
Sulphur Flower

- Full sun, very drought tolerant
- Mature size is about 1’ by 1’
- Mounding habit
- Blooms early summer
- Foliage turns burgundy in autumn
Gaura sp.
Whirling Butterflies

- Native habitat: plains to montane
- Dry, sunny location
- Mature size is 18” tall by 2-3” wide
- Attractive pink bloom
- Cultivars come in white or pink
Recommended Titles

• **Natural by Design** Judith Phillips
• **Plants for Natural Gardens** Judith Phillips
• **Waterwise Landscaping** Jim Knopf
• **Native Plants for High Elevation Gardening** Janice Busco and Nancy Morin
• **Gardening With Grasses** Piet Oudolf and Michael King
• USDA Natural Resources Conservation Service Plant Database website
• **The Forgotten Pollinators** Buchmann & Nabhan
Thank You

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