1 Native & Alternative Grasses
Grasses native to the Colorado High Plains and Intermountain West are included in this area. Alternative grasses include non-native species that are climate-adapted and water-wise to this region. These grasses were chosen for their potential in the urban landscape. Some also have potential on rural acreages. All are irrigated with a subsurface drip system. Cool season grasses are at their best during the cooler months of spring and fall. Cool season grasses are irrigated at higher rates and more frequently than the warm season grasses. Warm season grasses green up later and go dormant earlier than cool-season grasses.

2 Irrigation Technologies
“Smart” controllers use weather or soil moisture data to decide how much water to apply. They can take the guesswork out of irrigating and show great promise for water conservation, when properly used.

3 Small Weighing Lysimeters
This turfgrass variety project (Spring 2010-Fall 2013) measured the water use of 11 grasses planted into 44 electronically weighed “buckets.” As the grasses draw water from the soil and lose it to the air, the weight of the “bucket” decreases. This is a very precise way to measure plant water use.

4 Comparative Irrigation Techniques
Two different irrigation systems operate side-by-side on tall fescue. Subsurface drip irrigation is installed on the northeast portion of the plot, while the southwest portion is irrigated with spray irrigation. Subsurface drip irrigation is good for small, irregularly shaped areas and can save water when managed properly. It is expensive and must be carefully installed.

5 Xeric Garden Irrigation Comparison
Northern Water and ReSource Central partnered to measure the water requirements of their well-known Garden in a Box pre-planned gardens. We found that the gardens had low water needs and could be watered at 3 to 4 week intervals if watered deeply—throughout the root zone each time. Irrigations began in late June or early July with wet springs and in late May with dry springs.

6 Soil Preparation
Soil conditions are improved with deeper tillage and larger amounts of amended organic matter. Clay soils need to be “opened up” to allow water to soak in faster and allow plant roots to breathe better. The main difference between animal and plant-based compost is the level of salts in the amendment. If a soil already has high salt levels, plant-based compost is better because it has lower salt concentrations. Otherwise, either amendment works to open up the clay soils. A soil test can help determine the level of salts present in your soil.

7 Gradient Irrigation
A gradient of irrigation is applied to see the irrigation level at which turf quality declines. Many of the grasses in this area have been qualified as water-conserving through the Turfgrass Water Conservation Alliance (www.tgwca.org). These turfgrasses use up to 30% less water than standard Kentucky bluegrass. Irrigation management for best water conservation and turf quality is the goal of this project.

8 Weather Station
A weather station helps us track water demand for the turf and plants in the Conservation Gardens. The station measures temperature, humidity, wind, and solar radiation. Many calculations are made and applied to our irrigation schedules so that we can use the our results and make recommendations on solid numbers. This allows homeowners to manage their watering needs with simple methods. The corners around the weather station contain Plant Select species, walkable ground covers and other climate-adapted plants.

9 Water-Conserving Bluegrass
Commercially marketed water-conserving Kentucky bluegrass is featured in this area. Qualified by the Turfgrass Water Conservation Alliance (www.tgwca.org), these turfgrasses use up to 30% less water than standard Kentucky bluegrass. Irrigation management for best water conservation and turf quality is the goal of this project.

10 Gradient Subsurface Drip Irrigation
Nine species are compared for best response to water in this project. Irrigation is highest at the center of the plot and decreases to the east and west. Water amounts, plant health, and coverage help to define the correct irrigation level for each species.

11 Bluegrass Review
Sixteen varieties of Kentucky bluegrass are compared to see which stay green the longest when irrigation is stopped in the summer. A joint project with the Rocky Mountain Sod Growers, these varieties are widely grown by northern Colorado sod growers in their turf blends and mixes. 2018 will be the first year of this comparison.

12 Xeriscape Plaza
The eight miniature landscapes in the Xeriscape Plaza demonstrate several “Colorado-friendly” landscaping themes. With water-wise plants, mulches of different types and colors, and drip irrigation in the shrub zones, these landscapes show that beauty does not require high irrigation levels. All turf is irrigated with sprinkler systems. All shrub zones are irrigated with some type of drip system. All shrub zones require irrigation once every 3–4 weeks, except the Perennial Garden, which may require irrigation every 2–3 weeks.

(Over for description)
A Ornamental Garden shows a number of water-wise plants that are not native to our region, but are climate-adapted. Most of these popular plants are available at local nurseries and are considered water-wise. The turfgrass in this area is Turfgrass Water Conservation Alliance qualified Tall Fescue ‘Saltillo.’ It is a drought-tolerant tall fescue. The irrigation is a gridded drip system in the shrub zone and sprinkler irrigation for the turf.

B Native Plant Garden shows plants that are native to the Intermountain West and the Colorado High Plains. All are water-wise plants, many of these natives have become popular in the urban landscape. The turfgrass is also native. Alkaligrass is known for its tolerance to salty or highly alkaline soil. However, it does have high water needs. The shrub zone irrigation system is a point emitter drip system.

C Yucca Garden displays several varieties of yucca and many hardy native grasses used as ornamentals. Many plants in this display don’t like “wet feet.” The heavy clay soil was amended to provide better drainage. This is a low water landscape. The grass is Legacy buffalograss, which is available as plugs or sod. This drip system is a point emitter system.

D Perennial Landscape displays many flowering perennials and ornamental grasses. Its looks change frequently during the growing season, depending on what is blooming or changing color. A turfgrass substitute, low-growing water-wise spreading juniper, provides a visual resting place. This landscape has only one irrigation system, as all the plants have similar water requirements. Irrigation may be required more frequently than the other landscapes in the summer, as many of the plants are smaller perennials with shallower root systems. The drip system is a gridded layout with inline emitters.

E Water-Wise Landscape uses a number of water-wise plants and several mulches to demonstrate how water-wise principles are put to good practice. The shrub zone is irrigated with a bubbler system. It applies water at high rates and must be irrigated in short bursts, or cycles. Fine fescue, a cool season grass noted for its shade tolerance, thrives in the shade of this landscape. This fine fescue has been qualified as drought tolerant by the Turfgrass Water Conservation Alliance and its university partners.

F Keep It Simple Landscape uses a short list of commonly found nursery plants and drought hardy Kentucky bluegrass for the lawn. By following basic landscape fundamentals of soil preparation and proper irrigation and overall maintenance, this landscape succeeds in conserving water.

G Prairie Landscape is a tribute to the Pawnee National Grasslands. Blue grama and buffalograss are kept mowed and un-mowed to provide contrast. Other native plants finish this highly drought-tolerant landscape. The entire landscape is irrigated by sprinkler, as all the plants, including the grasses, have similar water requirements.

H Southwest Landscape does well in a hot and dry area. The plants have very low water needs. Once established, they may not need any additional irrigation. Passive water harvesting is demonstrated by placing higher-water requiring plants in the low-lying areas that receives most runoff. Dog Tuff, a warm season grass, is highly drought tolerant, resists dog urine (hence the name) and loves full sunlight. It is not shade tolerant. Dog Tuff is available as plugs. The shrub zone is irrigated with individual drip emitters.

General information

Northern Water established an Irrigation Management Service as part of its mission in 1981. Originally focused on agricultural water conservation, IMS expanded in 1994 to include a landscape irrigation component to provide practical urban water conservation information to homeowners, industry and landscape professionals. In 2018, the program is being rebranded as the Water Efficiency Program. Northern Water’s WEP will continue to evolve new programs to aid in promulgating water efficiency in Northern Colorado.