Water Conservation Landscaping *guidelines*

These standards of practices have been drafted by industry experts, local municipalities and nonprofit organizations to promote water saving techniques and efficiency standards. The Wood River Valley is a dry ecosystem averaging 10-18 inches of precipitation a year. Using proper design, watering efficiently, and implementing sustainable practices can reduce the strain on this valuable resource and save water users money.

Soil composition: First, determine what type of soil and drainage you have. Knowing the soil texture will help you choose the proper watering practices. Many soils in the Wood River Valley are extremely rocky because the valley was a glacial outwash with round cobbles and because of this some landscapes have been capped with various depths of topsoil, which could be high in clay. This clay layer could impede drainage and limit air spaces. Clay and compacted soils will retain water longer but will not promote deep roots for plants thus decreasing their ability to withstand drought. Without topsoil or compost some soils may be so porous that water flows away quickly.

Soils and Compost. Soils with 25% compost can hold four times more water than soils without composted matter. Compost is an excellent way to amend existing soils or build better soil. By adding compost you improve water infiltration and decrease runoff and erosion. Compost improves the water holding capacity of the soil and improves the microorganism life in the soil which allows plants to utilize necessary soil nutrients and minerals. Healthier plants are able to better withstand drought.

A minimum of 25% compost needs to be added to existing soils because the soil types in the Wood River Valley do not have adequate organic material for water holding capacity.

- All new turf areas require a soil depth of 6": ONE PART COMPOST TO 3 PARTS SOIL.
- All new shrub and flower beds require a soil depth of 12": ONE PART COMPOST TO 3 PARTS SOIL.
- During excavation, existing soil is to remain on site and temporarily fenced to protect from compaction.
- Protect and minimize disturbance of existing trees and vegetation when excavating.

Mulch. Organic mulch is composed of materials such as leaves, bark, wood chips, soil pep, and wood compost. Mulch works to keep plants cool, prevent soil crusting, minimizes evaporation and controls weed growth.

- All shrub beds, tree rings*, exposed soil and beds should have 4-6” of mulch to minimize evaporation.
- Mulch around trees should ***be placed several inches away from tree trunks** and go to the outer drip line of the trees.

Vegetation. Choosing the right vegetation can significantly reduce water use. Native or drought tolerant species require 1” or less of water per week. Use of floodplain trees species are effective for compacted soils.

- All turf species should be native or drought tolerant
- 30% of trees and shrubs should be low-water use plants

Irrigation for Trees: During a drought, trees must be given top watering priority over your lawn. Irrigation systems designed to water turf do not sufficiently water your trees. A general rule for watering trees is to water deeply and infrequently rather than frequent shallow watering. Sprinkler heads watering on or too near the tree's trunk should be redirected to the drip-line and beyond. Lawns can be replaced in a matter of months whereas a 20 year old tree will take 20 years to replace.

What you can do to save trees during a drought or water restrictions:

- ***Deeply and slowly water mature trees 1 – 2 times per month*** with a simple soaker hose or drip system toward the edge of the tree canopy – NOT at the base of the tree. Use a Hose Faucet Timer (found at hardware stores) to prevent overwatering. How much to water your trees? Measure the trunk diameter at knee height. *General formula*: Tree Diameter x 5 minutes = Total Watering Time. Example: When you hand water using a hose at medium pressure, it will take approximately 5 minutes to produce 10 gallons of water. If you have a 4” diameter tree, it should receive 40 gallons of water - multiply by 5 minutes to equal total watering time of 20 minutes.
- ***Young trees need 5 gallons of water 2 – 4 times per week.*** Create a small watering basin with a berm of dirt.
- ***Do not over-prune trees or fertilize during drought or the heat of summer,*** both which stress your trees.
- ***Protect the tree root zone (drip line)*** to obtain maximum water infiltration and also help it rejuvenate the soil microbial activity. The **tree canopy drip line** is the beginning point of where the tree begins to get moisture from the soil. The drip line is the area directly located under the outer circumference of the tree branches is where the tiny rootlets are located that take up water for the tree. Trees should be watered here, not by the base of the trunk, or the tree may develop root rot. Tree root locations are opportunistic and will travel a distance equal to the height of the tree to get moisture. In a natural, undisturbed situation, tree roots go beyond the tree canopy easily a third the distance of the tree radius. Feeder roots are concentrated in the upper 6-8in (152-203mm) of soil, where there

is abundant oxygen and moisture. Roots under the tree canopy are mainly for support. Deeper roots are for support and they seek water during dry conditions. Use need non-chlorinated water and to build up the microbial activity in the soil.

- ***Make the Soil around the tree drip line more absorbent.*** To insure deep watering in times of drought and water restrictions, each droplet of water is so valuable. To maximize the water infiltration drill a 2-3 inch size hole in the soil to a depth of 24 inches and space these holes every 2 feet around the circumference of the tree. Fill each hole up with hollow sand. In addition, the use of some **compost** mixed in with top soil at time of planting will help with absorbing water, but using too much compost can create air pockets as it decomposes. Avoid using woody compost in soil as this will use up nitrogen as it decomposes and can change the soil pH.
- ***Watering deeply in non-drought means to saturate the ground over a long period of time*** such as 24 hours. Saturation should be done by setting the water flow out of the hose to a stream about the size of a pen or straw. Place the end of the hose within 2 to 3 feet of the drip line and allow the water to flow for three to five hours, and then move it to another area within the drip line area. Continue the process until you have saturated 2 to 3 feet on both sides of the drip line all the way around the tree. Watering this way allows the water to reach the roots at the bottom of the root zone and puts the water where the water harvesting roots are located.

Tree loss is a very costly problem: not only in expensive tree removal, but also in the loss of all the benefits trees provide. **Your trees provide an immense range of health, energy, environmental and economic benefits:**

- Trees improve air and water quality
- **Trees provide shade to the landscape and reduce water needs**
- Trees help keep your home cooler
- Trees slow storm water runoff and help recharge groundwater
- Trees reduce soil erosion
- Trees add value – sometimes thousands of dollars' worth – to your home and neighborhood

Irrigation tips for your landscape and turf:

To reduce overwatering, be aware of evapotranspiration (ET) needs. During cool, wet weather irrigation systems should be shut off until there is a need for irrigation. Some plants will display wilting in the heat of the day, but recover when it is cooler in the evening. Do not use overhead sprays in the heat of the day or when it is windy.

Current irrigation system installations have no regulation for efficiency. Without using industry best practices, irrigation systems can waste 40-60% more water than they should. Following the best practices guideline, the user can rest assured that they will have a system that saves water and protects the water resources.

- All landscapes are limited to irrigating .5 acre or less unless there is an additional water right.
- Sprinkler system should have an approved backflow preventer if tied to a potable water source. Backflow should be installed so during winterization no air will be blown through backflow preventer.
- Sprinklers should be laid so that the area is getting hit with a minimum of two sprinklers. This provides for 100% coverage. Recommended overlap would be 5-10%.
- Limit of .60" per hour for sprinkler application rates. ½" bubblers are not recommended due to their high application rate and poor distribution uniformity (coverage).
- All sprinkler types should be pressure regulated to either 40 or 45 pounds of pressure at the sprinkler head to assure uniform sprinkler nozzle distribution rates. 15 psi is recommended for delivery to the far end of any drip zone for proper operation. Recommended spray height: 4" pop up for mowed grass and 12" pop up for natural areas.
- Sprinkler nozzles should have matched precipitation rate so the same amount of water covers each zone.
- Drip should be laid out in a grid pattern so water is uniform in distribution and it is staked to the ground a minimum of every 24" to assure the drip tube stays in contact with the soil.
- Drip pipe should be ½" pressure compensating and also have a check valve to prevent drain out.
- Pots, barrels, or hanging baskets are recommended to have a dedicated irrigation zone. Irrigated with ¼" pressure compensating drip tube no longer than 15' in length. ¼" drip tube shall not be more than .6 gallons per hour water pressure.
- Plant materials with similar water needs should be planted in the same irrigation zone.
- Sun areas and shade areas should each have a separate irrigation zone.
- Sprinkler controller should be able to adjust irrigation automatically via weather station or soil moisture sensor (Time Domain Transmission recommended). Irrigation and Smart Technologies should be installed to industry/manufacturers standards (including 2-wire systems).
- If property has more than 5 feet of elevation change - all sprinkler heads should incorporate check valves to prevent all of the water from draining out of the low heads.
- For larger sprinkler systems with a water supply that is larger than 1-1/2" a flow meter