

Landscape Water Use and Irrigation Maintenance

Checklist for Landscape Staff

Assistance with the Water Management Plan

In order to establish and maintain a water-efficient landscape, it is important that landscape maintenance staff take an active role in assisting management in the development of a Water Management Plan. This can be accomplished by evaluating the landscaping and irrigation system at the facility. The original landscape plan, if available, would expedite this process.

- Use the original landscape plan to determine areas on-site where plants have died and need to be replaced and any other problems. If the original plan is not available, list by area: the number, name and types of plants (e.g. trees, shrubs and groundcovers); indicate the general size and health of plants; and/or estimate the percent of high and low-water use plants at the site.

- Evaluate the irrigation system(s) components. List all irrigation controllers on site by type (e.g. ET based, manual or central controller systems), quantity and manufacturers. Record the number of valves per controller and any other devices affiliated with the irrigation system (e.g. soil moisture sensors, wind and/or rain shut off devices, etc.) The [Worksheet: Inventory of Facility Water Use](#) may prove useful for this task.

- Check that irrigation is not running off to nearby paved areas or spraying buildings. If it is, determine how to fix the problem and make recommendations for solutions to management. Fugitive water may result in structural damage and costly maintenance and repairs, wastes water, and increases liability if someone were to slip and fall.

- Check irrigation systems for leaks.

- Make recommendations to facility managers on ways to be more efficient, for example:
 - Remove grass from non-functional (unnecessary) areas and in shady areas where it does not grow well;
 - Replace grass with low-water-use plants, paving, ground covers and organic (e.g. wood chips) or inorganic mulches such as decomposed granite or crushed rock;
 - Replace the spray irrigation system with a drip irrigation system for plants other than turf; upgrade spray irrigation heads to stream-rotor style heads with heavier droplet size that reduce runoff and wind drift;

The [Worksheet: Recommendations for Water Efficiency Improvements](#) may prove useful in this process.

General Landscape and Irrigation Practices

- Use low water use, regionally appropriate native and drought-tolerant plants.
- Visually inspect planting areas to verify that plants are getting adequate (but not too much) water.
- Adjust irrigation controllers seasonally to meet varying plant water use demands. If using a digital controller, develop and implement written monthly irrigation schedules.
- Plan and install individual valves so that turf areas, planters, trees and shrubs are irrigated separately.
- Use multi-outlet emission devices (allows a different application rate for each port) to match plant water use requirements, type and the size. An advantage to multi-outlet emitter housings is that they are more accessible and easier to maintain than drip laterals. Emitter sizes (gallons per minute) can be easily increased as plants grow, and emitters can be removed and plugged if a plant dies or is removed. There is no need to dig up the drip laterals (poly tubing or PVC) distribution system because the housing is located above ground or in a valve box.
- Irrigate deeply and infrequently to help develop the drought-tolerance of all plant material. Irrigate just below the root zone and then allow one-third to one-half of the soil around the root zone to dry out before the next irrigation. Monitor watering depths with a soil probe such as a long screwdriver or a 3-foot metal rod, which, when inserted into the soil, will give you an indication of how deeply the plants are being watered. As a general guide, water trees to a depth of 3 feet; shrubs to a depth of 2 feet; ground covers, flowers and turf to a depth of 1 foot. Refer to [How Often and How Long to Water](#) for additional information.
- Irrigate turf and plants before sunrise or after sunset to reduce evaporation losses.
- Add a 4-6" layer of organic mulch, or rock to planting beds to help retain soil moisture and keep the soil surface from drying out and becoming impenetrable.
- Use fertilizers sparingly. The more you fertilize the faster the vegetation or grass grows, requiring more water and more frequent maintenance such as mowing or pruning. In addition, decreasing nitrogen fertilizers and increasing potassium levels helps plants become more drought resistant.
- Remove weeds regularly because they compete with desired plants for water.
- Prune trees and shrubs sparingly. Over-pruning leaves plants unprotected from the sun, causes plants to lose moisture, and allows the soil to dry out faster.

Irrigation Maintenance

Proper system maintenance is essential to achieve and maintain irrigation efficiency. All irrigation systems (spray, bubbler, drip) should be inspected for leaks in pipes, couplings and faucets, and repaired as necessary. Inspecting irrigation systems weekly has been found to be effective in saving time and money. Since irrigation often occurs at night, large volumes of water may be lost without anyone noticing.

- Have backflow devices checked annually by a certified tester.
- Repair irrigation system leaks.
- Regularly check the system pressure for both spray and drip systems. Since domestic water pressure fluctuates throughout the day, the degree of fluctuation (either too high or too low) may affect system performance. Irrigation heads perform best when they have proper flow and pressure
- If pressure is too high, use spray nozzles or emitters with pressure compensating devices. If too low, install lower flow nozzles, make sure two stations aren't running at the same time, check for broken pipes or fittings, reduce the number of heads on a line or install another valve. If the above measures don't work, you may need to install a booster pump.
- On a routine basis, check that heads or emitters are functioning properly. Clean them periodically to remove mineral deposits and maintain hydraulic efficiency.
- Flush drip filters monthly to reduce the likelihood of restricted pressure to emitters or clogging. Problems associated with pop-up spray heads are often related to turf maintenance, make sure the grass is not too tall, or that heads are not below finish grade as this can interrupt the spray pattern, leading to water waste.

Best Management Practices for Turf

- Establish and maintain good turf maintenance practices, such as dethatching, aeration and proper mowing heights to increase the efficiency and uniformity of the irrigation application. Turf should be kept out to the proper height: 1-1/2 to 2 inches for cool season grasses, and 3/4 to 1 inch for warm season grasses. Dethatching turf increases aeration and water infiltration leading to healthier turf and decreased water consumption.
- Visually inspect turf irrigation systems weekly by manually running each station (valve) for approximately 2 minutes. Look for problems and mark their locations using wire flags. Make repairs and flush all circuits where broken components or damaged pipes were repaired.
[The Volume Irrigation Water Audit Worksheet](#) and [Instructions](#) will facilitate this process.
- Verify that all turf irrigation spray heads have matched precipitation rates to maintain head to head coverage and the same pressure throughout the system. Frequently, inappropriate nozzles are installed during repairs. To keep your system operating as designed, replace any broken

heads and/or nozzles with those that match the rest of your irrigation system or zone. The following checklist and form can be used to evaluate turf irrigation systems:

- [Sprinkler Irrigation Equipment Performance Checklist and Irrigation System Inspection Form](#) - source: Irrigation System Maintenance and Repair, Robert H. Abel, Patricia H. Waterfall; U of A Cooperative Extension in conjunction with Tucson Water, Doc #194026, Sept. 1995

General cleaning practices

- Keep paved surfaces clean with a broom rather than a hose or power washer. Spot-clean stubborn areas with detergent and a brush. In most cases, this procedure meets health requirements. When you need to do heavy cleaning with water, sweep and spot-clean first to reduce water use. . Water brooms are good for “light duty” cleaning such as pool decks or sidewalks.
- Install automatic shutoff and solenoid valves on all hoses and water-using equipment.