

## **Water Management Ideas for Commercial Properties and Homeowner's Associations**

These challenges are very common for large properties:

- No recent water audits of turf areas have been performed.
- Controller schedules are not adjusted as often as needed.
- Too many controllers on the property, which makes them difficult to manage.
- Controllers are managed by multiple parties.
- Mixed irrigation heads in turf areas.
- Slopes and basins are not zoned separately.
- Irrigation heads need adjustment, making sure they are at proper grade and alignment with turf surface.
- Low pressure due to improper pipe sizing or poor irrigation system design.
- No as-built irrigation designs are available.
- Drip zones are too large causing irregular performance of emitters.
- No zoning by plant material in drip zones (i.e. trees vs. shrubs).
- Emitter placement in landscape areas is not sufficient.
- Soil compaction.
- Overpruning of trees and shrubs stressing plants and increasing water needs.

The following recommendations provide ideas of how to address the above challenges.

- **Irrigation Techniques and Upgrades**

Areas that have mixed types of irrigation heads need to be changed to one type or the other or separated with a new valve. Typically, pop-up fixed pattern spray heads will apply approximately 1 ½" of water per hour. Rotary type heads on the other hand typically have much lower precipitation rates, sometimes as low as 1/3" per hour. These need separate valves to be scheduled with different run times according to how much water per hour they are emitting.

- Rotor-irrigated turf areas should also have appropriate nozzles installed to match precipitation rates within a zone. A half circle pattern head should put out half the water of a full circle pattern head as it is covering only half the area. Likewise with quarter circle pattern heads, as they are covering only half the area of a half pattern head, they should put out half the volume of water.
- After these first two steps are taken and all irrigation heads are adjusted properly, perform an irrigation audit to find out how much water the existing system is applying and how efficiently it is distributing the water throughout the areas. This information is necessary in order to build a baseline schedule. If you don't know how much water the system puts out, you are just guessing at the run times that are being programmed to the controllers. This technique of scheduling is very common and almost always leads to overwatering due to excessive time. With this audit information, you can also compute what the year end water usage should be from the system. Check the Irrigation Association's website at [www.ia.gov](http://www.ia.gov) or WaterSense at XYZ to find an auditor. You should only hire a company that has a Certified Irrigation Auditor on staff.
- The schedule derived from the audit information will be based upon the weather conditions throughout the year. By changing controller schedules more frequently you will more closely

meet the needs of the plant material and limit overwatering. This will also reduce stress by reducing the amount of underwatering that occurs when controller schedules aren't reprogrammed often enough. The controller schedules should be changed monthly rather than two or three times per year. For purposes of uniformity and accountability, it is strongly recommended that only one party is responsible for managing the controller scheduling (logically the maintenance contractor).

- If your hired landscape contractor cannot adjust your irrigation remotely and is unable to get to your property quickly to adjust for weather changes, rain shut-off devices can be beneficial. The customer will realize the water savings and the contractor doesn't have to spend the time to shut off the controllers and then turn them back on.
- Once the audit is completed and irrigation scheduling is adjusted, look for additional upgrades that can create more savings from increased efficiency of the system itself. "What if" scenarios can be looked at, and the water savings can be calculated to determine the payback period of the upgrades. Examples of upgrades might be items such as replacing pipe to improve pressure, adding pipe to improve head spacing, etc.
- Sometimes retention areas have zones that include heads both on the slopes and in the flat areas. It is difficult to put down all the water at once on slopes without the water running off to the flat areas. These areas should be separated out with different valves to accommodate the cycle and soak type schedules required for the slope areas but are not needed for the flat areas.
- Low pressure due to improper pipe sizing is the most costly issue to correct. Adding to the difficulty is the lack of as-built irrigation plans. It is hard to know which pipes to replace if you do not know where they are. In some cases it is possible to alleviate this by changing out heads and nozzles to ones with lower flow rates. This must be done carefully however, in order to maintain adequate coverage of the irrigated area. Most of these situations must simply be tolerated due to budgets, but the worst case areas should be looked at for retrofitting with a cost benefit analysis.
- The most favored drip irrigation design is where the trees are on a separate valve from the shrubs and groundcovers. Trees have a larger and deeper root zone than shrubs and should be watered for longer periods of time than shrubs. They also need to be watered less frequently. In an existing situation, adding more emitters with higher flow rates to the trees can minimize this disparity. The placement of the emitters needs to be looked into as well. Trees with an eight-foot canopy should have the emitters moved out to where the roots are located. It doesn't promote a healthy root structure to continually water the tree at its base. This coupled with overpruning the lower branches can be the leading cause of trees blowing down.

#### **Cultural Practices to Improve Water Efficiency**

- Try to adopt recommended water schedules as outlined above. Frequent, shallow watering encourages shallow rooting and disease problems. Running the irrigation less frequently for longer periods of time will build a better root structure and allow the plant material to tolerate drought conditions better. Attempt to establish this schedule before the heat of the summer.

- Maintain proper mowing height for your type of grass. Cutting more than 1/3 of height at one time will stress the grass. Common Bermudagrass should be maintained at 1 ½ to 2 inches in height. Grass that is too short uses more water.
- Dethatch grass periodically in the future to remove old stems and roots. Too much build-up will repel water and cause shallow rooting, making grass less drought resistant.
- Fertilize grass and amend soil only when needed and at recommended rates. Overfertilized grass needs more water. A typical schedule for Bermudagrass is once per month from April to September.
- Aerate the soil to help air and water penetrate better. This promotes a deeper root system.
- Do not overprune trees and shrubs on the property. Not only does this rob the plants of their food-producing leaves, it also leaves the branches, trunks and roots unprotected from the sun. Soil dries out faster and wounds from cuts cause the tree to lose internal moisture. Trees should have at least 2/3 canopy. Rules and maintenance contracts should not stipulate branches to be cut to a particular height unless the trees are located along right-of-ways where safety is an issue. Trees in park areas should be allowed to grow full, low branches. With low branches, leaf litter can be left in place where it is most beneficial. Shrubs and groundcovers should be left to their natural form and not sheared up into geometric shapes. Occasional cutting back to the ground to rejuvenate shrubs, periodic sizing, selective pruning (shaping) is healthier for the shrubs and easier on the environment.
- For some of the greatest realization of water savings, consideration should be given to areas that would be appropriate for conversion to Xeriscape. Water use can be cut by ½ to 2/3 by converting from turf to native desert or desert-adapted plants.