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SOLUTIONS

Landscape Irrigation

Another area of major water conservation is in the landscape. Irrigation occurs at night and not very many people have an opportunity to see exactly how their irrigation system is operating or even know how much water the landscape actually needs.

- Kay's Creek Elementary Irrigation Audit
- Ben Atamirano Ball Fields Smart Controller

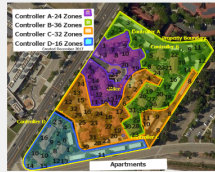
The **first way** to conserve irrigation water is seasonal adjustment. Much less irrigation is needed during the spring and fall seasons of the year because that's when rainfall occurs. So installing a controller where seasonal adjustments can be programmed allows the controller to automatically take a percentage of the runtime, for example, if the spray heads are programmed to run 10 minutes during the hottest part of the year and in the fall the temperature decreases to 80% of the hottest month, then the water budget can be set to reflect this change in required water and the controller would automatically water for 6 minutes instead of 10 minutes. Rainfall can be adjusted for by installing a rain sensor.

The **second way** of conserving water in the landscape is recording landscape plant root depth. Root depth shows the amount of reservoir the plant has to pull water from the soil. The deeper the roots can be grown the better drought tolerance the plant will have and the more days between irrigation can be implemented. Most landscapes are found with 2 to 3 inch turf grass root depth when the turf grass roots can grow much deeper more like 6 to 12 inches deep. Irrigation schedules that encourage deeper rooting depths are beneficial and the less irrigation cycles, means less runoff, less damage to irrigation components from vandalism during operation, less repair needed due to less operation of the irrigation system, less evaporation of water due to surface water accumulation. Landscape ornamentals have even deeper roots (8 to 24 inches) and irrigating to the root depth helps the shrubs and trees to be healthy and robust. Trees and shrubs do better on a customized schedule for their root depth. More water is applied less frequently.

The **third way** of conserving water in the landscape is connecting the controller to a temperature sensor which then further decreases irrigation usage even with a seasonal adjustment in place as with first conservation method above. There are days where the temperature is really cold and virtually no water is evaporated or lost from the plants so irrigation can be decreased on that day. A temperature sensor for the property attached to the irrigation controller allows for this automatic adjustment to irrigation runtimes to be increased or decreased for irrigation water applied.

A **fourth way** of conserving water is decreasing the application rate of irrigation water especially on clay soil. Clay soil does not accept water readily and runoff occurs very fast, especially on slopes. Spray heads apply water at a faster rate than most controllers can be programmed low enough to compensate for, so installing lower precipitation rate nozzles prevents this runoff from occurring. Low flow multi-stream nozzles for spray heads are an excellent investment in decreasing water waste.

A **fifth way** of conserving water in the landscape is keeping the irrigation components in good operation by repairing broken components more frequently. Walk-through of the system in a timely fashion and at least once a month is beneficial. Having an irrigation controller map allows this conservation method to effectively be done in a timely manner. See sample irrigation map below.



A **sixth way** of conserving water, especially in large athletic fields or sloping fields in parks and at commercial properties is installing check valves in line and in the irrigation heads. Low head drainage causes the irrigation system pipes to need refilling every time the irrigation system turns on. The air in the pipes add excessive force to irrigation components on startup and for larger systems, having to fill up a 2 inch or 4 inch line again every irrigation cycle wastes water. Stopping the puddles of water around each low head decreases damage to the irrigation components and decreases damage to the landscape itself.

A **seventh way** of conserving irrigation water is installing pressure regulating valve sensors to keep the pressure constant in each station regardless of how far away the station is from the main point of connection. Evening out pressure fluctuations allows more irrigation stations to be operated at once decreasing water window, thus decreasing the amount of time the irrigation system is running when people are walking by which decreases the chance of vandalism to the irrigation system. Keeping the irrigation valves at a certain pressure also gives the spray heads a determined psi for each station rather than a general pressure regulation on the mainline, which is beneficial when the system is operated by a pressurizing pump.

An **eighth way** of conserving water is monitoring the irrigation water usage by automatic meter reading and online water usage portal dashboard. Seeing hourly water usage gives properties the ability to keep up to date usage profiles and identify leaks in the irrigation components.

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