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## Best Practices in Water Conservation

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**Abstract.** *This topic has significant implications for all irrigation professionals. Water is a finite resource that decreases in quantity more than increasing. As populations increase, water's availability in our current delivery systems do not keep up. Collecting and reusing water that enters or passes by a site is the only way to come close to matching the rising demand. Since most rainwater is collected on rooftops, we need to look at ways to expand collection efforts to other areas such as streets, driveways, parking lots, and planters. Ultimately, all sites should be venues for collecting rainwater, treating it and supplementing irrigation with it. This involves new methods such as larger containers and innovative capture techniques. As rainwater may be contaminated due to pollutants like microscopic germs, it is often not considered suitable for drinking. However, there are many examples of rainwater being used for all purposes — including drinking — following suitable treatment. This session will address the benefits of rainwater harvesting with illustrations provided by specific Los Angeles projects such as the TreePeople project, the Westside Rainwater Park, housing developments, Elmer Ave., and the Vista Hermosa Natural Park.*

**Keywords.** Rainwater harvesting, permeable concrete, detention basin, bio swale, wasting water, over irrigation, HOA education, permeable parking lot, capturing drainage, stormwater harvesting, Vista Hermosa, Westside Park, Tree People

## Projects for Discussion

Tree People: This is a project that encompasses a large part of what we are trying to encourage developers to embrace.

Tree People Center for Community Forestry 3 acre area located at the top of Coldwater Canyon in the Hollywood Hills, TreePeople is one of Southern California's most notable grass-roots environmental organizations. The 45-acre Coldwater Canyon Park is the home of TreePeople who's mission is to inspire the people of Southern California to take personal responsibility and participate in making the region a healthy and sustainable urban environment.

The project includes a rainwater harvest parking grove with a 216,000-gallon underground cistern, an environmental education and learning center, an urban watershed demonstration garden, TreePeople nursery operations facility and donor gardens. Bioswales collect run-off and rainwater through a streambed in the watershed demonstration garden showing how water traverses through the city fabric. This exhibit allows children and adults to interact close-up in this non-static watershed display. The new nursery provides care for trees and native plants that will be used in planting restoration programs. The parking grove is sloped to direct rainwater into drains and gravel filled trenches that is networked to the cistern for irrigation. The paving reduces the urban heat island effect by reflecting solar energy. A plant palette of drought tolerant shrubs and trees were selected and designed in a garden planned for long term growth.

Westside Rainwater Park is a unique state of the art project that utilizes storm water to irrigate the turf areas of the park. Prop O funding allowed for a system to be designed that would pump storm water out of an existing covered stormwater drainage channel. We utilized an underground irrigation system that is a gravity fed system that can flush dirty water through large orifices. The low flow allows for the planting medium (sand) to absorb the water and make it available for the turf. Irrigation water is essentially delivered from the root zone up to the surface. Excess water is cleaned by the planting medium then drains back into the storm water system. In addition to the water quality components this project will include recreational benefits for the community including new perimeter fencing, jogging paths, and a sensory garden, as an extension of the dry creek.

The Los Angeles Zoo is a facility owned by the city of Los Angeles. For many years, the parking lot has been a huge sea of asphalt with a few sycamore trees dotted about. It's proximity to the Los Angeles river has made it a target for stormwater management opportunities. A few years ago, a bioswale was constructed around the perimeter of the parking lot to capture some of the rainwater and filter it before it went into the stormdrain system and ultimately into the river. The existing parking lot at the Los Angeles Zoo has been redeveloped as a Proposition O Sustainable Project. The scope of work includes: preserving an existing perimeter bioswale, adding new bio cells to the parking lot, retrofitting the parking lot with other permeable paving systems, and planting over one hundred new trees. A new interpretive plaza will inform visitors about the link between stormwater quality and the nearby Los Angeles River. In addition to greatly enhancing stormwater management, the existing promenade between the Los Angeles Zoo and the Autry National Center of the American West will be strengthened to provide a pleasant pedestrian connection between the two important cultural institutions. Included in the project are ML+A-designed interpretive graphics to communicate the benefits of these improvements to visitors.

Vista Hermosa Park, a sustainably designed park, is an urban watershed demonstration project that accommodates community and school recreational programs, integrated with an extensive

network of introduced natural features and ecosystems. The park transitions from more intense neighborhood uses, to sloping, native habitats. A range of Southern California native plant communities knit the park together, creating habitats such as oak savannah, coastal sage scrub, chaparral and meadows that attract a variety of wildlife species. Facilities supporting programs ranging from nature walks to campfires under the stars include a children's discovery area, a park office, picnic areas, gathering areas and creature comforts like clean convenient restrooms and drinking fountains. The 30,000 gal cistern collects water from about 95% of the 10 acre park. While it is more of a demonstration scale, it provides water for a drip system along the north slope of the soccer field. Water that is not collected in the cistern is absorbed into the groundwater.

College campuses also have the opportunity to educate and save water. Pitzer College in Claremont, CA is collecting gray water from sinks and showers and storing it for underground irrigation use. The 15,000 gallon tank can hold enough water for each monthly watering cycle of the immediate building with capacity to be used on an expansion project at a later date.

## **Conclusion**

Now is the time to start making our parks and public facilities work for us. They can provide significant amounts of water if designed appropriately to capture this valuable resource. Parks have been a major draw of maintenance dollars and it's time they start giving back or at least becoming more sustainable. The education component is key to popularize a concept that is mostly underground.