Model Landscape Water Ordinance and Innovative City Programs

(Compilation Prepared by Assembly Select Committee on Regional Approaches to Addressing the State's Water Crisis)

Landscape water use accounts for almost half of all urban water use in California. Ongoing and sustainable landscape water-use efficiency practices, including conservation and alternative supply development, are vital to effective water management throughout the state. As California continues to face ongoing water supply reliability challenges, effective implementation of these practices is increasingly important to ensuring the state's long term, water supply sustainability and economic vitality.

Integrated approaches to landscape water-use efficiency can have multiple cost-savings benefits for communities and residents, including job creation, flood control and management, water quality improvements and water savings. Water savings can be further increased through the use of rainwater capture and onsite reuse. Projects such as Tree People's *Miracle on Elmer Avenue*, which transformed a dangerously flood-prone neighborhood into a thriving example of community sustainability, exemplify how strategies can be combined to result in significant community benefits and cost savings.

This document provides an overview of various landscape irrigation approaches that can be adopted in combination with one another at the local level to help water providers and their customers maximize water-use efficiency. There is no one-size-fits-all solution. Water providers must determine and implement the combination of strategies that work for their service areas based on population, industry needs, infrastructure availability, and climate variations. From rate structures and community outreach to localized ordinances and recycled water, the opportunities are endless.

California Laws on Water-Use Efficiency

A variety of California laws and regulations govern water-use efficiency requirements in California. Several recently enacted laws have changed the face of water-use efficiency and the obligations of water suppliers.

AB 1881 (Laird): Water Conservation in Landscaping Act
Enacted in 2006, AB 1881 required the Department of Water Resources to update the Model Water Efficient Landscape Ordinance. Subsequently, local cities and counties were required to adopt the updated Ordinance or an "at least as effective as" alternative by January 1, 2010.

SB X7 7 (Steinberg): Water Conservation Act of 2009
SB X7 7 was adopted as part of the historic Delta/Water Package enacted into law in November 2009. This bill requires the state to reduce urban, per capita water use by 20 percent by December 31, 2020. Local water suppliers can choose one of four possible compliance paths specified in the legislation.

California Green Building Standards
The California Green Building Standards are designed to improve public health, safety and general welfare by enhancing the design and construction of buildings. The standards promote building concepts that have a positive environmental impact and encourage

sustainable construction practices in planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. The code contains both mandatory and voluntary green building measures.

Promoting Water-Use Efficiency Through Rate Structures

Many utilities face the challenge that effective conservation programs result in lower demands for water leading to reduced sales and potential revenue shortfalls. Allocation-based conservation rate structures are a proven and effective tool for achieving the dual goals of sustainable water conservation and revenue stability. This type of rate structure not only signals customers when they are overusing water, but also signals which customers need support from the water provider. This two-way communication between water providers and customers helps water utilities focus financial and staff resources efficiently.

Price Signals for Customers and Revenue Stability for Water Providers

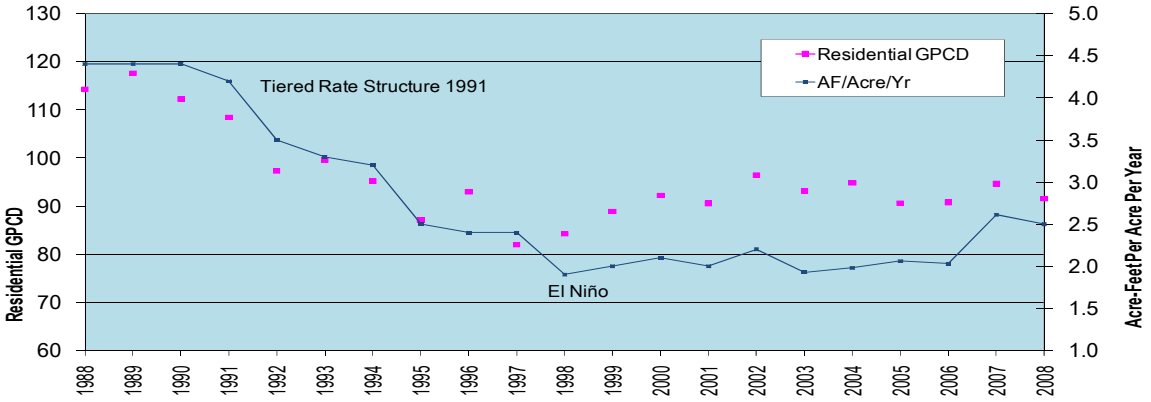
Allocation-based rate structures provide customers with significant economic incentives to use only the water needed to meet the demands of their property. Customized and equitable water allocations are established for each customer account based upon a variety of factors including: irrigated area, daily weather characteristics, number of residents, and industrial or commercial business type. Water is then sold to customers under an increasing tier structure based upon their allocation. Customers who use water within their allocation purchase water in the lower tiers and are rewarded with very low water bills. Customers who use water in excess of their allocation purchase water in steeply ascending upper tiers and receive a strong pricing signal for excessive or wasteful use.

A monthly, fixed service charge covering all or most of the water providers' operating costs provides revenue stability. Covering fixed costs through this charge and selling water through tiered commodity charges provides the water utility with the ability to aggressively encourage conservation without impacting the provider's operating budget.

Dedicated Revenue Source and Outstanding Results

Allocation-based conservation rate structures provide a dedicated revenue stream for water-use efficiency programs. Revenue from higher tier water use can be "reinvested" to promote long-term improvements in efficiency, including conservation programs, recycled water and urban runoff programs. The Irvine Ranch Water District successfully implemented this type of rate structure in 1991. IRWD achieved a 43 percent reduction in landscape water use and a 20 percent drop in residential use between 1991 and 2008. Other utilities have successfully adopted similar models.

Figure 1: IRWD Residential and Landscape Water Use 1988-2008



City Governments Can Make a Difference

Cities and counties play an important role in successful landscape efficiency efforts even if they are not the community's water provider. These jurisdictions have land-use authority, which provides an additional water-conservation tool when working with new development areas. Working with the development community, cities and counties can establish development agreements that stipulate enhanced savings measures above current codes, or require the use of alternate water-supply sources such as recycled water, rainwater capture or greywater, where applicable.

City departments have the ability to integrate their water-use efficiency efforts with opportunities to meet the unique needs of their customers. Building, planning, utility and parks departments can work together to create and implement effective water-efficient landscape strategies. This could include developing new water-efficient landscape ordinances, adopting the State's Model Ordinance and/or the California Green Building Standards, or by implementing more aggressive voluntary standards. Further, cities and counties that are not the water providers for their communities can partner with local water agencies to support efficiency programs. Understanding water-use characteristics and customer perspectives of a particular city or county is vital to the development of effective programs that meet the needs of that area.

Case Study: Cash for Grass

The City of Roseville's Cash for Grass Program helps property owners convert water-thirsty grass to water efficient landscapes. The City provides customers with rebates of $1 per square foot of grass removed and replaced with water efficient landscaping, up to $1,000.

Before:

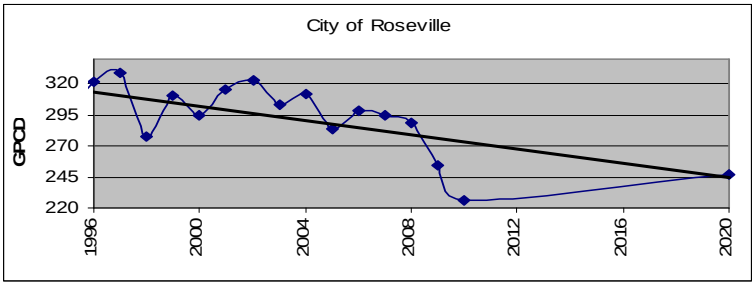
After:

Sustainable Practices and Outstanding Results

In 2000, the City of Roseville began to move forward with integrated, sustainable planning efforts. Included in these efforts was a commitment to aggressively reduce landscape water use. At City Council's direction, Roseville created a "Green Team" of city staff to develop sustainable internal approaches, including setting standards for reducing water use on city-owned landscapes. Roseville also created a Sustainability Action Committee, made up of council members, interested stakeholders and staff. Both the Committee and the Green Team laid the groundwork for educating Roseville citizens and implementing programs to meet the city's goal of reducing per capita water use by 20 percent, as required by the 2009 Delta/Water package.

Roseville has historically had some of the lowest water rates in the state. Since the implementation of water-use efficiency programs, coupled with effective water-management strategies like the use of recycled water, hands-on customer education programs, incentive programs and leadership support, the city has seen a steady decline in water use from approximately 320 gallons per person per day in 1996, to 220 gallons per person per day in 2011.

Figure 2: City of Roseville Water Use 1996-2020



Efficient Tools, Effective Programs

A variety of complementary core practices can elevate landscape water-use efficiency and awareness to a truly sustainable community transformation. Strategies should encompass ongoing programs, alternative water-supply development, the leveraging of partnerships with businesses, landscape professionals and equipment manufacturers, and ongoing outreach and education in the community.

Ongoing Positive Outreach and Education

Water providers have a significant opportunity to impact water use through ongoing positive messages and awareness campaigns. Key message points include the connection between long-term water supply solutions and economic stability (and how that benefits California), and how simple individual adjustments and improvements to irrigation schedules, equipment, and practices can result in significant savings.

Effective customer outreach and student education programs have long-term effects on water-use behavior. Consistent messaging, educated staff, and an emphasis on customer service encourage water users to be water aware and efficient. Education and outreach approaches can include in-class and field trip-based student programs, social media programs, workshops and webinars for homeowners, landscape irrigation demonstration projects, community ambassador programs, and customer tours.

Alternative Water-Supply Development

Development of alternative water supplies – including recycled water, rainwater capture and greywater – for landscape irrigation is a key component of effective water-use efficiency programs. Every drop of nonpotable water used for landscape irrigation – whether recycled, harvested through a rainwater capture system, or collected through a greywater system – saves valuable drinking water. Alternative local-supply development complements effective conservation strategies and extends California's precious water resources.

Rebates and Financial Incentives

Cost-effective rebates and financial incentives-such as low-cost loans offered by water providers can promote the adoption of water-efficient technologies and practices. Examples include:

- Landscape conversion to water-saving plants that adapt to California's climate and are drought tolerant, such as the Roseville "Cash for Grass" program.
- Smart irrigation controllers which that can adjust irrigation schedules based on plant needs and climate changes.
- Efficient irrigation systems/components like high-efficiency nozzles and sub-surface or drip irrigation systems.

Incentives used in combination with state and local codes and ordinances, such as the Model Water Efficient Landscape Ordinance and the California Green Building Standards, have even greater potential to transform the market and achieve the latest standards in efficiency.

Investment in Technology and Research

Collaboration between water providers and innovative product manufacturers leads to new research and technology, which in turn transforms the market and changes individual habits and societal norms. By participating in meaningful research, including pilot studies, testing of new products, and research papers, water providers can play an integral role in the development of new technologies and products. Further, by participating in industry groups and associations to develop product standards and specifications, water providers and product manufacturers will continue to move technology forward to improve water efficiency, and will transform markets and spur product development. The U.S. EPA's WaterSense product labeling program exemplifies this collaboration.

Certification and Training

Certification and training programs for industry professionals that provide expertise in water-use efficiency complement the efforts of water providers. Industry associations offering certification programs include the California Landscape Contractors Association and the Irrigation Association. By endorsing certified contractors and professionals, these programs help ensure implementation of effective efficiency practices. Water providers can encourage or require landscape maintenance staff and contractors to obtain certifications and can promote the use of certified professionals in their water use efficiency programs.

Innovative Partnerships

Leveraging partnerships with community organizations, businesses and educational institutions can have a profound impact on the effectiveness of water-use efficiency programs. Opportunities abound including:

- Partnering with local nurseries, irrigation equipment distributors and retailers to educate and disseminate water-efficient landscape products and plants.
- Supporting businesses that sell and promote water-efficient products.
- Collaborating with local developers to integrate water efficiency as new projects are developed.
- Teaming up with schools to integrate water-use efficiency information and lessons into curriculum, particularly at the college and university level where the next generation of professionals are being educated.

Learn More

Government Resources

- California Department of Water Resources: www.water.ca.gov/wateruseefficiency
  - Landscape Conservation Information: www.water.ca.gov/wateruseefficiency/landscape
  - California Water Plan Update 2009, Chapter 3 – Urban Water Use Efficiency: www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v2c03_urbwtruse_cwp2009.pdf
  - Model Landscape Ordinance: www.water.ca.gov/wateruseefficiency/landscapeordinance
- US EPA WaterSense Program: www.epa.gov/watersense

Water Providers

- City of Roseville: www.roseville.ca.us
  - Water Conservation Programs: www.roseville.ca.us/savewater
  - Cash for Grass Program: www.roseville.ca.us/cashforgrass
  - Recycled Water Programs: www.roseville.ca.us/eu/recycled_water/default.asp
- Irvine Ranch Water District: www.irwd.com
  - Water Conservation Programs: www.alwayswatersmart.com
  - IRWD Beautiful Landscapes: www.irvineranch.watersavingplants.com
  - Recycled Water Programs: www.irwd.com/your-water/recycled-water
- Metropolitan Water District of Southern California, Be Water Wise Program: www.bewaterwise.com

Technology, Research, Training and Certification

- Irrigation Association: www.irrigation.org
- California Landscape Contractors Association: www.clca.org
  - CLCA Water Management Certification Program: www.clca.us/water/
- American Society of Landscape Architects: www.asla.org

Non-Profit Organizations

- California Urban Water Conservation Council: www.cuwcc.org
- Tree People: www.treepeople.org
  - Video: Miracle on Elmer Avenue http://www.youtube.com/watch?v=bwcK8IWawY0