Water Conservation Measures Enacted by Cities in Los Angeles and Orange Counties

A survey recently completed by the Water Committee of the Sierra Club Angeles Chapter compares how well the incorporated cities in Los Angeles and Orange Counties have enacted ordinances to update their Water Conservation Measures. Five cities were rated 'Best' for the number and type of measures enacted. Another four cities were rated 'Worst' for having no such measures on the books with a fifth 'Worst' city having only one. The findings demonstrate that for any city that has yet to fully implement updated water conservation measures, there are nearby cities to provide an appropriate roadmap.

The Problem

Reliable supplies of drinking water are essential for the welfare of cities, and drive the need for sustainable water use strategies. In Southern California, cities manage water use by enacting ordinances to mandate restrictions and efficient use of water in order to contend with decreasing imported water supplies, and the need to replenish local water resources as urban population continues to grow.

So how are cities sharing the responsibility to avoid water waste? What is being done to update their water management practices and water efficiency standards so that less water benefits more people in the foreseeable future?

The Water Committee of the Sierra Club Angeles Chapter undertook a Water Conservation Measures Scorecard project to address these questions. A survey was recently completed to determine what types of ordinances are being enacted not just to avoid waste, but to also prioritize water needs, to update building standards, and to require best practices in order to better use available water resources.

Project Design

The project began by defining criteria for water conservation measures implemented or updated by Southern California cities over the past 5-10 years.

The project produced 19 categories of water conservation measures, and evaluated how many measures each city had enacted. In some cases, multiple ordinances were evaluated for a single city, but the scores for all ordinances of a city were merged such that any of the 19 categories were scored 1 point if any of a city's ordinances addressed the specific technical and enforceability criteria cited for it.

The first group of water conservation measures includes regulations to restrict wasteful water practices and other selected uses of water that are generally enforced on a temporary basis when an unexpected water shortage is declared by a city. These measures are usually phased-in and become more restrictive as the temporary water shortage becomes more severe. These "Restricted Use" measures include all enforceable measures recommended by the California Department of Water Resources and included in the Water Conservation Model Ordinance proposed by the Metropolitan Water District.

Remaining measures have been enacted to enforce "Efficient Use" of water in buildings, for landscapes, and for commercial operations. Usually these measures are enforced as new building permits or business licenses are awarded by a city or when new building or business are connected to the local water supplier.

Probably the most famous water efficiency standard in California history involves the steps taken to require new buildings to install toilets rated at no more than 1.6 gallons per flush. The first use of this standard was a state law in 1980 prohibiting sales of new toilets in the state to those that met this standard. Over the next 20 years the City of Los Angeles along with many other cities invested in retrofit programs to replace older toilets that used 3 to 5 gallons per flush with new toilets to meet specific water conservation goals.

Since that time, plumbing engineering standards have continued to improve and cities have begun to update their building codes and re-visit their water conservation plans accordingly. Water conservation measures enacted or updated more recently comply with federal and state standards including EPA Water Sense plumbing standards, DOE Energy Star appliance standards, and California Water Efficient Landscape legislation. These standards include toilets rated at 1.28 gallons per flush, showerheads at 2.0 gallons per minute, faucets at 1.5 gallons per minute, and dishwashers using no more than 5.8 gallons per cycle.

The final set of water conservation measures evaluated include best practices for water use as promoted by organizations such as the California Urban Water Conservation Council along with other measures enacted by one or more cities that may be applicable and effective for other cities in the region.

Survey Methodology

Water measures enacted in municipal codes, by city ordinances or as water regulations were reviewed as provided by all incorporated cities and associated water districts of Los Angeles County and Orange County. The reviews were conducted by 2-4 independent reviewers for each city. The water ordinances of each city was reviewed and scored based on information which is widely and publicly available on the web, on the cities websites, or could be requested through the city clerk.

The primary evaluations were to determine which cities had enacted mandatory water conservation measures. If the city did not have a water ordinance did an associated water agency serving that city have one? And exactly what criteria did cities use to define required measures?

Several federal, state, and local reference points were used to establish criteria used to audit the ordinances including the MWD (Metropolitan Water District) model water ordinance, CUWCC best practices, CA DWR municipal water policy recommendation, and Federal EPA Water Sense standards. All cities received a water restriction score, and a water efficiency score that are combined for an overall water conservation score. To obtain these scores, the scorecard based on the wording and construction of the MWD water ordinance was divided into 2 major divisions' short term (month to month monitoring of water supply with mandatory enforced restrictions)

and long term water conservation (sustainable practices and standards) which were both further subdivided.

All ordinances were reviewed between August 2009 and November 2010 by volunteers of the Water Conservation Committee, Angeles Chapter, Sierra Club and students from UCLA. All ordinances were reviewed at multiple intervals by 2-4 independent and separate reviewers to facilitate any changes that may have been adopted by the cities within the above time frame. Policy changes made to any water ordinance after said date will not be reflected in the cities respective scorecard or water conservation score.

Water Districts and Cities Served by Each

Several cities advised the project team that they relied on their water district to enact and enforce water conservation measures on their behalf. As a result, several water districts were identified and contacted by the project to review their conservation measures. As the water district scores were compiled, they were applied to the cities they served. In a few cases, a city was served by two water districts that had each enacted separate water conservation measures. In all cases, if any given type of water conservation measure was enacted by a city or one or by more water districts serving it, the city was given credit for that type. Only a few water districts supplied copies of water conservation measures for review by the team. The scope of the project was to compare cities, not water districts. A subsequent project may expand to study the role of water districts for enforcing water conservation, especially in unincorporated areas of either county. Thus, water district scores were only used to augment city scores where applicable.

Conclusion

Most of the water conservation measures enacted by most of the cities in Los Angeles County and Orange County are designed to restrict the use of water, especially during periods of declared water shortage. In addition, most of the cities have enacted efficient landscape irrigation measures that meet or exceed California state standards.

The types of water conservation measures enacted by the fewest cities are for residential and commercial building standards that require federal water efficient plumbing standards for toilets, faucets, showerheads and urinals.

The model cities with the best number of water conservation measures include Burbank, La Palma, La Verne, Los Angeles, and Mission Viejo. The water conservation measures enacted by these cities provide a roadmap for the remaining cities in Los Angeles County and Orange County to more effectively conserve local and imported urban water resources for the future.

Summary of Results

The survey identified cities for each of the 19 types of water conservation measures to be enforced by either the city or its water district. The summary below provides the number of cities credited for enacting each type of water conservation measure.

Water Conservation Measures Scorecard Summary	
Restricted Use Measures	***Cities (122 Total)***
Limited days per week and time allowed to water lawns	**117**
Limited filling of swimming pools, ponds and fountains	**112**
Limited washing of outdoor surfaces and vehicles	**117**
Limit or prohibit recreational, ornamental, construction and other non-essential uses	**106**
Prohibit water left running unattended	**115**
Require plumbing leaks be reported and repaired	**112**
Residential Water Efficiency Measures	***Cities (122 Total)***
Toilets rated at 1.28 gallons per flush	**16**
Showers rated at 2.0 gallons per minute	**13**
Indoor faucets rated at 2.0 gallons per minute	**13**
Energy Star washing machines and Energy Star dishwashers rated at 5.8 gallons	**13**
Commercial Water Efficiency Measures	***Cities (122 Total)***
Toilets rated at 1.28 gallons per flush	**12**
Urinals rated at 0.5 gallons per flush	**8**
Faucets: - private use rated at 1.5 gallons per min., and - public use rated 0.5 gallons per min., self-closing	**10**
Energy Star dishwashers rated at 5.8 gallons	**36**
No single-pass commercial water cooling towers	**55**
Commercial best practices: - restaurants offering water only upon request, - hotel linen laundry only upon request, and - landscape vegetation with low-irrigation needs	**103**
Efficient Landscape Irrigation	***Cities (122 Total)***
Water efficient landscape irrigation systems that meet or exceed state law AB 1881	**107**
Efficient Commercial & Industrial Processes	***Cities (122 Total)***
Water efficient equipment for food processing, laundry, car wash, and water-cooling systems	**94**
Efficient Municipal Best Practices	***Cities (122 Total)***
Municipal best practices for water reuse, recycled water, reclaimed water, and general use of non-potable water where available.	**33**

In order to identify which cities were doing the best job of enacting water conservation measures, all cities were given a score representing the number of measures enacted and an associated rating: Best, Good, Poor, and Worst.

City	*County*	*SCORE*	*RATING*
Los Angeles	LAC	**19**	**BEST**
La Verne	LAC	**18**	**BEST**
Mission Viejo	OC	**18**	**BEST**
Burbank	LAC	**15**	**BEST**
La Palma	OC	**15**	**BEST**
Manhattan Beach	LAC	**14**	**GOOD**
Santa Monica	LAC	**14**	**GOOD**
West Covina	LAC	**14**	**GOOD**
West Hollywood	LAC	**14**	**GOOD**
Hermosa Beach	LAC	**13**	**GOOD**
Lomita	LAC	**13**	**GOOD**
Newport Beach	OC	**13**	**GOOD**
Pico Rivera	LAC	**13**	**GOOD**
San Clemente	OC	**13**	**GOOD**
San Juan Capistrano	OC	**13**	**GOOD**
Stanton	OC	**13**	**GOOD**
Azusa	LAC	**12**	**GOOD**
Brea	OC	**12**	**GOOD**
Costa Mesa	OC	**12**	**GOOD**
Covina	LAC	**12**	**GOOD**
Fountain Valley	OC	**12**	**GOOD**
Glendale	LAC	**12**	**GOOD**
La Canada Flintridge	LAC	**12**	**GOOD**
Laguna Beach	OC	**12**	**GOOD**
Rolling Hills	LAC	**12**	**GOOD**
Santa Clarita	LAC	**12**	**GOOD**
Anaheim	OC	**11**	**GOOD**
Buena Park	OC	**11**	**GOOD**
Claremont	LAC	**11**	**GOOD**
Dana Point	OC	**11**	**GOOD**
Diamond Bar	LAC	**11**	**GOOD**
La Habra	OC	**11**	**GOOD**
Laguna Niguel	OC	**11**	**GOOD**
Lakewood	LAC	**11**	**GOOD**
Lynwood	LAC	**11**	**GOOD**
Placentia	OC	**11**	**GOOD**
Pomona	LAC	**11**	**GOOD**
Rancho Santa Margarita	OC	**11**	**GOOD**
Villa Park	OC	**11**	**GOOD**
Walnut	LAC	**11**	**GOOD**

City	*County*	*SCORE*	*RATING*
Westminster	OC	**11**	**GOOD**
Yorba Linda	OC	**11**	**GOOD**
Aliso Viejo	OC	**10**	**GOOD**
Arcadia	LAC	**10**	**GOOD**
Bell Gardens	LAC	**10**	**GOOD**
Carson	LAC	**10**	**GOOD**
Commerce	LAC	**10**	**GOOD**
Culver City	LAC	**10**	**GOOD**
El Segundo	LAC	**10**	**GOOD**
Garden Grove	OC	**10**	**GOOD**
Hawaiian Gardens	LAC	**10**	**GOOD**
Industry	LAC	**10**	**GOOD**
Irvine	OC	**10**	**GOOD**
La Habra Heights	LAC	**10**	**GOOD**
Laguna Hills	OC	**10**	**GOOD**
Laguna Woods	OC	**10**	**GOOD**
Lake Forest	OC	**10**	**GOOD**
Long Beach	LAC	**10**	**GOOD**
Monrovia	LAC	**10**	**GOOD**
Montebello	LAC	**10**	**GOOD**
Orange	OC	**10**	**GOOD**
Pasadena	LAC	**10**	**GOOD**
San Dimas	LAC	**10**	**GOOD**
Seal Beach	OC	**10**	**GOOD**
Signal Hill	LAC	**10**	**GOOD**
South Gate	LAC	**10**	**GOOD**
Torrance	LAC	**10**	**GOOD**
Artesia	LAC	**9**	**POOR**
Bell	LAC	**9**	**POOR**
Cerritos	LAC	**9**	**POOR**
Compton	LAC	**9**	**POOR**
Cudahy	LAC	**9**	**POOR**
Cypress	OC	**9**	**POOR**
Downey	LAC	**9**	**POOR**
Duarte	LAC	**9**	**POOR**
El Monte	LAC	**9**	**POOR**
Gardena	LAC	**9**	**POOR**
Glendora	LAC	**9**	**POOR**
Hawthorne	LAC	**9**	**POOR**
Huntington Park	LAC	**9**	**POOR**
Inglewood	LAC	**9**	**POOR**
Irwindale	LAC	**9**	**POOR**
La Mirada	LAC	**9**	**POOR**
Lancaster	LAC	**9**	**POOR**

City	*County*	*SCORE*	*RATING*
Lawndale	LAC	**9**	**POOR**
Los Alamitos	OC	**9**	**POOR**
Maywood	LAC	**9**	**POOR**
Monterey Park	LAC	**9**	**POOR**
Norwalk	LAC	**9**	**POOR**
Paramount	LAC	**9**	**POOR**
Redondo Beach	LAC	**9**	**POOR**
Rosemead	LAC	**9**	**POOR**
San Gabriel	LAC	**9**	**POOR**
San Marino	LAC	**9**	**POOR**
Santa Fe Springs	LAC	**9**	**POOR**
Temple City	LAC	**9**	**POOR**
Tustin	OC	**9**	**POOR**
Whittier	LAC	**9**	**POOR**
Avalon	LAC	**8**	**POOR**
Bradbury	LAC	**8**	**POOR**
Fullerton	OC	**8**	**POOR**
Huntington Beach	OC	**8**	**POOR**
Malibu	LAC	**8**	**POOR**
Palmdale	LAC	**8**	**POOR**
Rolling Hills Estates	LAC	**8**	**POOR**
San Fernando	LAC	**8**	**POOR**
Alhambra	LAC	**7**	**POOR**
Beverly Hills	LAC	**7**	**POOR**
Calabasas	LAC	**7**	**POOR**
Santa Ana	OC	**7**	**POOR**
South Pasadena	LAC	**7**	**POOR**
Westlake Village	LAC	**7**	**POOR**
Agoura Hills	LAC	**6**	**POOR**
Bellflower	LAC	**6**	**POOR**
Sierra Madre	LAC	**6**	**POOR**
Hidden Hills	LAC	**5**	**POOR**
Vernon	LAC	**5**	**POOR**
Rancho Palos Verdes	LAC	**1**	**WORST**
Baldwin Park	LAC	**0**	**WORST**
La Puente	LAC	**0**	**WORST**
Palos Verdes Estates	LAC	**0**	**WORST**
South El Monte	LAC	**0**	**WORST**

Sources of related urban water conservation information:

Managing Water: Avoiding Crisis in California, Dorothy Green, University of California Press, Berkley and Los Angeles, California 2007.

Publications, The Pacific Institute, http://www.pacinst.org/publications/, including:

- Waste Not, Want Not: The Potential for Urban Water Conservation in California, Peter Gleick, et al, The Pacific Institute, 2003.
- California Water 2030: An Efficient Future, Peter Gleick, et al, The Pacific Institute, 2005.

California Urban Water Conservation Council Resource Center, http://www.cuwcc.org/resource-center/resource-center.aspx.

California State DWR Urban Drought Guidebook 2008, http://www.owue.water.ca.gov/docs/UrbanDroughtGuide.pdf.

US EPA WaterSense Specifications, http://www.epa.gov/WaterSense/specs/index.htm.

US EPA & DOE ENERGY STAR Program, www.energystar.gov.

Model Water Conservation Ordinance, Metropolitan Water District of Southern California, http://www.centralbasin.org/brochures/ordinance_MWDSC-Model-Water-Conservation.pdf.

Water Conservation, Metropolitan Water District of Southern California, www.bewaterwise.com/.

Water Related Links, Metropolitan Water District of Southern California, http://www.mwdh2o.com/mwdh2o/pages/links/links01.html.