

Executive Summary

University of California Riverside



January 10, 2014

Office of Sustainability

Executive Summary

UCR faces several significant challenges in achieving the UC Sustainable Practices Policy for potable water reduction of 20%, adjusted for growth, by 2020 from a baseline established by each campus. Given its location in the Inland Valley of Southern California with a semi-desert climate, large volumes of water are needed for irrigation of agriculture and landscaping. Cooling and research on campus drive water usage up as well. But most significantly, and most expensive to address, is on-campus housing water usage, as we expect housing and dining to be the largest growth sector over the next six years. UCR currently houses 30% of its student population on-campus, with aspirations of housing 50% by 2020. Metering is extremely scarce on the campus given the financial structure for utilities, further complicating any analysis of usage patterns and cost benefits for efficiency projects.

One unusual aspect of UCR's water is that it is extremely inexpensive, due in part to the fact that the campus received a large water grant with the land grant for the University. Over time, UCR has acquired rights to more water from gifts and bequests. UCR receives a credit for its surplus water not used for irrigation of the agricultural research lands on the West campus to the city. The processed potable water returned to the campus is used for 100% of the water needs on the East Campus. Two projects, one recently completed, and one currently underway, will reduce our consumption by 3%, or about 31% of the per capita reduction needed for meeting the 2020 goal.

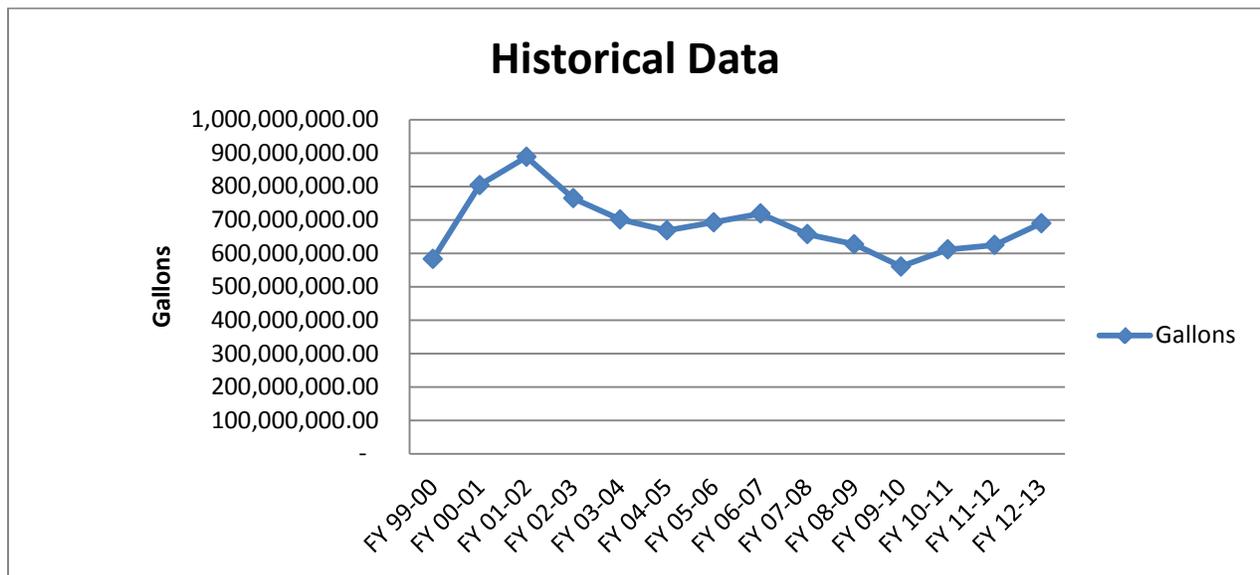
Water Use	Gallons Annual	Per capita Gallons	Per OGSF50 Gallons
FY 2012-2013	690,230,464	34,085.35	98.21
FY 2011-2012	624,769,244	30,675.04	91.35
Baseline (FY07-09) AVG	667,892,691	38,193.35	103.33
Goal	534,314,152.80	30,554.68	82.67
Input FY 2012-2013	Reduction from FY 2012-2013		Goal FY 2019-2020
34,085.35 gallons per capita	10%		23,380.47 gallons per capita
98.21 gallons per OGSF50	16%		67.54 gallons per OGSF50

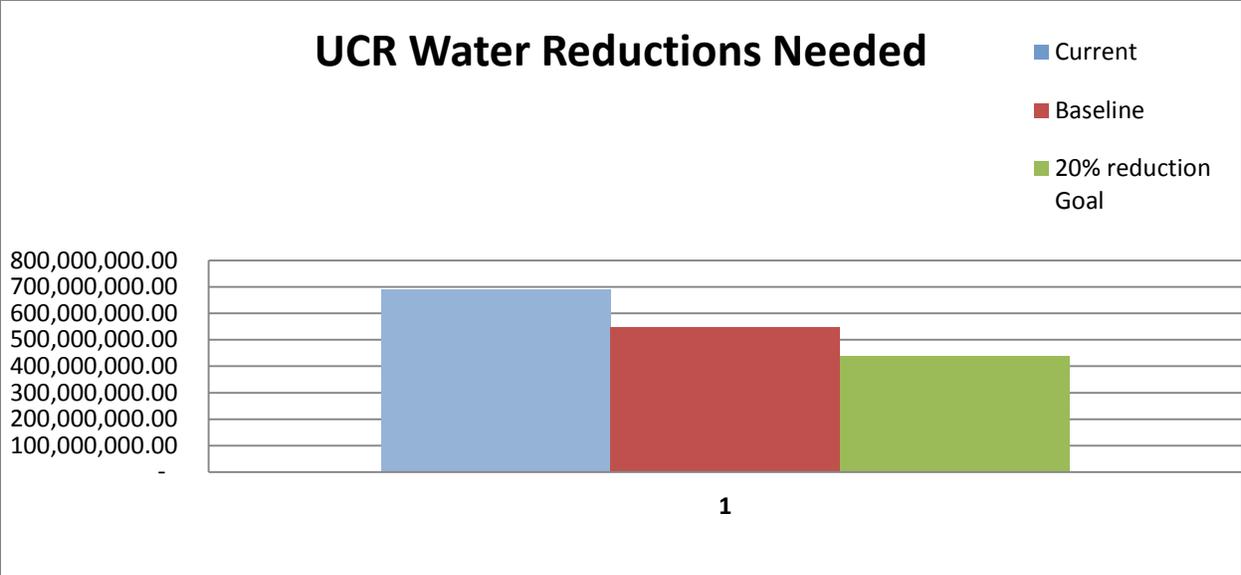
Water usage per capita increased from FY2010/11 to FY2012/13 by 14%, but is an 11% decrease per capita from the Baseline. We have no explanation for this increase.

Water usage per OGSF50 increased from FY2010/11 to FY2012/13 by 10%, but is a 5% decrease from the Baseline. We have no explanation for this increase.

Action Steps from 2014 to 2020	Funding Sources	Savings
Conduct Flow tests on selection of building types to create cost-benefit analysis for fixture replacement	Office of Sustainability; GCAP	
Define metering needs	Physical Plant, HDRS, Grants	
Install meters and sensors for	Physical Plant, HDRS, TAPS,	

irrigation	Grants	
Convert UCR Botanical Gardens from potable city water to non-potable Gage Canal water.	Physical Plant	22 million gallons annually of potable water saved
Find and fix chiller/cooling tower leaks	Physical Plant	Estimated 5,000,000 gallons saved annually
Replace toilet fixtures with most efficient available	Water District/RPU rebate program; campus funds	120 gallons per toilet replaced
Require WaterSense products be used for all retrofits	Cost to be borne by purchasing unit	
Require New Construction projects to achieve 40% Water Use reduction	Project client; rebates when applicable	
Require all New Construction projects to landscape with native or water tolerant plantings or xeriscaping	Project client; rebates when applicable	
Replace 25% of turf grass on campus to alternative species or xeriscaping	Rebates from RPU; GCAP; Private Funding	57 million gallons saved





The most cost effective approach to meeting UC Policy will be to make most of our reductions by transforming campus vegetation rather than major retrofits in buildings. RPU has plans to pipe recycled water throughout the City of Riverside, but it is expected to be 15 years or more before the recycled water would reach the campus. Conservation will be the next valuable and cost effective strategy. To keep the trend moving down aggressive water reductions must be built into the new building projects and planned retrofits.