



THE CITY OF SAN DIEGO

MEMORANDUM

DATE: April 13, 2011

TO: Natural Resources and Culture Committee – Agenda of April 20, 2011

FROM: Roger S. Bailey, Director of Public Utilities

SUBJECT: Water Budget Based Billing

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On September 8, 2010, Mayor Jerry Sanders and Council Member Donna Frye issued a joint memorandum announcing City staff efforts researching commodity based pricing to incentivize water conservation without inadvertently penalizing customers who have already been using water efficiently. The use of water budgets, which are determined based upon a property's water usage characteristics, is an alternative to flat rate and tiered billing methods. Water budgets estimate how much water is needed at a property based upon site demographics, and usage is billed based on the customer's ability to stay within a base budget, with higher water rates applying when the budget is exceeded. The joint memorandum asserted the commitment made by the Mayor's Office to pursue this methodology as a viable alternative for all customer classes.

At the March 23, 2011, Natural Resources and Culture Committee meeting, Committee members expressed an interest in reviewing the results of a pilot study conducted in 2009 on water budgets. That information is provided in this memorandum.

#### BACKGROUND

Water budget based billing methodologies establish a base water budget per customer. In the case of residential customers, the water budget is based on the number of people in the household, the size of landscaped area, local weather factors, the amount of water the existing landscaping needs, as well as any drought factors in place. The customer is billed based on their ability to meet the base water budget. Lower water rates are applied to usage within budget, encouraging usage to remain within the base budget. Higher water rates are imposed on usage over budget.

Water budgets are designed to price the commodity at a reasonable rate for customers based on the projected usage requirements to sustain household and landscaping needs. Budgets reward customers who use water efficiently and discourage usage in excess of the base water budget. Water budgets also take into account the customers with larger lots or large households who can become water efficient and can stay within their budgets.

## PILOT STUDY

In 2009, City staff initiated a pilot study to determine if existing data sources within the City that, when combined with an assumption on the number of persons per household, could potentially be used to calculate water budgets for 900 single-family residential customers. Specifically, City staff used existing data on parcel size and percentage of landscaped area per parcel, water usage data per parcel, and applicable EvapoTranspiration (ET) factors.

The assumptions used in the pilot model include: 1) an average of 4 persons per household; 2) a 90% drought factor (10% conservation target); 3) an average of 60 gallons per capita per day (gpcd) indoor consumption; and 3) 80% of ET which is how much water plants need, based on the approved landscape standards from California Assembly Bill AB 1881 and the City's Landscape Ordinance. These default values can be modified to reflect current conditions in place or scenarios that need to be explored.

**Scope:** Two sites were initially selected for the pilot: Point Loma (using a coastal ET station) and Rancho Bernardo (using an inland ET station). To make the sample size per site similar, some adjacent zip codes were added to the Point Loma site (92037, 92106). Staff used Geographic Information System (GIS) based software to survey 300 properties per site with various parcel sizes (e.g. less than  $\frac{1}{4}$  acre,  $\frac{1}{4}$  to  $\frac{1}{2}$  acre,  $\frac{1}{2}$  to  $\frac{3}{4}$  acre, etc.), to establish what percentage of each is landscaped. (As the size of the parcel grew, so did the landscaped area.) An average of these values were used for a third site (zip code 92114, representing by a central ET station), which was later added to the study for contrast (less landscape areas.) These assumptions on landscape percentages will be subject to validation by future research efforts.

**Results:** Information from the various data sources was used to create a model to reasonably predict water budgets for each of the single family residential (SFR) properties at the three test sites. It compared the calculated water budgets with the properties' previous year's usage to show how many customers were within budget if this methodology were in place currently. Attachment A shows how many accounts (and corresponding usage) fall under each tier. It also gives more detail on usage in excess of budgets, by zip code and parcel size. Thus, under a water budget approach, these customers would have paid a higher water rate for this "excess" usage and these customers would then be approached by the City's outreach efforts to help them reduce their usage. As expected, the 92114 site (which has less landscaped areas compared to the other two sites) had the least reported usage in excess of water budget.

## NEXT STEPS

With the encouraging results from the pilot study, the next step in determining the feasibility of instituting water budget based billing City-wide is to validate the study results and conclusions, and to expand the initial research effort to determine its applicability to the City's entire customer base. This next step will also seek to determine the hurdles, if any, that need to be overcome in order to establish a water budget billing program in San Diego. The Public Utilities Department is currently working with the Purchasing and Contracting Department to hire a

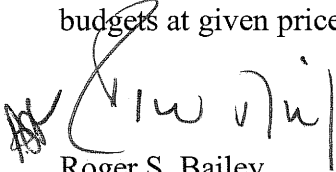
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consultant with experience developing and implementing water budget based billing methodologies.

Additionally, the Public Utilities Department will analyze rate structure alternatives that would capitalize on the use of water budgets in achieving water savings. This includes addressing revenue estimates based on projections regarding the degree to which customers adhere to water budgets at given price points.



Roger S. Bailey

Director of Public Utilities

Attachment

cc: J. Brent Eidson, Office of Mayor Jerry Sanders  
Alex Ruiz, Assistant Public Utilities Director  
Marsi A. Steirer, Deputy Director, Long Range Planning and Water Resources  
Mike Vogl, Deputy Director, Customer Support  
Luis Generoso, Water Resources Manager

## Attachment A

<b>Variables:</b>	
<b>Indoor Allocation</b>	
People per HH	4
Gallons/capita/day	60
Drought Factor	100%

<b>Outdoor Allocation</b>	
Drought Factor	100%
ET Adjustment	80%
Landscape % Cap	60%
ET Station 153 for RB	
ET Station 173 for PL	
ET Station 150 for Central	

