



AGENDA

Water Shortage Task Force

Bryan Bondy, Task Force Member
Ted Cook, Task Force Member
Rob Corley, Task Force Member
Diane de Mailly, Task Force Member
Douglas Hahn, Task Force Member
Don Jensen, Task Force Member
Edward McCombs, Task Force Member

Suzanne McCombs, Task Force Member
Robert McCord, Task Force Member
Marty Melvin, Task Force Member
Don Mills, Task Force Member
Ed Summers, Task Force Member
Diane Underhill, Task Force Member

TASK FORCE MEETING

WEDNESDAY, AUGUST 13, 2014, 6:00 P.M.

VENTURA CITY HALL, COMMUNITY MEETING ROOM # 202

501 POLI STREET, VENTURA

ROLL CALL

TASK FORCE ITEMS

1. INTRODUCTION & HOUSEKEEPING ITEMS

Staff: Shana Epstein, Ventura Water General Manager, Brief Introduction and Responsibilities of the Task Force

Recommendation: Receive report.

2. BROWN ACT COMPLIANCE

Staff: Juli Scott, Interim City Attorney, Discussion of the Brown Act and the Responsibilities of the Task Force

Recommendation: Receive report

3. TASK FORCE CHAIR AND VICE CHAIR SELECTION

Recommendation: Appoint a Chair and Vice Chair to the Water Shortage Task Force.

4. APPROVAL OF RULES AND PROCEDURES

Recommendation: Approve rules and procedures.

5. RESIDENTIAL WATER CONSUMPTION IN LOS ANGELES: WHAT ARE THE DRIVERS AND ARE CONSERVATION MEASURES WORKING

Staff: Stephanie Pincetl, Celine Kuklowsky, and Kristen Holdsworth; UCLA

Recommendation: Receive report and presentation.

6. STATE ADOPTED EMERGENCY WATER CONSERVATION REGULATIONS

Staff: Shana Epstein, Ventura Water General Manager

Recommendation: Receive report.

7. VENTURA WATER SHORTAGE CONTINGENCY PLAN – 2010 URBAN WATER MANAGEMENT PLAN

Staff: Shana Epstein, Ventura Water General Manager

Recommendation: Receive report.

8. SET LOCATION FOR AUGUST 27, 2014 MEETING AND FUTURE SCHEDULE

Staff: Shana Epstein, Ventura Water General Manager

9. PUBLIC COMMENT – *(For items not listed on this agenda, but within the jurisdiction of the Task Force. Note that no general discussion of such items, or action on such items, may be taken by the Task Force. At this time, the Task Force will provide an opportunity for the public to address them on any subject, which is not scheduled on this Agenda but is within the jurisdiction of the Task Force. Comments are limited to three (3) minutes.)*

10. ADJOURNMENT

Minutes relating to this agenda are available in the Ventura Water Office, 336 Sanjon Road, Ventura, during normal business hours as well as on the City's Web Site – www.venturawater.net. Materials related to an agenda item submitted to the Ventura Water Department after distribution of the agenda packet are available for public review at the Ventura Water Office.

This agenda was posted on Friday, August 8, 2014 at 3:00 p.m. in the Ventura Water Office, City Clerk's Office, on the City Hall Public Notices Board, and on the Internet.

In compliance with the Americans with Disabilities Act, if you need assistance to participate in this meeting, please contact the Ventura Water Office at (805) 652-4503 or the California Relay Service at (866) 735-2929. Notification by Monday, August 11, 2014, at 5:00 p.m. will enable the City to make reasonable arrangements for accessibility to this meeting.

Agenda Item Number 1
Introduction & Housekeeping Items
August 13, 2014

Brief Introduction and Responsibilities of the Task Force
presented by Shana Epstein,
Ventura Water General Manager

No Written Report for this Item

Agenda Item Number 2
Brown Act Compliance
August 13, 2014

Discussion of the Brown Act and the Responsibilities of
the Task Force
Presented by Juli Scott,
Interim City Attorney

Brown Act Summary

Overview of the Brown Act

Introduction

The Brown Act (which is found at Government Code Section 54950 *et seq.*) seeks to ensure that the deliberations and actions of local government entities are taken openly in a public meeting where all persons are permitted to attend.

The Brown Act was originally enacted in 1953.

Basic Rule and Purpose

1. Legislative Declaration

“In enacting this chapter, the Legislature finds and declares that the public commissions, boards and councils and the other public agencies in this State exist to aid in the conduct of the people’s business. *“It is the intent of the law that their actions be taken openly and that their deliberations be conducted openly.”*

2. Basic Rule

“All meetings of the legislative body of a local agency shall be open and public, and all persons shall be permitted to attend any meeting of the legislative body”.

3. Key Components of the Brown Act

Compliance with the Brown Act involves an understanding or the meaning and application of the following key terms:

- Legislative Body
- Meetings
- Open and Public
- All Persons Permitted to Attend

Agenda Item Number 3
Task Force Chair and
Vice Chair Selection
August 13, 2014

Appoint a Chair and Vice Chair
To the Water Shortage Task Force

No Written Report for this Item

Agenda Item Number 4
Approval of Rules and Procedures
August 13, 2014

Water Shortage Task Force Rules and Procedures

Meeting Location, Time and Dates

The Water Shortage Task Force meetings will be held at the Ventura Water maintenance yard facility assembly room located at 336 Sanjon Road, Ventura commencing at 6:00p.m. on August 27, 2014 and on dates as the Task Force may request, public notice shall be given as appropriate.

If by reason, the Chair may elect to meet at another location within the City and shall give public notice of the change in location.

If a scheduled meeting is canceled, public notice shall be given.

Action Agenda

The action agenda must be posted at least 72 hours in advance of a regular meeting and 24 hours before a special meeting (in accordance with the Ralph M. Brown Act).

The Task Force may not take action on any item that did not appear on the posted Task Force agenda 72 hours prior to the Task Force meeting or 24 hours before a special Task Force meeting.

Order of Business

The business of the Task Force at its meetings will generally be conducted in accordance with the following order of business unless otherwise specified.

ROLL CALL

AGENDA ITEMS

PUBLIC COMMUNICATIONS

ADJOURNMENT (Standard adjournment: The Task Force established 9:00p.m. as the hour of adjournment and not continue beyond 9:00p.m. without a majority vote of the Task Force).

Speaker Cards

Persons wishing to address the Task Force on an agenda item are requested to fill out a speaker card and submit it to the Recording Secretary.

When called upon, speaker is asked to please state their name and address for the record, and if speaking for an organization or other group, to identify the organization or group represented.

The Chair has been delegated the responsibility to control the debate and the order of speakers. Speakers will generally be called upon in the order in which the speaker card is received.

A single communication comment on any agenda item may be no longer than 5 minutes with a cumulative total of 5 minutes for all agenda items per person.

Comment Cards

Members of the public, who do not orally address the Task Force during a meeting, may complete a comment card and submit it to the Recording Secretary.

During the public testimony of the item, the Chair will indicate that the Task Force has received comment cards from (name of person) in support of the issue and comment cards from (name of person) in opposition of the issue.

Action Minutes

Action minutes will be kept of all Task Force meetings that are open to the public. Action minutes will include the final motions with votes.

The minutes will also reflect the names of public speakers and receipt of comment cards in opposition and support of an item.

Task Force and staff discussion and comments will not normally be included in the minutes. If a Task Force member or staff desires for a comment to be included in the minutes, it is his or her responsibility to indicate that the statement is **“for the record”** before making the comment.

Such minutes will be taken by the recording secretary and will generally be submitted to the Task Force within two weeks for approval, and will be made available to the general public for review.

Agenda Item Number 5
Residential Water Consumption in
Los Angeles: What are the Drivers and
are Conservation Measures Working
August 13, 2014

Presented by Stephanie Pincetl, Celine Kuklowsky, and
Kristen Holdsworth; UCLA

Residential Water Consumption in Los Angeles: What are the Drivers and are Conservation Measures Working?

A policy summary based on the Ph.D. dissertation of Caroline Mini at UCLA
Supervised by Terri Hogue and Stephanie Pincetl

Funding was provided by the National Science Foundation
ULTRA-Ex Program
(PI: Stephanie Pincetl; co-PI Terri Hogue)

This brief was written by Céline Kuklowsky

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Stephanie Pincetl at UCLA: spincetl@ioes.ucla.edu

or

Terri S. Hogue at The Colorado School of Mines: thogue@mines.edu

Citation: Mini, Caroline, 2013: Residential water use and landscape vegetation dynamics in Los Angeles, Ph.D. Dissertation, University of California, Los Angeles, CA 90095

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Figure 2. Ten-year average (2000-2010) of the MODIS cumulative Enhanced Vegetation Index (EVI) per census tract over the study area (left figure) and average landscaping irrigation rate (in mm/year) for the FY2001-FY2007 period from single-family customers at the Census tract level (right figure).

Figure 3. Coastal, Valley and Downtown neighborhoods identified by SFR water use and income. SFR water use is 10-fiscal year average annual single-family water use (m^3 /customer/year) and income is median household income in 1999-dollars (1999). Study areas are abbreviated as noted in Figure 1.

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EXECUTIVE SUMMARY

In January 2014, Governor Brown declared a drought state of emergency following the driest year in California history and record low river and reservoir levels. This crisis may be an indication of a shift in climate that will make precipitation more uncertain and bring warmer temperatures to Southern California. This issue is compounded by additional water stress caused by increased urban water demand in a region structured by a complex and fragmented water management system dependent on imported water. These interconnected problems necessitate sound water management and efficient water use practices both in the short- and long-term.

In Los Angeles, the LADWP has already begun such practices. Conservation policies over the past decade have led the city to becoming the most water efficient of U.S. cities over 1 million people (LADWP 2011). As the LADWP pursues further strategies to reduce residential water use, this analysis can help the utility better understand water use and consumption patterns at a neighborhood scale, enabling it to better calibrate its policies to its users.

This report presents three years of National Science Foundation funded research to understand water use patterns and factors that drive residential water consumption across the City of Los Angeles over a 10-year period (fiscal years 2001-2010). We examine the influence of socio-economic, climate, vegetation greenness and pricing variables on Single-Family Residential (SFR) water consumption over ten years of monthly residential water use data provided by the LADWP. This is the first study of its kind to study water consumption in relation to various socio-economic characteristics and at the census tract level in Los Angeles. Our findings, based on developed statistical models, demonstrate that Single-Family Residential water use in the City of Los Angeles is primarily driven by household **income**, landscape **greenness**, **water rates** and **water volume allocation** [11]. Additionally, there is a **distinct clustering of water use patterns across the city**, with higher consumption rates in the northern, warmer and more affluent parts, and lower consumption rates in the less affluent neighborhoods near Downtown.

We also consider the links between outdoor irrigation, landscape greenness and various socio-economic variables in order to uncover some of the underlying drivers of Single Family Residential outdoor water consumption. We find that **SFR outdoor use varies greatly across the city**, and that **income is one of its primary drivers** [11,12].

Furthermore, we undertake an analysis of the effectiveness of LADWP's water restriction programs implemented between 2007 and 2009. These measures consisted in both voluntary and mandatory measures, which decreased the water allotment for the Tier 1 block, increased Tier 2 rates and limited outdoor irrigation practices.

Our results indicate that **mandatory restrictions are most effective at reducing water consumption for SFR households**. The greatest impact of measures resulted from the combination of mandatory watering restrictions and the price increase, which led to a **water reduction of 23% in July/August 2009, while voluntary restrictions led to only a 6% reduction in water use** [13].

In order to illustrate our findings across the cityscape, we conduct a neighborhood-by-neighborhood analysis of thirteen areas representative of Los Angeles' diverse socio-economic and micro-climactic characteristics. This analysis colors the differential water consumption patterns across the city and depicts various housing, land use, household and population characteristics of each area for the reader.

Finally, we provide a few policy recommendations at the end of this report, which we hope can serve as a starting point for reflection on future water saving measures for the LADWP. Among our **key recommendations**, we encourage the utility to **examine a restructuring of the two-tier system, establish water budgets, separate indoor use from outdoor use by installing dual meters and continue to support efficient landscaping practices.**

Our analysis provides additional understanding of spatial and temporal water use patterns and of the key factors that drive both indoor and outdoor water consumption across the city. A brief summary of the methods used for all of our findings is located in the appendix at the end.

We are grateful to the LADWP for the data they have generously provided the California Center for Sustainable Communities that have made this study possible. This report is based on the findings presented in Dr. Caroline Mini's PhD thesis submitted in December of 2013 at UCLA and a set of related journal papers that are published or in review.

I) Drivers of SFR water use

Just as the size and make-up of Single-Family Residential households vary greatly across the city of Los Angeles, so do their water consumption levels and patterns. In order to understand these differences, we undertook a socio-economic analysis at a highly disaggregated scale, both to illustrate these differential patterns and to understand what drives them. In our study, we examine SFR water consumption and its relation to the following variables: income, climate, vegetation greenness and water pricing. This analysis was conducted across the entire city of Los Angeles at the census tract level and is based on ten years of monthly residential water use data (detailed study in Mini et al., 2014a [11]).

Our results suggest that Single-Family Residential water use across the City of Los Angeles is primarily driven by 1) household **income** 2) landscape **greenness** (proxied by cumulative Enhanced Vegetation Index (EVI)), 3) **water rates** and household **water volume allocations**. Each of these findings is explained in greater depth in their own section below.

Additionally, average Single-Family water consumption at the census tract level differs significantly across the city, ranging from a ten year average (2001-2010) of 307 m³/SFR/yr to 827 m³/SFR/yr. Furthermore, these consumption patterns can roughly be divided into **three geographical clusters**: the **northern warmer area (San Fernando Valley)**, the **older, denser Downtown area** and the **coastal zone**. In general, **higher water use occurs across the warmer northern parts of the City and in the coastal area, while lower water use occurs in the downtown region**.

While our analysis was conducted at the census tract level, we also examine how these findings translate across thirteen representative L.A. neighborhoods to provide a more descriptive analysis of these findings. (See the Neighborhood-by-Neighborhood analysis in the Appendix).

1) Income

Income is one of the primary forces driving Single-Family Residential water use in the city of Los Angeles. LADWP monthly residential water use data reveals that **on average, wealthier neighborhoods consume three times more water than less affluent ones**. This translates at the census tract level to SFR water consumption rates ranging from 37.4 HCF/SFR customer/year in the Downtown area to 1,214 HCF/SFR customer/year in the area adjacent to the Santa Monica mountains (see Figure 1). This disparity reflects different land uses, built densities, climates and the vast differences in wealth that make-up a city where the top 5% earns over twelve times more than the bottom 20%.

At the neighborhood scale, Pacific Palisades had both the highest median income (\$148,984 in 2012), and the highest ten-year average SFR water use of 827 m³/SFR cust./yr. In contrast, lower-income areas, such as Downtown (\$13,504 median income) and Florence (\$29,174) consumed on average 369 m³/SFR cust./yr and 385 m³/SFR cust./yr respectively.

There exists a distinct **clustering in water use and income** across the city, with high water users located in the census tracts near the Santa Monica Mountains and in the warmer northern sections of the City, while low water users are situated north of the Downtown area, as well as in the less affluent areas of Florence and Leimert Park (Figure 1). At the neighborhood level, the coastal areas of Playa Vista and Venice reveal themselves to be exceptions to this rule, with higher median incomes and lower water use levels. This can be explained in part by the housing and land use characteristics of these neighborhoods: Playa Vista is a newly developed area, built with higher densities, and with landscaping and irrigation needs met entirely by reclaimed water. Venice, which has a median household income of \$76,578 and the lowest water use of the thirteen studied neighborhoods—307 m³/SFR cust/yr—is a denser neighborhood in the coastal climate zone, with smaller lot sizes and a lower average household size than other neighborhoods.

Previous studies have demonstrated that residential water use is greatly influenced by the **size of lots, gardens, and buildings, as well as building age**: denser urban neighborhoods typically consume less water than areas with larger lots and irrigated gardens. These building and housing characteristics can be traced across the clusters shown in the map above: wealthier neighborhoods in the north and along the coast are comprised of single detached homes, with larger lot sizes and outdoor landscaping, while low water use clusters inland and in the south contain older buildings, higher densities, smaller lots and less outdoor areas.

Overall, we find that lower income neighborhoods consume relatively less water than their more affluent counterparts. However, we also note that **a \$1,000 increase in median household income would increase Single-Family water use by about 2%**, indicating that income plays a determining role on water consumption levels of all consumer groups.

With income and water use so tightly bound together, further incentive must be given to higher water users—and thus higher-income customers—to conserve more. Targeting higher user groups more directly will enable greater water savings and allows for a more equitable distribution of costs across user groups. The policy recommendations section at the end of this report outlines several ways forward for achieving these goals.

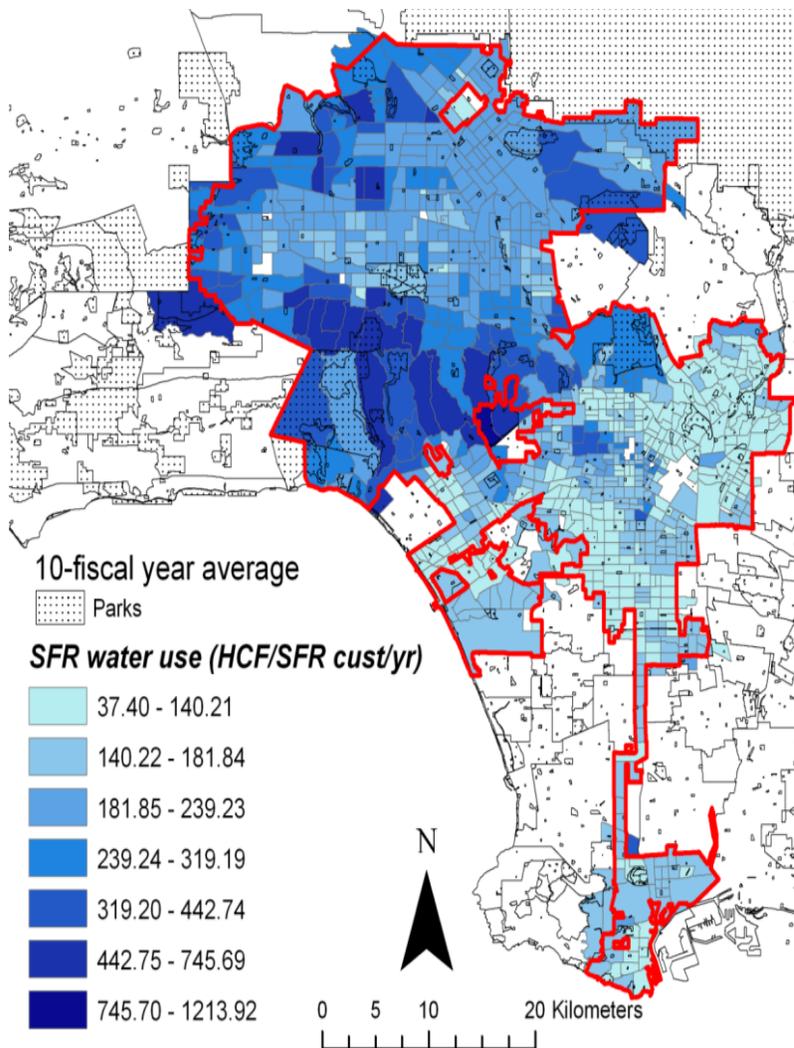


Figure 1. Ten-year average single-family (SFR) water use per census tract (1000L/SFR customer/year) across Los Angeles. The selected study neighborhoods are also outlined (black lines) with abbreviations, including Florence (FL), Koreatown (KR), Leimert Park (LM.P), Mid Wilshire (MD.W), Silver Lake (SL.L), Playa Vista (PL.V), Pacific Palisades (PC.P), Venice (VN), Pacoima (PC), Reseda (RS), Sherman Oaks (SH.O), Downtown (DW) and North Hollywood (NR.H).

2) Landscape greenness and outdoor water use

Another important driver of Single Family Residential water use in Los Angeles is **landscape greenness**—or the existence of vegetation—calculated in our analysis by cumulative Enhanced Vegetation Index. According to our findings, this **greenness is primarily driven by outdoor water use**, as precipitation accounts for only a small portion of variation in greenness patterns ($R^2=0.018$). Our results indicate that on average, **outdoor water use accounts for 54% of overall SFR water consumption**,

within LADWP's estimated range of 40-60%. It should be noted that, as we do not have separate outdoor billing data, we developed a model to calculate SFR outdoor use, applying Normalized Difference Vegetation Index (NDVI) values to the census tract level. The developed model (details in Mini et al., 2014b [12]) is an effective tool for measuring outdoor water use, and thus, for facilitating outdoor water conservation measures targeted at higher outdoor users.

Both **greenness and outdoor water use vary across the city as well as across climates, seasons and regions**, as demonstrated in the maps below (Figure 2). These variations are spatially clustered with the lowest EVI values (indicating less vegetation) situated in the Downtown areas ranging from 0.05 to 0.15, and the highest EVI values of around 0.4 in Pacific Palisades obtained in the spring and summer periods. Similarly, **outdoor irrigation use is greater in the warmer parts of the city, and lower in the denser parts**. (Note: the maps in Figure 2 have overlapping but not identical time scales—outdoor irrigation patterns demonstrated in the map on the right were calculated before the 2007-2009 water restriction programs were implemented.)

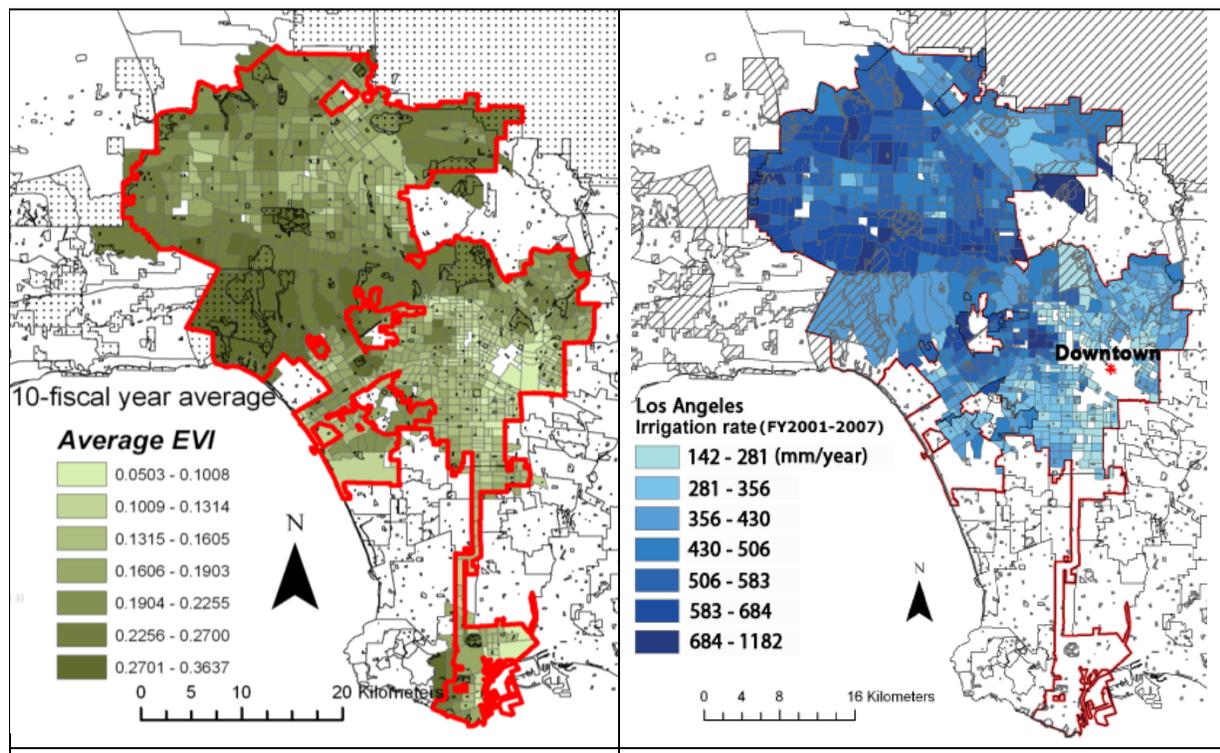


Figure 2. Ten-year average (2000-2010) of the MODIS cumulative Enhanced Vegetation Index (EVI) per census tract over the study area (left figure) and average landscaping irrigation rate (in mm/year) for the FY2001-FY2007 period from single-family customers at the Census tract level (right figure).

These spatially clustered patterns of vegetation greenness and outdoor water use might be explained by differing climate zones, as well as amounts and types of trees and grass cover in residential landscapes across the census tracts.

They may also be explained by socio economic factors: our analysis proves that **income is strongly correlated with landscaping irrigation volumes across the city** (correlation of 0.71 significant at $p < 0.05$), **as well as with landscape greenness** (correlation of 0.58 significant at $p < 0.05$). As such, **higher incomes, higher outdoor water use and greener landscapes are closely related**. This pertains to lot size and other housing and land use characteristics as described in the previous section.

Outdoor water use patterns may also be linked to various other socio-economic drivers, such as origin, age, and occupation status. According to our findings, people of Hispanic or Latino origin have lower landscape irrigation levels. This may be due to different landscape types or water use habits. Conversely, households with higher amounts of residents aged 60 years and over, irrigate more, as do owner-occupied housing units, which have higher outdoor water rates than renter-occupied housing units.

These findings are by no means exhaustive, but they help underline the complex relationship of outdoor water consumption patterns across the city of LA and highlight the need for outdoor water use data in order to pursue this kind of analysis further.

3) Tier water rates and allotment

The price and household allotment of water also influence Single-Family Residential water consumption patterns. In 1993, the LADWP revised its rate structure to two tiers, in order to better reflect differing lot sizes and microclimates across the city. Residential water prices were set at a lower rate based on a lower water allotment (Tier 1) and a second higher rate (Tier 2) for every additional billing unit (1 HCF). Allotments were set by zip code, lot size, season and temperature zone, with additional water volume allocated to larger households in Tier 1 (Table 1).

Zip code	Temperature zone	<7500 ft ²	7500-10999 ft ²	11000-17499 ft ²	17500-43559 ft ²	43560 ft ²
		Season Low/High	Season Low/High	Season Low/High	Season Low/High	Season Low/High
90266-90277	Low	26/32	32/46	48/72	56/90	72/110
90001-90044	Medium	28/36	234/52	50/80	58/102	76/124
91040-91367	High	28/38	34/54	50/84	58/106	76/130

Table 1 Tier 1 water allocation: Bimonthly quantity of water in HCF (1 HCF=748 gal) allocated by lot size and temperature zone (and billed under the first tier (High season: June 1-Oct. 31, Low season: Nov. 1-May 31, Normal year water rates) Additional water demand above this quantity is

billed under Tier 2 rate

In our analysis, we examine how changes in the price of water and household volume allocation impact the water consumption of low, medium and high income groups (divided into quartiles) as well as low, medium and high water users across all census tracts. In such a way, we are able to separate out whether these changes have a greater influence on consumers based on their income or water use levels. Overall, we observe that **when water prices increase, water consumption for all households decreases, regardless of income, neighborhood or water use level.** Additionally, **when household water volume is increased, SFR water consumption rises as well.**

Price

Single-Family Residential households, across all income and water use groups (low, medium, high), respond more to increases in Tier 1 rates than in Tier 2 rates. If Tier 1 rates were to increase by 10%, water demand would decrease by 2% for Tier 1 and by 0.7% for Tier 2. **Higher water users and higher income groups are particularly sensitive to changes in Tier 1,** indicating that Tier 2 prices are not triggering their intended savings. This may be explained by the fact that both lower income and lower user groups have a less great margin to reduce their water use, as they dispose of a relatively higher indoor use and a reduced outdoor use overall.

An increase to the Tier 2 rate has less of an effect on the behavior of low, medium and high water users, as they all change their use by a similar amount. However, **lower income customers are more sensitive to changes in the Tier 2 price** (price elasticity of -0.10) **than higher income customers** (-0.027). As such, the current structure is not effectively targeting those who consume more and can afford to reduce their water intake, while lower income groups are being disproportionately affected. Tier 2 must then be restructured to shift the price burden away from low-income groups and more adequately target high user groups.

Water Volume Allocation

An increase in the household volume allocation of 10 HCF per single-family customer in Tier 1—equivalent to a 30% average increase over selected census tracts—would result in an increase in Single-Family water consumption of around 9%. In this regard, low-water users are more affected by an increase in water volume allocation than high water users. With regards to income, water consumption would increase at a similar rate for both high- and low-income customers should the allotment be increased, signifying water use level is more greatly related to allocation than income.

As low water users are most sensitive to increases in volume allocation, household allotment thresholds may need to be revised in order to generate greater savings from medium and higher water use groups. Overall, we find the current prices and household allocations are not sufficiently targeting high water users. The two-tier system may need to be adjusted and perhaps even replaced to induce higher water savings.

II) Effectiveness of the 2007-2009 water restrictions

The LADWP has a proven record in reducing water consumption levels via effective restriction programs. Following a decades' worth of rebates and conservation programs, the 2001-2005 average total water demand was 3.4% lower than the 1986-1990 water demand level, in spite of a 9% population increase. Between 2007 and 2009, the LADWP reintroduced water conservation efforts in response to a renewed drought. These consisted in: voluntary reduction measures in June 2007; mandatory water restrictions in August 2008, prohibiting water waste and limiting irrigation practices; and more stringent mandatory restrictions in June 2009, which further restricted landscaping and other irrigation practices, reduced Tier 1 water allocation by 15% and increased Tier 2 rates in order to trigger higher reductions (Table 2).

Water conservation measures implemented between June 2007 and June 2009 in response to water shortage conditions		
June 2007 Voluntary conservation	August 2008 Mandatory restrictions (Phase I)	June 2009 Increased mandatory restrictions and price conservation incentive (Phase III+Price)
<ul style="list-style-type: none"> • Voluntary conservation measures called by the Mayor 	<ul style="list-style-type: none"> • No irrigation between 9am and 4pm • Limitation in frequency and duration of landscape irrigation depending on the irrigation technique (for spray head, bubblers, standard rotors and multi-stream rotary heads) • Limitation of water waste practices (no washing vehicles with a hose, no use of a water hose to wash paved surfaces, no irrigation during rain, no watering with excess water flow) 	<p>All previous prohibited uses +</p> <ul style="list-style-type: none"> • Two-day watering allowed per week only • No washing of vehicles in streets • No filling of residential pools and spas with potable water • Increased reductions in watering times and frequency for all types of irrigation nozzles • Implementation of water shortage year rate: Decrease in single-family household water allocation by 15% Increase in second Tier rate by 44% for single-family customers

Table 2: LADWP restriction programs (2007-2009)

We studied the impact of these various programs on Single-Family Residential water use, both on indoor and outdoor use, to evaluate the effectiveness of these measures and assess the change in consumption by temperature zone, income range and lot size category at the same regional spatial scale (details in Mini et al. 2014c [13]).

Additionally, we developed a linear regression model that we believe can serve as a useful evaluation tool for the LADWP. (For more detail on the model, see the Methods Appendix at the end).

Our results indicate that **mandatory restrictions are more effective at reducing water consumption for SFR households than voluntary measures**. Furthermore, **mandatory savings have the highest impact on higher income users**. At the neighborhood level, annual single-family water use decreased by about 17% in Pacific Palisades and 11% for Florence between 2008 and 2010 relative to water use levels in 2008. Additionally, while water use decreased only slightly for medium and high use neighborhoods, the **more stringent mandatory restrictions implemented in June 2009, significantly impacted consumption in all neighborhoods**. Even the lower landscape and less affluent neighborhoods (Leimert Park, Downtown, Florence, etc.) consumed less water following these measures.

Additionally, **higher reductions were achieved in hotter temperature zones**. Low water users were found to be more sensitive to water price increases than other users, signifying **low-water users save more than high water users when water rates increase**. Similarly, **lower income groups responded more to the voluntary and mandatory reduction policies of 2007 and 2008 compared to the higher income groups** (from 12% to -4% respectively), meaning **less affluent consumers conserved more than higher income groups**. These are particularly noteworthy findings as higher income users and warmer parts of the city tend, overall, to have higher water use levels, as demonstrated in the previous section. This points to a potential margin for reducing consumption particularly at the higher income and higher use levels.

Overall, **voluntary restrictions did not lead to a significant reduction in water use**. This finding is echoed by previous studies that debate the benefits of such restrictions.

According to our analysis, **the greatest impact of measures resulted from the combination of mandatory watering restrictions and the price increase**. This led to **the highest water reduction of 23% in July/August 2009**. This suggests the potential for long-term and durable reductions, particularly in outdoor use, should these measures be sustained over time.

Restrictions and outdoor water use

In order to isolate the effects of these restrictions on outdoor irrigation practices in particular, we created a separate model holding water consumption for purposes other than landscaping irrigation constant. In this scenario, **stringent mandatory restrictions of June 2009 yield a larger decrease in outdoor irrigation** (around 35% relative to the 2001-2007 period) than the voluntary restrictions, which leads to an expected decrease of 6%. Considering landscaping irrigation use represents on average 54% of total Single-Family water use, this represents a dramatic reduction in use, and demonstrates the effectiveness of mandatory water restrictions—which includes the 2-day/week irrigation limit, the water rate increase and decrease in water allotment—in reducing landscape irrigation.

These findings are particularly important considering that despite these restrictions, **Los Angeles generally maintained the same level of greenness, with EVI values**

remaining stable. This suggests that **vegetation may be over-watered and that there is still room for outdoor water conservation.**

The LADWP's restriction programs implemented between 2007 and 2009 were successful in reducing SFR water consumption levels. Taking into consideration how these programs affected user groups differently will allow for even greater savings in the future.

III) Policy recommendations

As our analysis demonstrates, on several different counts—be it with regards to the current tier rate and allotment system, the levels, patterns and drivers of consumption— it becomes evident that more can be done to incentivize higher water users to conserve more.

Revising the two-tier system

At present, Single-Family Residential consumers are more sensitive overall to changes in Tier 1 water prices—and particularly higher water user and higher income census groups. This implies that increasing the Tier 1 rate may be an effective measure to achieve greater water conservation in Los Angeles. Tier 2 rates on the other hand, impact low-income customers more than other groups and at their current levels, are not sufficiently compelling higher users to lower their consumption. It therefore seems necessary to reevaluate the Tier 2 rate, with careful attention being paid to equity concerns so as not to penalize low-income groups. We believe the LADWP should examine the costs and benefits of moving beyond its current two-tier system, in order to develop a rate system that better reflects actual consumption levels, and ties prices to the vastly differential consumption rates across the city.

We understand however, that restructuring the current rate system is no small feat, particularly when considering the utility's important operating and maintenance costs. However, these suggestions may serve as a basis for thinking through a more targeted, effective and equitable rate structure for the LADWP, in order to generate even more conservation. There are multiple ways to calculate rates. We outline only a few suggestions here to provide some initial ideas.

A first approach could be to create an **increasing block rate structure**, in which the unit price for water increases with the volume consumed. The city of St George, Utah for example has an incremental pricing structure with nine different unit rates ranging from \$0.78 for lower end consumers, to \$1.66 for higher end users. This kind of rate structure can be combined with other measures, such as in Salt Lake City, where a seasonal rate structure is combined with increasing block rates with 4 tiers (Table 3). These incremental rates apply during the summer months, intended to curb consumption during the higher demand months.

Municipality [Water provider]	Rate structure type	Fixed Monthly Service Charge	Consumption rate
St. George [City of St. George Water Dept.]	Increasing block rate	Ranges from \$22.47 to \$845.61 depending on meter size	\$0.78 – from 5,000 to 10,000 gal. \$0.90 – from 10,000 to 15,000 gal. \$1.00 – from 15,000 to 20,000 gal. \$1.11 – from 20,000 to 25,000 gal. \$1.22 – from 25,000 to 30,000 gal. \$1.33 – from 30,000 to 35,000 gal. \$1.44 – from 35,000 to 40,000 gal. \$1.55 – from 40,000 to 45,000 gal. \$1.66 – over 45,000 gal.
Salt Lake City [Salt Lake City Public Utilities]	Seasonal and increasing block rate	Ranges from \$9.14 to \$101.36 depending on meter size	Nov. - March: \$1.01 April - Oct.: \$ 1.01 – 1-10 HCF \$ 1.55 – 11-30 HCF \$ 2.14 – 31-70 HCR \$ 2.25 – 70 HCF and above

Table 3: Water Rates for Residential Accounts in St George and Salt Lake City, Utah (2014). Adapted from Western Resource Advocates 2005

Water budgets

Another approach worth considering could be to **establish reasonable water budgets** for households, above which use water is priced very high, similar to those implemented in several water districts in Orange County. The Moulton Niguel Water District for instance, has instituted both indoor and outdoor water budgets for its customers, where those who consume above their allocated budget see an increase in their water bills. The indoor budget is calculated by number of people per household, based on each person consuming 65 gallons of water per day, and number of days per billing cycle. Outdoor budgets take into consideration the size of the outdoor irrigable landscape, daily evapotranspiration rates and the “plant factor” – which allocates more or less water depending on the type of plant. This kind of system takes into account the variations that exist across household water uses, levels and patterns and could greatly benefit lower use and lower income groups in Los Angeles.

Decreasing the SFR household water volume

Decreasing the threshold of water allocated to SFR households may be another effective tool to reduce water consumption according to our findings. However, as we have demonstrated, lower water users would be more impacted than higher water users by such a measure. As lower water use customers have less of a margin to reduce consumption and indoor use is likely a larger portion of their water budget, such a measure would need more thorough examination in order to not penalize low water users disproportionately. An important step forward in this regard would be to **disentangle water volume allocation from lot size**, as giving greater water allotments to consumers with larger lot sizes does not incentivize higher users to conserve more.

Separating indoor from outdoor use

The next phase of restriction programs should target outdoor irrigation, considering the greatest savings can be made in this area (35%), it represents a high percentage of total Single-Family water use (54%) and greenness levels are not affected greatly by reductions in irrigation. We believe dual-metering systems should be installed to set outdoor water allocations and monitor their levels for greater reductions. Separating outdoor from indoor water use is critical to further improve landscape water budgets and models. This would give households and utilities alike a greater understanding of the amount of water used for outdoor vs. indoor purposes and enable greater savings both in terms of money and water.

It would also provide an opportunity to introduce a new threshold in water pricing and/or water allotments specifically targeting customers with higher landscaping irrigation. As previous studies have demonstrated, outdoor water use is more discretionary and more price elastic than indoor use—meaning, consumers would decrease their outdoor use more if outdoor water prices were to increase. Billing outdoor use separately from indoor use could be an effective way to target higher users who have larger irrigable landscapes and are less impacted by the current rate structure.

Landscaping options

Finally, as irrigation acts as the primary driver of landscape greenness, continued programs, incentives and education on landscaping options and more efficient irrigation systems by the LADWP is necessary. DeOreo et al. give important insights on the levels of efficiency of water uses – for example: households that use hand held hoses use 33% less water than other households, whereas households that use an automatic timer to control their irrigation systems use 47% more water outdoors than those that do not. This seems counter intuitive, yet illustrates the need to better understand outdoor water use in order to accurately define outdoor use reduction measures.

IV) Summary remarks

These findings improve our understanding of residential water use patterns, drivers and demand across the city of Los Angeles. By examining socioeconomic factors coupled with greening impacts of drought restrictions, this analysis can help the LADWP more finely calibrate its measures to its different customers, while addressing important equity concerns. Furthermore, our research contributes to measuring and evaluating outdoor water use as well as underlying outdoor use as the primary target for future conservation strategies. The findings show that water restrictions do not impact the current greenness of the city, and point to much greater potential of water conservation with landscape change over time.

In the face of continued water stress, it is equally important the LADWP examine additional ways forward—beyond conservation programs—to tackle California’s water crisis. Factoring the State’s future water scarcity into the cost of water itself may be something the utility should consider. Popular education remains another fundamental piece, ensuring Angelenos are educated in water conservation and waste. Larger

questions about residents' relationship to water must also be asked: how can we bring about a wider cultural shift so that water may be seen as a common property resource necessary to conserve for the benefit of all? What kinds of programs or incentives can bring about this kind of change? Ensuring a stable water future for our city also means adopting long-term sustainable practices, regardless of periods of drought and water stress, or not.

We hope these findings can help inform future conservation policies, and that our methods may be applied to the rest of the region in order to help assist in greater conservation efforts beyond the LADWP's remit.

APPENDIX 1: Neighborhood-by-Neighborhood Analysis

In order to present a more descriptive analysis of the complex landscape of residential water consumption patterns in Los Angeles, we selected thirteen neighborhoods representative of the city's socio-economic and climactic diversity. These neighborhoods were chosen based on their variability in population, median household income, average household size, education level and microclimate criteria and generally represent the socio-economic diversity and climate variability across the City [see reference #11]. Census tracts within each neighborhood boundary were identified and median single-family water use and average EVI were estimated for each unit.

We subsequently traced clusters of neighborhoods that share similar water use patterns, socio-economic, housing characteristics and geographies. Four distinct clusters emerge from these thirteen selected neighborhoods: the Downtown neighborhoods, the Valley neighborhoods, the dense coastal neighborhoods and the coastal neighborhoods.

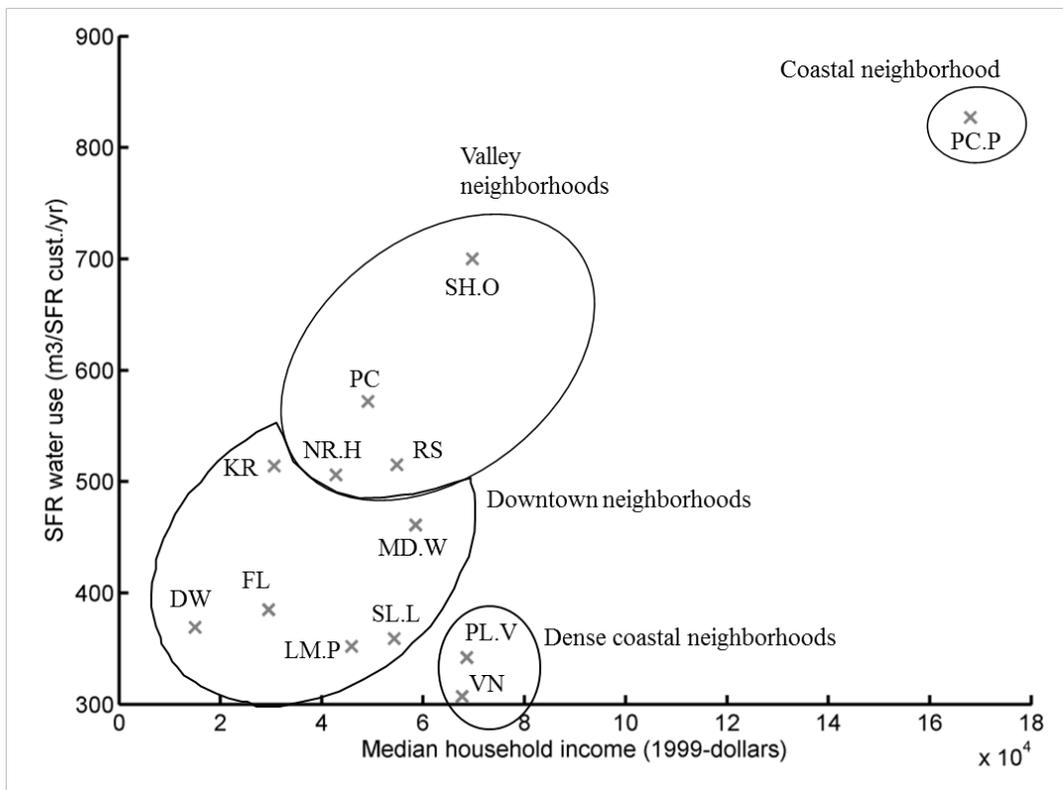


FIGURE 3. Coastal, Valley and Downtown neighborhoods identified by SFR water use and income. SFR water use is 10-fiscal year average annual single-family water use (m³/customer/year) and income is median household income in 1999-dollars (1999). Study areas are abbreviated as noted in Figure 1.

Downtown neighborhoods

Situated in and around Downtown Los Angeles, this cluster is comprised of Florence, Koreatown, Leimert Park, Mid-Wilshire, Downtown and Silverlake and is largely representative of the lower income and denser parts of the city. These areas are more concentrated, with average household sizes ranging from 2 to 4 persons per household,

and higher numbers of Hispanic or Latino residents. Income levels are among the poorest in the city, with per capita incomes ranging from around \$10,000 to \$38,000 (in 2012). Unemployment rates are higher here than elsewhere with (between 7-10%) and there are very high incidences of poverty, with percentages of people whose incomes fell below the poverty level in the past year up to 41% in Downtown.

Single family residential water use in these neighborhoods is typically lower than in other areas, with a ten-year average ranging from 352 to 514 m³/SFR cust./yr. Downtown neighborhoods also have less irrigated residential green space and are typically situated in the medium temperature zone.

Coastal neighborhoods

We distinguish between two kinds of coastal neighborhoods in Los Angeles: the **dense neighborhoods** of Playa Vista and Venice, and the **coastal neighborhood** of Pacific Palisades, as despite similar geographic and climactic characteristics, they have distinct socio-economic and water use patterns. Overall however, **the coastal and dense coastal neighborhoods** generally have higher education levels associated with higher median income levels—\$80,000 in 2012 for the dense coastal, and \$150,000 for Pacific Palisades. These neighborhoods have a higher percentage of White residents than other neighborhoods (90% in Pacific Palisades; 77% in Venice), and a lower average household size, between 2-2.5 persons per household.

As mentioned in section 1, Playa Vista and Venice are notable for having higher income levels and lower water use averages, with Venice having the lowest average ten-year water use of the thirteen neighborhoods, at 307 m³/SFR cust./yr. This can be explained by their denser make-up, Playa Vista's compact and green buildings, Venice's very low average household size. They also have smaller lot sizes and in Playa Vista's case, all green space is currently irrigated with recycled water. Pacific Palisades, on the other hand, is the most affluent of the thirteen neighborhoods with the highest ten-year average water use of 827 m³/SFR cust./yr.

Valley neighborhoods

Finally, the **Valley neighborhoods** are comprised of Reseda, Pacoima and North Hollywood, which have warmer climates and similar median household incomes—around \$50,000, as compared to Sherman Oaks which has a higher median income level (~\$73,000). The average household size of these neighborhoods varies from 2 to 4.6 persons per household, with Sherman Oaks having a larger proportion of White residents, and Reseda, Pacoima and North Hollywood more Hispanic or Latino residents.

These neighborhoods are known for having more single detached residential homes, larger lots and more irrigated space, than their denser counterparts. As a result they have higher average water uses, ranging from 506 m³/SFR cust./yr in North Hollywood to the second highest of the studied neighborhoods, 700 m³/SFR cust./yr in Sherman Oaks.

Cluster	Neighborhood	Zip code	Temperature zone	Population 2010 (thousands)	10 year average single-family water use (m ³ /SFR cust./yr)	Average household size 2010	Median household income (2012)	Income per capita (2012)	Unemployment (%) (2012)	Percentage of people whose income in the past 12 months is below the poverty level (2012)	No of people with HS degree or less (2012)	Percentage of white people 2010 (%)	Percentage of Hispanic or Latino origin (of any race) 2010	% of residents foreign born (2012)
Downtown neighborhoods	Downtown (DW)	90021	MED	4	369	1.6	13,504	19,953	10.2	41.3	13.5	41	41.3	41.8
	Leimert Park (LMP)	90008	MED	32.3	352	2.3	39,661	24,031	8	25.3	3.1	8.5	23.4	10.7
	Florence (FL)	90003	MED	66.3	385	4.2	29,174	10,041	8.3	38.9	23.3	30	74.5	39.4
	Koreatown (KR)	90005	MED	37.7	514	2.5	32,086	18,688	8	26.6	43.9	29.1	52	68.7
	Mid-Wilshire (MD.W)	90019	MED	64.5	461	2.7	41,257	24,419	7.3	23.5	8.5	30	46.1	33.9
	Silverlake (SL.L)	90039	MED	28.5	359	2.5	64,073	37,851	7.1	14	8.9	56.5	40.9	41.1
Dense coastal	Venice (VN)	90291	LOW	28.3	307	1.95	76,578	59,527	7.5	12.3	7.2	77	20	22.3
	Playa Vista (PL.V)	90045	LOW	39.5	342	2.4	79,913	42,564	5.5	11.7	0.8	61.1	18.2	31.1

coastal	Pacific Palisades (PC.P)	90272	LOW	23	827	2.5	148,984	102,773	5.9	4.5	1.5	90	4.5	15.5
Valley neighborhoods	North Hollywood (NR.H)	91601	MED	37.2	506	2.3	48,889	28,308	9.6	17.5	27.6	59.2	43.8	46.4
	Reseda (RS)	91335	HIGH	74.4	515	3.2	53,107	21,110	6.8	14.7	21.1	53.8	50.6	43.1
	Pacoima (PC)	91331	HIGH	103.7	572	4.6	50,794	14,312	8.3	27.6	31.7	44.4	87.8	47.1
	Sherman Oaks (SH.O)	91423	MED	31	700	2.1	73,030	53,815	8.1	9	10.8	80	12	26.2

Table 4: Study neighborhoods with key characteristics (U.S. Census 2010, American Community Survey 2012)

APPENDIX 2: Methods

For each of our research questions, we developed a series of unique models, all of which are based on ten years of monthly residential water billing data (2000-2010) generously provided by the LADWP. In all cases, records were aggregated to the census tract level to protect customer privacy.

In order to study Single-Family Residential water use patterns and drivers across the city, we developed a statistical model using socio-economic, vegetation greenness, grass cover, climate, and water pricing data. Statistically significant results are at the 95% confidence level ($p < 0.05$). For a more in-depth explanation of our model and results, please refer to Mini et al. 2014(a) [11].

We employed three methods to calculate SFR outdoor water use at the census tract: two of the methods developed by the Pacific Institute and a third approach that utilizes remotely sensed vegetation and water billing data. These are described at length in Mini et al. 2014(b) [12].

Finally, to understand the effectiveness of the 2007-2009 restriction programs, we developed a linear regression model integrating monthly single-family customer water use records at the Public Use Microdata Area level from 2000 to 2007 as well as unemployment and climate information during a period without restrictions. Unemployment data was selected to represent economic recession conditions between 2007 and 2009. The predictions from the developed model were then compared to actual consumption data to evaluate the impact of water restrictions during the 2008-2010 period. For more on this model, please refer to Mini et al. 2014(c) [13].

We believe each of these models can be adopted by both the LADWP and other utilities more widely, as they have proven to be more accurate and effective than existing models.

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Agenda Item Number 6
State Adopted Emergency
Water Conservation Regulations
August 13, 2014

Mandatory Water Conservation Regulation Go Into Effect

An [emergency regulation](#) to increase conservation practices for all Californians became effective July 29, 2014. The new conservation regulation targets outdoor urban water use. In some areas of the State, 50 percent or more of daily water use is for lawns and outdoor landscaping. This regulation establishes the minimum level of activity that residents, businesses and water suppliers must meet as the drought deepens and will be in effect for 270 days unless extended or repealed.

Prohibitions for ALL urban water users in California:

- The application of potable water to any driveway or sidewalk.
- Using potable water to water outdoor landscapes in a manner that causes runoff to adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots or structures.
- Using a hose that dispenses potable water to wash a motor vehicle, unless the hose is fitted with a shut-off nozzle.
- Using potable water in a fountain or decorative water feature, unless the water is recirculated. Recycled water is not mandated, but encouraged for fountain use.

Requirements for Urban Water Suppliers (serving >3000 connections):

- Implement water shortage contingency plans to a level where restrictions on outdoor irrigation are mandatory.
- Urban water suppliers without a plan, or without an adequate plan, must either mandate that outdoor irrigation be reduced to no more than twice a week or implement other mandatory use restrictions that provide a comparable level of savings.
- Report monthly water production beginning August 15. Include an estimate of the gallons per capita per day used by residential customers beginning with the October 15 report.

Requirements for Other Water Suppliers (serving <3000 connections):

- Mandate that outdoor irrigation be reduced to no more than twice a week or implement other mandatory use restrictions that provide a comparable level of savings.

Assessing Compliance

- Individual Prohibitions – evaluating alleged violations and taking enforcement action is primarily a local discretionary action.
- Water Suppliers – compliance will be evaluated based on multiple factors including implementation of the required actions, the content of the monthly reports (Urban Water Suppliers), and other relevant information.

Tips for Implementing the New Regulations

- Notify and educate staff, ratepayers and the community at large about the prohibitions.
- Inform ratepayers of the requirements of the stage of the Water Shortage Contingency Plan required by the regulations.
- Access the water conservation resources clearinghouse, a partnership of the State of California and the Association of California Water Agencies at either <http://www.saveourh2o.org/> or <http://saveourwater.com/>

Contact Information

- Report State Agency water waste at <http://www.saveourh2o.org/report-water-waste>
- Contact the State Water Board's drought hotline for questions on drought-related activities including general questions on the emergency regulations: (916) 341-5342.

More information on the emergency regulation can be found at the [Conservation Regulation Portal](#).

(This fact sheet was last updated July 29, 2014)



Fact Sheet

The State Water Resources Control Board Adopts Emergency Water Conservation Regulations

On July 15, the State Water Resources Control Board (State Water Board) approved an [emergency regulation](#) to ensure water agencies, their customers and state residents increase water conservation or face possible fines or legal action.

The new conservation regulation is intended to reduce outdoor urban water use. The regulation, adopted by the State Water Board, mandates minimum actions to conserve water supplies. Most Californians use more water outdoors than indoors. In some areas, 50 percent or more of daily water use is for lawns and outdoor landscaping.

Many communities and water suppliers have taken bold steps over the years and in this year to reduce water use; however, many have not and much more can and should be done to extend diminishing water supplies.

With this regulation, all Californians will be required to stop using potable water to: wash down sidewalks and driveways; water outdoor landscapes in a manner that causes excess runoff; wash a motor vehicle with a hose, unless the hose is fitted with a shut-off nozzle; and operate a fountain or decorative water feature, unless the water is part of a recirculating system. The regulation makes an exception for circumstances where the action is necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a state or federal agency.

Larger water suppliers will be required to activate their Water Shortage Contingency Plan to a level where outdoor irrigation restrictions are mandatory. In communities where no water shortage contingency plan exists, the regulation requires that water suppliers either limit outdoor irrigation to twice a week or implement other mandatory conservation measures that achieve comparable conservation. Finally, large water suppliers must report water production on a monthly basis to track progress.

Local agencies can fine those who violate the individual prohibitions up to \$500 a day. The State Water Board can issue cease and desist orders against water agencies that don't impose mandatory conservation measures upon their retail customers. Water agencies that violate cease and desist orders are subject to civil liability of up to \$10,000 a day.



Conservation Actions Needed

Because most Californians use more water outdoors than indoors, reducing the amount of water used outdoors can make the biggest difference in water savings.

These emergency conservation measures target both individual water use, by identifying the practices from which every Californian should abstain during this drought emergency, as well as the steps that local water suppliers should be taking to reduce water demand in their service areas. These restrictions set a minimum level of effort in this time of emergency. Everyone should do more voluntarily. As the drought wears on, the State Water Board may revisit these regulations and consider other measures.

Temporary Water Restrictions

All Californians will be affected by the ongoing drought conditions in one form or another, especially if these conditions persist or worsen in 2015. To promote water conservation statewide, the emergency regulations prohibit each of the following, except where necessary to address an immediate health or safety need or to comply with a term or condition in a permit issued by a state or federal agency:

- The application of potable water to any driveway or sidewalk.
- Using potable water to water outdoor landscapes in a manner that causes runoff to adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots or structures.
- Using a hose that dispenses potable water to wash a motor vehicle, unless the hose is fitted with a shut-off nozzle.
- Using potable water in a fountain or decorative water feature, unless the water is recirculated. Recycled water is not mandated, but encouraged for fountain use.

Violations of prohibited activities are considered infractions and are punishable by fines of up to \$500 for each day in which the violation occurs. Any peace officer or employee of a public agency charged with enforcing laws and authorized to do so by ordinance may issue a citation to the violator.

Action by Urban Water Suppliers Required

To promote conservation, the regulations require urban water suppliers to implement their Water Shortage Contingency Plans at a level that triggers mandatory restrictions on outdoor water use. Almost all urban water suppliers (those with more than 3,000 water connections or that supply more than 3,000 acre-feet of water annually) have these plans; about 40 of the larger agencies do not.

If an urban water supplier does not have a Water Shortage Contingency Plan or its Plan does not meet the requirements of the Water Code, the supplier must, within 30 days, require customers to limit outdoor irrigation to no more than two days per week or implement another mandatory

conservation measure to achieve a comparable reduction in water consumption by the people it serves relative to the amount consumed in 2013.

Water suppliers serving 3,000 or fewer connections or that supply 3,000 or fewer acre-feet annually must also, within 30 days, require customers to limit outdoor irrigation to no more than two days per week or implement another mandatory conservation measure to achieve a comparable reduction in water consumption by the people it serves relative to the amount consumed in 2013.

Urban water suppliers that do not take these mandatory actions could be subject to cease and desist orders for violating emergency regulations, violation of which triggers civil liability of up to \$10,000 per day per violation. The State Water Board may also direct the Attorney General to seek an injunction against violators.

Keeping Track of Urban Water Use

Each urban water supplier must report the amount of water it produces in the preceding calendar month and compare that to the amount it produced in the same calendar month in 2013. These reports must be submitted to the State Water Board by the 15th of each month. Effective October 15th, these reports must also include an estimate of gallons of water per person per day used by its residential customers.

Looking Forward

The State Water Board is providing the following tips to water suppliers to educate their customers about the new requirements:

- Retail water suppliers should provide notice of the regulations in English and Spanish in one or more of the following ways: newspaper advertisements, bill inserts, website homepage, social media, notices in public libraries;
- Wholesale suppliers should include reference to the regulations in all of their customer communications;
- All water suppliers should provide signage where recycled or reclaimed water is being used for activities that the emergency regulations prohibit with the use of potable water, such as operation of fountains and other water features;
- All water suppliers should train personnel on the regulations; and
- All water suppliers should set conservation targets, measure their service area's progress and make this information available to their customers.

In addition to letting customers know about the new requirements, water suppliers should also:

- Have an easy way for customers to report leaks and water waste via phone or electronic submittal (website form, or email); and
- Request that police and fire departments and other local government personnel report leaks and water waste they encounter during their routine duties/patrols.

If drought conditions continue, additional actions by the State Water Board and local water suppliers might be needed to further increase conservation. All water suppliers are encouraged to be prepared and plan for a possible dry 2015 now.

Background:

On January 17 Governor Edmund G. Brown Jr. issued a drought emergency proclamation following three dry or critically dry years in California. [Extreme drought now covers nearly 80 percent of the state](#) and these conditions will likely continue into the foreseeable future.

More than 400,000 acres of farmland are expected to be fallowed, thousands of people may be out of work, communities risk running out of drinking water and fish and wildlife species are in jeopardy. Many communities are down to 50 gallons a day or less per person for basic sanitation needs. With our inability to predict the effect of the next rainy season, water saved today can improve a region's water security and add flexibility to systems that may need to withstand another year or more with precipitation below average.

There are many ways to boost local water supplies such as recycling treated wastewater and reusing some household or industrial water onsite. However, conservation is the easiest, most efficient and most cost effective way to quickly reduce water demand and extend supplies into the next year, providing flexibility for all California communities. The results of a survey conducted by the State Water Board in June show that while many communities have significantly reduced their water demand over time, it is clear that more can be done.

More information on the adopted emergency regulations can be found [here](#). The adopted regulations are expected to go into effect by August 1, 2014, and be in effect for 270 days, unless further action is taken by the State Water Board.

(This fact sheet was last updated July 22, 2014)

Water Conservation Emergency Regulations Frequently Asked Questions

INDIVIDUAL PROHIBITIONS

P.1. Who do the prohibitions apply to?

A. The prohibitions apply to all Californians. The prohibitions against runoff in outdoor landscapes, washing vehicles with a running hose (no shut off), hosing down sidewalks and driveways, and running fountains that do not recirculate water are a minimum level of effort that every resident of the State is responsible for.

P.2. Is there an exemption to the prohibitions to protect public health and safety?

A. Yes, the regulations state that the prohibitions apply “except where necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a State or federal agency.”

P.3. Are locals prevented from enacting or enforcing water prohibitions that are more stringent than the regulations?

A. No, the regulations represent a minimum level of effort and everyone is encouraged to do more.

P.4. What is meant by “sidewalk” in the prohibition section of the regulations?

A. A sidewalk is commonly considered to be a walkway designated for pedestrian travel.

WATER SUPPLIER ACTIONS

S.1. What would be a sufficient “comparable” level of conservation under the regulations?

A. The regulations anticipate that the outdoor irrigation restrictions can result in up to a 20% reduction in outdoor water use. The expectation is that the imposition of conservation measures, other than the 2-day per week default provision should achieve a similar or better level of savings.

S.2. Do the regulations apply to wholesale water suppliers?

A. No, the regulations do not apply to wholesale water suppliers. If a supplier provides both retail and wholesale services, the regulations would apply to the retail component of the service.

S.3. Do the regulations override local conservation programs?

A. The regulations do not override local conservation programs, but they may cause a water supplier to increase the level of effort to achieve water savings. The regulations specifically require water suppliers to implement their water shortage contingency plans to a level that imposes mandatory outdoor irrigation restrictions. Many communities are currently calling for voluntary restrictions. The regulations would increase this level of effort.

Water Conservation Emergency Regulations

Frequently Asked Questions

S.4. If a water supplier has implemented a drought contingency plan that restricts outdoor irrigation to 3 days per week, are they in compliance with the regulations?

A. Yes, the regulations require water suppliers to implement the stage of their water shortage contingency plans where outdoor irrigation restrictions are mandatory. The regulations recognize that everyone's plans are different, reflecting unique local conditions and do not specify what the specific restrictions must be as long as they are mandatory.

S.5 Do the regulations apply to Investor Owned Utilities that are regulated by California Public Utilities Commission?

A. Yes, the regulations apply to Investor Owned Utilities in the same manner that they apply to public water agencies. Implementing certain aspects of the regulations will require approval from the California Public Utilities Commission (CPUC), but that approval will come in the form of letters from CPUC staff, which will be issued on a ministerial basis. As indicated above, the prohibitions apply to all Californians regardless of their source of water (recycled water excepted).

ENFORCEMENT

E.1. Can both law enforcement and water agencies issue citations for an offence under the regulations?

A. The infraction citation may be issued by a peace officer or any employee of a local agency that is charged with enforcing statutes, regulations, and ordinances pertaining to water use, if the local agency has adopted an ordinance empowering them to do so. This means that the precise individuals within an agency authorized to issue the infractions would vary depending upon what, if any, relevant ordinance the agency has adopted.

E.2. Who will be held responsible for non-compliance with the prohibitions in rental units?

A. Just as with a traffic ticket, it is the person that is actually engaging in the prohibited activity.

GENERAL

G.1. How do the newly adopted regulations affect tribal lands?

A. These regulations follow existing precedent on tribal/state relations. They do not apply to federally or tribally-owned water suppliers or users on tribal trust lands of federally recognized tribes. To the extent some tribal lands may be serviced by non-tribal public water suppliers, the suppliers must comply with the regulations.

**STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2014-0038**

**TO ADOPT AN EMERGENCY REGULATION
FOR STATEWIDE URBAN WATER CONSERVATION**

WHEREAS:

1. On April 25, 2014, Governor Edmund G. Brown Jr. issued an [executive order](#) to strengthen the state's ability to manage water and habitat effectively in drought conditions and called on all Californians to redouble their efforts to conserve water. The executive order finds that the continuous severe drought conditions present urgent challenges across the state including water shortages in communities and for agricultural production, increased wildfires, degraded habitat for fish and wildlife, threat of saltwater contamination, and additional water scarcity if drought conditions continue into 2015. The [National Integrated Drought Information System](#) reported that nearly 80% of the state was reported to be under "extreme" drought conditions at the end of June;
2. The executive order refers to the [Governor's Proclamation No. 1-17-2014](#), issued on January 17, 2014, declaring a State of Emergency to exist in California due to severe drought conditions. The January Proclamation notes that the state is experiencing record dry conditions, with 2014 projected to become the driest year on record. Since January, state water officials indicate that reservoirs, rainfall totals and the snowpack remain critically low. This follows two other dry or below average years, leaving reservoir storage at alarmingly low levels. The January Proclamation highlights the State's dry conditions, lack of precipitation and the resulting effects on drinking water supplies, the cultivation of crops, and the survival of animals and plants that rely on California's rivers and streams. The January Proclamation also calls on all Californians to reduce their water usage by 20 percent;
3. There is no guarantee that winter precipitation will alleviate the drought conditions that the executive orders address, which will lead to even more severe impacts across the state if the drought wears on;
4. Water Code section 1058.5 grants the State Water Board the authority to adopt emergency regulations in certain drought years in order to: "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversions when water is not available under the diverter's priority of right, or in furtherance of any of the foregoing, to require reporting of diversion or use or the preparation of monitoring reports";
5. Over 400,000 acres of farmland are expected to be fallowed, thousands of people may be out of work, communities risk running out of drinking water, and fish and wildlife will suffer.

6. Many Californians have taken bold steps over the years and in this year to reduce water use; nevertheless, the dire nature of the current drought requires additional conservation actions from residents and businesses. Some severely affected communities have implemented water rationing, limiting water use in some cases to only 50 gallons per person per day, foregoing showers, laundry, toilet flushing, and all outdoor watering.
7. Water conservation is the easiest, most efficient and most cost effective way to quickly reduce water demand and extend supplies into the next year, providing flexibility for all California communities. Water saved this summer is water available next year, giving water suppliers the flexibility to manage their systems efficiently. The more water that is conserved now, the less likely it is that a community will experience such dire circumstances that water rationing is required ;
8. Most Californians use more water outdoors than indoors. In many areas, 50 percent or more of daily water use is for lawns and outdoor landscaping. Outdoor water use is generally discretionary, and many irrigated landscapes would not suffer greatly from receiving a decreased amount of water;
9. Public information and awareness is critical to achieving conservation goals and the Save Our Water campaign, run jointly by the Department of Water Resources (DWR) and the Association of California Water Agencies, is an excellent resource for conservation information and messaging that is integral to effective drought response (<http://saveourwater.com>).
10. Enforcement against water waste is a key tool in conservation programs. When conservation becomes a social norm in a community, the need for enforcement is reduced or eliminated;
11. The emergency regulations set a minimum standard requiring only modest lifestyle changes across the state. Many communities are already doing more and have been for years. They should be commended, but can and should do more. Others are not yet doing so and should at least do this, but should do much more given the severity of the drought;
12. On July 8, 2014, the State Water Board issued public notice that the State Water Board would consider the adoption of the regulation at the Board's regularly-scheduled July 15, 2014 public meeting, in accordance with applicable State laws and regulations. The State Water Board also distributed for public review and comment a Finding of Emergency that complies with State laws and regulations;
13. On April 25, 2014, the Governor suspended the California Environmental Quality Act's application to the State Water Board's adoption of emergency regulations pursuant to Water Code section 1058.5 to prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water, to promote water recycling or water conservation;
14. As discussed above, the State Water Board is adopting the emergency regulation because of emergency drought conditions, the need for prompt action, and current limitations in the existing enforcement process;

15. Disadvantaged communities may require assistance in increasing water conservation and state agencies should look for opportunities to provide assistance in promoting water conservation;
16. Nothing in the regulations or in the enforcement provisions of the regulations, preclude a local agency from exercising its authority to adopt more stringent conservation measures. Moreover, the Water Code does not impose a mandatory penalty for violations of the regulations adopted by this resolution and local agencies retain their enforcement discretion in enforcing the regulations, to the extent authorized, and may develop their own progressive enforcement practices to encourage conservation.

THEREFORE BE IT RESOLVED THAT:

1. The State Water Board adopts California Code of Regulations, title 23, sections 863, 864, and 865, as appended to this resolution as an emergency regulation;
2. The State Water Board staff will submit the regulation to the Office of Administrative Law (OAL) for final approval;
3. If, during the approval process, State Water Board staff, the State Water Board, or OAL determines that minor corrections to the language of the regulation or supporting documentation are needed for clarity or consistency, the State Water Board Executive Director or designee may make such changes;
4. These regulations shall remain in effect for 270 days after filing with the Secretary of State unless the State Water Board determines that it is no longer necessary due to changed conditions, or unless the State Water Board renews the regulations due to continued drought conditions as described in Water Code section 1058.5;
5. The State Water Board directs staff to provide the Board with monthly updates on the implementation of the emergency regulations and their effect;
6. Directs State Water Board staff to condition funding upon compliance with the emergency regulations, to the extent feasible;
7. Directs State Water Board staff to work with the Department of Water Resources and the Save Our Water campaign to disseminate information regarding the emergency regulations; and
8. Directs State Water Board staff in developing an electronic reporting portal to include data fields so that local agencies may provide monthly reporting data on (i) conservation-related implementation measures or enforcement actions taken by the local agency and (ii) substitution during the drought of potable water with recycled water to extend water supplies.

THEREFORE BE IT FURTHER RESOLVED THAT:

9. The State Water Board commends water suppliers that have increased conservation messaging and adopted innovative strategies to enhance customer awareness of water use, such as applications that let customers compare their water use to water use by others; reduce system losses, such as fixing system leaks which can deplete supplies by 10 percent or more; and establish incentives to reduce demand, such as tiered or drought rate structures. The State Water Board also commends all Californians that have already been working to maximize their conservation efforts, both at home and at work;
10. The State Water Board calls upon water suppliers to take the following actions:

Educate customers and employees

- Retail water suppliers should provide notice of the regulations in English and Spanish in one or more of the following ways: newspaper advertisements, bill inserts, website homepage, social media, notices in public libraries;
- Wholesale suppliers should include reference to the regulations in their customer communications;
- All water suppliers should train personnel on the regulations;
- All water suppliers should provide signage where recycled or reclaimed water is being used for activities that the emergency regulations prohibit with the use of potable water, such as operation of fountains and other water features;
- All water suppliers should redouble their efforts to disseminate information regarding opportunities and incentives to upgrade indoor fixtures and appliances;
- All water suppliers should use education and the tools available through the Save Our Water website (<http://saveourwater.com>); and
- All water suppliers should educate and prepare their boards and councils on the drought response actions contained in the emergency regulations and in this resolution, and to make sure that drought response items are placed on agendas as early as possible;

Increasing local supplies

- All water suppliers should accelerate the completion of projects that will conserve potable water by making use of non-potable supplies, such as recycled water, “greywater,” and stormwater collection projects;
- All water suppliers should improve their leak reporting and response programs and request that police and fire departments and other local government personnel report leaks and water waste that they encounter during their routine duties/patrols;
- Smaller water suppliers – those with fewer than 3,000 service connections – should take proactive steps to secure their communities’ water supplies and educate their customers about water conservation and the status of their supply reserves;
- All water suppliers should conduct water loss audits and make leak detection and repair a top priority for the duration of the drought; and
- All urban water suppliers should evaluate their rate structures and begin to implement needed changes as part of planning for another dry year. Information and assistance on setting and implementing drought rates is available from the Alliance for Water Efficiency. (<http://www.allianceforwaterefficiency.org/>).

11. The State Water Board calls on all Californians to take the following additional actions:
 - Further reduce water demand, whether by using less water in daily routines indoors and out, retrofitting appliances and installing greywater and rainwater catchment systems; and
 - Check residential and business water bills to see if there are high charges that may indicate a leak and to fix the leak, if they are able, or contact their local water utility if they need assistance.

12. The State Water Board encourages its staff, the Department of Water Resources, the Public Utilities Commission, urban water suppliers, and other local agencies to look for opportunities to encourage and promote new technologies that reduce water usage, including through timely access to water usage information and behavioral response.

13. The State Water Board encourages all state and local agencies to look for additional opportunities to minimize potable water use in outdoor spaces.

14. The State Water Board encourages investor-owned utilities to expeditiously submit applications for implementation of the regulations to the California Public Utilities Commission.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on July 15, 2014.

AYE: Chair Felicia Marcus
 Vice Chair Frances Spivy-Weber
 Board Member Steven Moore
 Board Member Dorene D'Adamo

 NAY: None

 ABSENT: Board Member Tam M. Doduc

 ABSTAIN: None



 Jeanine Townsend
 Clerk to the Board

PROPOSED TEXT OF EMERGENCY REGULATIONS

Article 22.5. Drought Emergency Water Conservation

Sec. 863 Findings of Drought Emergency

(a) The State Water Resources Control Board finds as follows:

(1) On January 17, 2014, the Governor issued a proclamation of a state of emergency under the California Emergency Services Act based on drought conditions;

(2) On April 25, 2014, the Governor issued a proclamation of a continued state of emergency under the California Emergency Services Act based on continued drought conditions;

(3) The drought conditions that formed the basis of the Governor's emergency proclamations continue to exist;

(4) The present year is critically dry and has been immediately preceded by two or more consecutive below normal, dry, or critically dry years; and

(5) The drought conditions will likely continue for the foreseeable future and additional action by both the State Water Resources Control Board and local water suppliers will likely be necessary to further promote conservation.

Authority: Wat. Code, § 1058.5.

References: Wat. Code, §§ 102, 104, 105.

Sec. 864 Prohibited Activities in Promotion of Water Conservation

(a) To promote water conservation, each of the following actions is prohibited, except where necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a state or federal agency:

(1) The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;

(2) The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;

(3) The application of potable water to driveways and sidewalks; and

(4) The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system.

(b) The taking of any action prohibited in subdivision (a) of this section, in addition to any other applicable civil or criminal penalties, is an infraction, punishable by a fine of up to five hundred dollars (\$500) for each day in which the violation occurs.

Authority: Wat. Code, § 1058.5.

References: Wat. Code, §§ 102, 104, 105.

PROPOSED TEXT OF EMERGENCY REGULATIONS

Sec. 865 Mandatory Actions by Water Suppliers

(a) The term “urban water supplier,” when used in this section, refers to a supplier that meets the definition set forth in Water Code section 10617, except it does not refer to suppliers when they are functioning solely in a wholesale capacity, but does apply to suppliers when they are functioning in a retail capacity.

(b)(1) To promote water conservation, each urban water supplier shall implement all requirements and actions of the stage of its water shortage contingency plan that imposes mandatory restrictions on outdoor irrigation of ornamental landscapes or turf with potable water.

(2) As an alternative to subdivision (b)(1), an urban water supplier may submit a request to the Executive Director for approval of an alternate plan that includes allocation-based rate structures that satisfies the requirements of chapter 3.4 (commencing with section 370) of division 1 of the Water Code, and the Executive Director may approve such an alternate plan upon determining that the rate structure, in conjunction with other measures, achieves a level of conservation that would be superior to that achieved by implementing limitations on outdoor irrigation of ornamental landscapes or turf with potable water by the persons it serves to no more than two days per week.

(c) To promote water conservation, each urban water supplier that does not have a water shortage contingency plan or has been notified by the Department of Water Resources that its water shortage contingency plan does not meet the requirements of Water Code section 10632 shall, within thirty (30) days, limit outdoor irrigation of ornamental landscapes or turf with potable water by the persons it serves to no more than two days per week or shall implement another mandatory conservation measure or measures intended to achieve a comparable reduction in water consumption by the persons it serves relative to the amount consumed in 2013.

(d) In furtherance of the promotion of water conservation each urban water supplier shall prepare and submit to the State Water Resources Control Board by the 15th of each month a monitoring report on forms provided by the Board. The monitoring report shall include the amount of potable water the urban water supplier produced, including water provided by a wholesaler, in the preceding calendar month and shall compare that amount to the amount produced in the same calendar month in 2013. Beginning October 15, 2014, the monitoring report shall also estimate the gallons of water per person per day used by the residential customers it serves. In its initial monitoring report, each urban water supplier shall state the number of persons it serves.

(e) To promote water conservation, each distributor of a public water supply, as defined in Water Code section 350, that is not an urban water supplier shall, within thirty (30) days, take one or more of the following actions:

(1) Limit outdoor irrigation of ornamental landscapes or turf with potable water by the persons it serves to no more than two days per week; or

(2) Implement another mandatory conservation measure or measures intended to achieve a comparable reduction in water consumption by the persons it serves relative to the amount consumed in 2013.

Authority: Wat. Code, § 1058.5.

References: Wat. Code, §§ 102, 104, 105; 350; 10617; 10632.

San Buenaventura, California, Code of Ordinances >> DIVISION 22 - PUBLIC UTILITIES >> Chapter 22.170
Water Conservation >>

Chapter 22.170 Water Conservation

[Sec. 22.170.010. Water waste prohibited.](#)

Sec. 22.170.010. Water waste prohibited.

- A. *Prohibited uses.* No person shall use or permit the use of water:
1. For the watering of turf, ornamental landscape, open ground crops and trees, including agricultural irrigation, in a manner or to an extent which allows water to run to waste;
 2. Such that the escape of water through leaks, breaks or malfunction within the water user's plumbing or distribution system occurs for any period of time beyond which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 48 hours after the water user discovers such leak, break or malfunction, or receives notice from the city of such condition, whichever occurs first, is a reasonable time within which to correct such condition;
 3. In conjunction with use of a handheld hose to wash automobiles, trucks, trailers, boats, or other types of mobile equipment without the use of a workable positive shutoff nozzle;
 4. For the operation of any ornamental fountain, or similar structures, unless water for such use is recycled for lawful reuse without substantial loss;
 5. For washing of sidewalks, walkways, driveways, parking lots or any other hard-surfaced areas by hose or flooding, except as otherwise necessary to prevent or eliminate conditions dangerous to the public health and safety or for other legitimate necessity;
 6. For serving of water by a restaurant to its customers without first being requested by the customer; or
 7. Knowingly for any indiscriminate running of water or washing with water not otherwise prohibited above which is wasteful and without reasonable purpose.
- B. *Failure to comply.*
1. *Civil penalties.* In addition to any other penalties or sanctions provided by this Code, the following civil penalties shall apply for violation of any of the provisions of this article:
 - (a) For the first violation of any of the provisions of this article a written notice is to be given.
 - (b) For the second violation of any of the provisions of this article a surcharge penalty is hereby imposed in an amount equal to 50 percent of the most recent bimonthly water bill (exclusive of the sewer portion of the bill), or \$25.00, whichever is less, payable as part of the water bill, by the customer at the premises at which the violation occurred.
 - (c) For the third violation of any of the provisions of this article a surcharge penalty is hereby imposed in an amount equal to 25 percent of the most recent bimonthly water bill (exclusive of the sewer portion of the bill), or \$50.00, whichever is greater. This penalty is payable as part of the water bill, by the customer at the premises at which the violation occurred.
 - (d) For a fourth violation of any of the provisions of this article within 12 calendar months, the city will install a flow restricting device of one GPM capacity for services up to 1½ inch size, and comparatively sized restrictors for larger services, on the service of the

customer at the premises at which the violation occurred for a period of not less than 48 hours. The charge for installing such a flow restricting device will be based upon the size of the meter and the actual cost of installation. The charge for removal of the flow restricting device and restoration of normal service shall be based on the actual cost involved. Said charges shall be payable by said customer as part of the water bill. Restoration of normal service will be performed during the hours of 8:00 a.m. to 4:00 p.m. on regular working days. In addition, a surcharge penalty of 50 percent of the most recent water bill shall be imposed for restoration of normal service, payable by said customer as part of the water bill.

- (e) For any subsequent violation after the fourth violation of any of the provisions of this article within 12 calendar months, the city may discontinue water service to the customer at the premises at which the violation occurred.
2. **Notice.** The city will give notice of each violation to the customer at the premises at which the violation occurred, as follows:
- (a) For a first, second or third violation, the city may give written notice of the fact of such violation to the customer personally or by regular mail.
- (b) If the penalty assessed is, or includes the installation of a flow restrictor or the discontinuance of water service to the customer for any period of time whatever, notice of the violation will be given in the following manner:
- (1) By giving written notice thereof to the customer personally; or
- (2) If the customer is absent from or unavailable at either the customer's place of residence or place of business, by leaving a copy with an adult at either place, and sending a copy through the United States mail addressed to the customer at either the customer's place of business or residence; or
- (3) If such place of residence and business cannot be ascertained, or an adult cannot be found on the premises, then by affixing a copy in a conspicuous place on the property where the failure to comply has occurred and also by delivering a copy to a person residing at the premises, if such person can be found, and also by sending a copy through the United States mail addressed to the customer at the customer's billing address and to the place where the property is situated;
- (4) All notices will contain, in addition to the facts of the violation, a statement of the possible penalties for each violation, a statement informing the customer of the customer's right to a hearing on the violation, a brief summary of the appeal process specified herein, and the date and time termination will occur.
3. **Hearing.** Any customer against whom a penalty is to be levied pursuant to this section shall have a right to a hearing, in the first instance by the city water superintendent, with the right of appeal to the city public works director, on the merits of the alleged violation, upon the written request of that customer to the city clerk within 15 days of the date of notification of the violation. Penalties, including termination of water service, will be stayed until any such hearing is conducted and a written decision is made by the city water superintendent or his or her designee.
4. **Appeal of decision of water superintendent.** A request for an appeal must be in writing and filed with the city clerk. The filing by a customer of a request for an appeal for any form of relief must be made within 15 days of the decision of the water superintendent. Filing of such a request will automatically stay the implementation of the proposed course of action, pending the decision of the public works director. No other or further stay will be granted. The appeal hearing will be scheduled to occur within a reasonable, prompt period of time following the written notice of appeal. The water user may present any evidence which would tend to show that the alleged wasteful water use has not occurred. Formal rules of evidence will not apply and all relevant evidence customarily relied upon by reasonable persons in the conduct of

serious business affairs will be admissible, unless a sound objection warrants its exclusion by the city public works director. The decision of the city public works director shall be final.

5. *Reconnection.* Where water service is disconnected, as authorized above, it will be reconnected upon correction of the condition or activity and the payment of the estimated reconnection charge.
 6. *Public health and safety.* Nothing contained in this article shall be construed to require the city to curtail the supply of water to any customer when, in the discretion of the city water superintendent or public works director, such water is required by that customer to maintain an adequate level of public health and safety.
 7. *Reservation of rights.* The rights of the city hereunder shall be cumulative to any other rights of the city to discontinue service. All monies collected by the city pursuant to this article shall be deposited in the city water fund.
- C. *Applicability.* The provisions of this article shall apply to all persons using city water, both in the outside the city, and within the city water service areas. Sections [1.150.010](#) through [1.150.050](#) of the San Buenaventura Ordinance Code shall only apply to water users within the city. Violations of subsection A. shall be punishable as specifically provided in Ordinance Code section 1.150.030.

(Code 1971, § 4591)

Agenda Item Number 7
Ventura Water Shortage
Contingency Plan –
2010 Urban Water Management Plan
August 13, 2014

Section 8: Water Shortage Contingency Planning

8.1 Overview

This chapter documents the City’s Water Shortage Contingency Plan and Emergency Response Plan (ERP) per requirements of Section 10632 of the Act.

The purpose of the Water Shortage Contingency Plan is to provide a plan of action to be followed during the various stages of a water shortage. The plan includes the following elements: action stages, estimate of minimum supply available, actions to be implemented during a catastrophic interruption of water supplies, prohibitions, penalties and consumption reduction methods, revenue impacts of reduced sales, and water use monitoring procedures.

8.2 Stages of Action to Respond to Water Shortages

The City has developed a five-stage water shortage plan to reduce demands up to a minimum of 50 percent of normal supply during a severe or extended water shortage. The plan includes voluntary and mandatory stages which are intended to be fair to all water customers with the minimum impact on business, employment and quality of life. Water shortage triggering levels are established to ensure that the policy statements are implemented. Two types of triggers are discussed below: 1) Triggers that would elicit a short term water supply response (i.e., voluntary or mandatory water conservation program, emergency water connections, etc.) and 2) Triggers that would trigger a long-term water supply response (i.e., seawater desalination facility, imported water, etc.). The water shortage stages and the reduction goals for each stage are outlined in Table 8-1.

**TABLE 8-1
RATIONING AND REDUCTION GOALS**

Deficiency	Stage	Demand Reduction Goal	Type of Program
Up to 10%	Stage 1	10% Reduction	Voluntary
10-15%	Stage 2	15% Reduction	Mandatory
15-20%	Stage 3	20% Reduction	Mandatory
20-30%	Stage 4	30% Reduction	Mandatory
30-50%+	Stage 5	50%+ Reduction	Mandatory

If the predicted shortage is in total water supply sources for the current year or subsequent years, the appropriate stage allocation program should be in effect year round. For shortages limited to peak demand days, the City Council has the option of limiting the allocation program to the six months from May to October.

The City currently has a monitoring program to provide roughly five year’s advance warning of the need for a supplemental water supply, whether the need be for drought proofing or for long term base-loaded supply. This will give the City sufficient time to fully implement a supplemental water supply project, from the feasibility study phase to completion of construction and start up of the facility. This program includes a biennial report, provided to the City Council, of our water supply conditions. The water supply conditions which will be reviewed include the

production from the Ventura River, the storage level in Lake Casitas, the City's Fox Canyon GMA credits, the status of the City's other groundwater basins, and water demand within the City.

In addition to the short term water supply triggers described above, the City's long term water supply will be evaluated using the following triggers:

- Ventura River - the previous year's water production from the Ventura River was less than 2,500 AF.
- Lake Casitas - the storage in the lake reaches the 127,000 AF Stage 2 level.
- Fox Canyon GMA Credits - the City's balance of Fox Canyon GMA groundwater credits falls below 10,000 AF.
- Other Groundwater Basins - conditions in the Mound and Santa Paula groundwater basins begin to deteriorate significantly.
- Water Demand - the water demand within the City reaches 27,500 AFY.

The triggers for a drought-proofing supplemental water supply, based on the condition of the Ventura River, Lake Casitas, the Fox Canyon GMA credits, and the groundwater basins, should be considered together. It is suggested that if any two of the first four triggers identified above are reached, then the decision making process for implementation of a supplemental water supply project should begin.

The water demand trigger for a long-term base-loaded supplemental water supply, the fifth trigger, should be considered independently of the drought-proofing triggers. Reaching the water demand trigger would also begin the decision making process for implementation of a supplemental water supply project regardless of the condition of the City's existing water supplies. The City Council's decision-making process to select either seawater desalination, importing SWP water or another alternative will focus on the actual circumstances at that future time.

8.3 Minimum Water Supply Available During Next Three Years

The primary factor in limiting the City's existing water supplies is drought. In evaluating a three year worst-case water supply scenario, the City assumed that severe drought conditions (limited rain and above-average temperatures) would begin immediately and continue for three consecutive years (Table 8-2). Planned water sources for fiscal year 2011, reflecting capacity of current facilities will be used as an average/normal water year base for estimating purposes. Also, it was assumed that demand would not be reduced in response to the drought conditions. Available water supplies during the three year period were projected considering: 1) the current status of each existing source and 2) the past response of each existing source to similar drought conditions. Also, because of the complexities of the City's water sources, the specific numbers are only approximations.

**TABLE 8-2
ESTIMATE OF MINIMUM SUPPLY FOR THE NEXT THREE YEARS**

Source	Supply (AF)		
	2012	2013	2014
Casitas Municipal Water District ^(a)	6,000	6,000	6,000
Mound Basin ^(b)	5,500	5,500	5,500
Oxnard Plain Basin ^(c)	4,100	4,100	4,100
Santa Paula Basin ^(d)	1,141	1,141	1,141
Ventura River (Foster Park) ^(e)	4,200	3,500	2,000
Recycled Water	700	700	700
Total Supplies	21,641	20,941	19,441
Groundwater Basin Reliability Supply ^(f)	29,200	29,200	29,200

Notes:

- (a) Estimated demand based on population growth within the Casitas service area served by City of Ventura water service area.
- (b) Average annual groundwater supply assumed reliable during dry years.
- (c) Average annual groundwater supply assumed reliable during dry years.
- (d) In multiple dry years, supply would be reduced to 1,141 AFY during Stage 2 reductions per 1996 Stipulated Judgment.
- (e) Supply reduced from 4,200 to 2,000 AFY during an extended drought.
- (f) Reliability supply only; not a firm supply available for new development.

8.4 Actions to Prepare For Catastrophic Interruption

A catastrophic interruption constitutes a proclamation of a water shortage and could be any event (either natural or man-made) that causes a water shortage severe enough to classify as either a Stage III or Stage IV water supply shortage condition.

In order to prepare for catastrophic events, the City has prepared an Emergency Response Plan (ERP) in accordance with other state and federal regulations. The purpose of this plan is to design actions necessary to minimize the impacts of supply interruptions due to catastrophic events.

The Emergency Response Plan (ERP) includes the City of San Buenaventura water system's standardized response and recovery procedures to prevent, minimize, and mitigate injury and damage resulting from emergencies or disasters of man-made or natural origin such as an earthquake, extended power outage, fire, biological or chemical contamination, and explosion. The plan takes into account the various aspects of the City's Water System Protection Program pertaining to potential malevolent threats or actual terrorism. The information contained in the ERP is intended to guide staff and inform other emergency responding agencies and includes plans, procedures, lists, and identification of equipment, emergency contacts, etc.

In Addition, the City's 2011 Water Master Plan analyzes seven different operational outage scenarios and provides an analysis of system impacts as well as long-term system improvements required to mitigate these impacts.

8.5 Prohibitions, Penalties, and Consumption Reduction Methods

At each of the five stages of action within the Water Shortage Contingency Plan, the City, the Water Department and City water customers each have certain actions they must undertake. Public agency actions involve increasing public awareness and education, adopting ordinances prohibiting water waste and establishing mandatory water conservation regulations, and periodically reviewing triggering levels. Water customer actions involve implementing water conservation measures and complying with water conservation ordinances. Significant measures of the five-stage water shortage plan include:

Stage 1: 0-10 Percent Reduction Goal (Voluntary)

Public Agency Actions

- Monitor conservation levels and increase public awareness.
- Notify customers of shortage conditions and disseminate literature.
- Publish customer use goals.
- Identify Water Shortage Contingency Plan stages and the possible actions per stage.
- Distribute water conservation brochures, information, and conservation kits.
- Conduct exterior and interior water audits upon customer requests.
- Request voluntary water consumption reduction.
- Maintain tiered rate structure to promote water conservation.
- Establish/enforce water waste ordinance.
- Establish/enforce ordinance prohibiting watering from 9 A.M. to 6 P.M.

Water Customer Actions

- Monitor own meter for usage.
- Implement conservation measures to reduce usage.
- Comply with water waste ordinance.
- Comply with prohibited watering during 9 A.M. to 6 P.M.

Stage 2: 10-15 Percent Reduction Goal (Mandatory)

Public Agency Actions (In addition to actions established in previous Stage)

- Initiate Mandatory Water Conservation Regulations of Ordinance No. 92-07.
- Enforce mandatory water consumption goals and allocations for all customers.
- Enact water rate surcharge for water consumption over customer allocation.
- Water in excess of allocation is billed at four times the City's highest water rate.

- For the third consecutive excessive bill, surcharge rate is ten times the City's highest water rate. Beyond a third billing period, restrictors placed on meters, at the customer's expense.
- Enactment of allocation adjustment and penalty review programs. Customers can apply for an allocation adjustment for the reasons specified in ordinance.
- Customers may appeal in writing for a waiver of penalties incurred due to a leak or break, incorrect allocation or hardship.

Water Customer Actions (In addition to actions established in previous Stage)

- Comply with mandatory water conservation regulations.
- All water customers requesting an increase in their water allocation must undergo a water audit and install water efficient plumbing fixtures for all fixtures at their business or residence.

Stage 3: 15-20 Percent Reduction Goal (Mandatory)

Public Agency Actions (In addition to actions established in previous Stage)

- Initiate Mandatory Water Conservation Regulations as an Ordinance.
- Establish and enforce mandatory water consumption goals and allocations for all customers.

Water Customer Actions (In addition to actions established in previous Stage)

- Comply with mandatory water conservation guidelines.

Stage 4: 20-30 Percent Reduction Goal (Mandatory)

Public Agency Actions (In addition to actions established in previous Stage)

- Initiate Mandatory Water Conservation Regulations as an Ordinance.
- Establish and enforce mandatory water consumption goals and allocations for all customers.

Water Customer Actions (In addition to actions established in previous Stage)

- Comply with mandatory water conservation guidelines.

Stage 5: 30-50+ Percent Reduction Goal (Mandatory)

Public Agency Actions (In addition to actions established in previous Stage)

- Initiate Mandatory Water Conservation Regulations as an Ordinance.
- Establish and enforce mandatory water consumption goals and allocations for all customers.
- All water use not required for health and safety is prohibited.

Water Customer Actions (In addition to actions established in previous Stage)

- Comply with mandatory water conservation regulations.
- Prohibition of all outside water use unless necessary for the preservation of health and safety and the public welfare.
- Watering with hand-held five gallon maximum bucket, filled at exterior hose bib or interior faucet (not by hose) shall be allowed at any time. This will assist in preserving vegetable gardens or fruit trees. Outdoor use of bath water, dishwater, and laundry water for irrigation purposes is encouraged to the extent this practice is allowed under local health and safety regulations.
- The filling, refilling or adding of water to swimming and/or wading pools is prohibited.
- The operation of any ornamental fountain or similar structure is prohibited.

The City has established the following customer classifications and the allocation method for each classification during a water shortage:

- Single Family -Hybrid of Per-capita Allocation and Percentage Reduction.
- Multi-Family -Hybrid of Per-capita Allocation and Percentage Reduction.
- Commercial -Percentage Reduction.
- Industrial -Percentage Reduction.
- Fire lines -No Reduction.
- Temporary -No Reduction.
- Municipal -Percentage Reduction.
- Schools -Percentage Reduction.
- Churches -Percentage Reduction.
- Unaccounted -No Reduction.
- New Demand -Per-capita Allocation.

The following priorities for use of available water, based on California Water Code Chapter 3 and community input were used in establishing consumption limits. In order of preference they are:

- Health and Safety - interior residential and fire fighting.
- Commercial, Industrial and Governmental Uses - maintain jobs and economic base.
- Permanent Crops - takes five to ten years to replace.
- Annual Crops - protect jobs.
- Existing Landscaping - especially trees and shrubs.
- New Demand - projects without permits when shortage declared.

Each customer will be notified of their classification and allotment by mail before the effective date of the Water Shortage Emergency. New customers and connections will be notified at the

time service commences. In a disaster, prior notice of allotment may not be possible; notice will be provided by other means. A customer has the option to appeal the Utilities Business Manager’s classification or allotment of their account. Appeals shall be processed as set forth in the established Mandatory Water Conservation Regulations.

In addition to the prohibitions above, the City also has a water waste ordinance. In April 1989, the City adopted Ordinance 89-6 prohibiting water waste (see Appendix F). The ordinance defined prohibited activities and the penalties to be imposed for violations. Table 8-3 below describes the penalties.

**TABLE 8-3
PENALTIES AND CHARGES**

Penalties or Charges	Stage When Penalty Takes Effect
Water consumption over customer allocation is billed at four times the City’s highest water rate	Stage 2
For the third consecutive excessive bill, surcharge rate is ten times highest water Rate. Beyond a third billing period, restrictors are placed on meters at the customer’s expense.	Stage 2

Specific methods to evaluate effectiveness of water conservation programs to be employed by the City are:

- Metering of a Reclaimed Water Usage. This will determine how much has been used.
- Monitoring Production Quantities. In normal water supply conditions, production figures are recorded daily by automation. The production supervisor and the production lead worker monitor the accuracy of the monthly production totals.
- The totals are incorporated into the monthly water supply report to the State Department of Health Services by the treatment supervisor.
- During a Stage 1 or 2 water shortage, daily production figures are recorded. To verify that the reduction goal is being met, the weekly production and the target weekly production are forwarded to the Water Utility Manager and Water General Manager.
- Monthly reports are sent to the Water General Manager. If reduction goals are not met, the City Manager will notify the City Council so that corrective action can be taken.
- During a Stage 3 or 4 water shortage, the procedure listed above will be followed, with the addition of a daily production report to the Water Utility Manager.
- During a disaster shortage, production figures will be reported hourly to the Water Utility Manager, with the addition of a daily production report to the Water General Manager.
- Weekly reports will also be provided to the Water General Manager and City Manager as needed.
- Compiling annual statistics to track usage of customer groups to determine trends within those groups. This is currently being done through the water billing computer system. As stated above, a mufti-year examination will aid in reducing the impact of weather patterns as a variable.

- Evaluation of the impact of low-use plumbing fixtures in new construction or retrofitted units. This can be done by multiplying the average usage with and without such fixtures versus low-use fixtures by the number of units.
- Comparing irrigation meter readings. For City parks and other landscaped areas, meter readings can be compared and analyzed to determine the effectiveness of irrigation programs, or landscape materials.

8.6 Revenue Impacts of Reduced Sales

Consumption reduction will impact revenues by decreasing the amount of water sold to customers. Water shortages may also impact construction activities. A reduction in construction activities will reduce fees collected by the City such as water service connection fees, engineering services fees such as plan checking, and annexation fees.

As consumption decreases, some expenditures are expected to increase. Staff costs for community education, enforcement of ordinances, monitoring and evaluation of water use, drought planning, and dealing with customer questions and complaints are expected to rise. If construction is drastically reduced, staff may not be required for certain functions, but it is expected that the increased work load to deal with water shortage issues will more than offset the reduced work load for construction support. Operations and maintenance costs may also increase because of the need to identify and quickly repair all water losses. A shift to alternative sources would change pumping, purchase, and treatment costs as different water supplies incur different purchase, treatment, and distribution costs

A summary of impacts to revenues and expenses is provided in Table 8-4.

**TABLE 8-4
REVENUE IMPACTS DURING SHORTAGE**

Stage	Assumed Conservation	Approximate Revenue Reduction	Approximate Expense Reduction^(a)
Stage 1	<10%	8%	>2%
Stage 2	10%	12%	2%
Stage 3	20%	15%	3%
Stage 4	30%	25%	5%
Stage 5	50%	40%	8%

Note:
 (a) Without decreasing capital program.
 Source: Analysis conducted as part of 2005 UWMP.

A reduction in water revenue could be mitigated substantially through deferral or avoidance of capital fund expenditures. This would meet short-term cash flow needs, although it should only be considered on a short-term basis. Rate adjustments could also be employed either solely or in conjunction with capital expenditure reductions. A summary of measures to overcome revenue and expenditure impacts is provided in Table 8-5.

**TABLE 8-5
MEASURES TO OVERCOME REVENUE AND EXPENDITURE IMPACTS DURING
SHORTAGE**

Measure	Summary of Effects
Use of Reserve Funds	Use of reserves may provide short-term rate stabilization, but require delays in capital expenditures and rebuilding of reserves after the water shortage.
Decrease Capital Expenditures	Delay major construction projects for facilities as well as upgrades and replacements.
Shift Water Sources to Less Costly Supplies if Possible	Reduce costs associated purchase, treatment, and distribution of water
Rate Increases	Increase revenue

8.7 Mechanism to Determine Reductions in Water Use

Certain aspects of water conservation can be readily monitored and evaluated. An example is metered reclaimed water. Other aspects such as public education are more difficult to measure in terms of effectiveness. Additionally, weather patterns make it more difficult to compare one year’s results with another.

When severe shortages occur and some degree of rationing is required, a program’s effectiveness can be judged directly by water billings. In these cases, targeted results must be met and even reluctant customers will, on the whole, meet the goals. Specific methods to evaluate effectiveness of water conservation programs to be employed by the City are:

- Metering of a Reclaimed Water Usage. This will determine how much has been used.
- Monitoring Production Quantities. In normal water supply conditions, production figures are recorded daily by automation. The production supervisor and the production lead worker monitor the accuracy of the monthly production totals. The totals are incorporated into the monthly water supply report to the State Department of Health Services by the treatment supervisor.

During a Stage 1 or 2 water shortage, daily production figures are recorded. To verify that the reduction goal is being met, the weekly production and the target weekly production are forwarded to the Water Utility Manager and the General Manager. Monthly reports are sent to the City Manager. If reduction goals are not met, the City Manager will notify the City Council so that corrective action can be taken.

During a Stage 3 or 4 water shortage, the procedure listed above will be followed, with the addition of a daily production report to the Water Utility Manager. During a disaster shortage, production figures will be reported hourly to the Water Utility Manager, with the addition of a daily production report to the General Manager. Weekly reports will also be provided to the City Manager.

- Compiling annual statistics to track usage of customer groups to determine trends within those groups. This is currently being done through the water billing computer system. As

stated above, a multi-year examination will aid in reducing the impact of weather patterns as a variable.

- Evaluation of the impact of low-use plumbing fixtures in new construction or retrofitted units. This can be done by multiplying the average usage with and without such fixtures versus low-use fixtures by the number of units.
- Comparing irrigation meter readings. For City parks and other landscaped areas, meter readings can be compared and analyzed to determine the effectiveness of irrigation programs, or landscape materials.

Agenda Item Number 8
Set Location for August 27, 2014
Meeting and Future Schedule
August 13, 2014

No Written Report for this Item

Agenda Item Number 9
Public Comment
August 13, 2014

No Written Report for this Item