

# Water Offset Policies for Water-Neutral Community Growth:

A LITERATURE REVIEW & CASE STUDY COMPILATION



**NET BLUE**

WATER  
NEUTRAL  
GROWTH

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## Introduction

The Alliance for Water Efficiency (AWE) has long been interested in the topic of sustainable development and water efficiency's role in optimizing sustainability. In 2013, AWE received partial funding from The Walton Family Foundation to specifically look at the issue of new development and where policies might already exist to require that the new water be "offset" in some way.

In this report, AWE aimed to identify and document water demand offset policies for new development that mitigate the impact on the total water demand in a watershed or utility service area. For example, if a developer seeks a permit to construct a new subdivision, a community may require the projected water consumption for the development to be offset by water use reductions in off-site end uses before approval is granted. Such policies often include on-site efficiency requirements as well. This research report primarily focuses on policies in which the offset is achieved via the implementation of water efficiency measures, and not on offsets that are achieved via other methods such as securing new supply or letting agricultural land go fallow.

Ultimately, AWE's goal is to develop methods and resources to help communities implement water demand offset policies for new development in all parts of the country. AWE is making advances in that work with its project partners the Environmental Law Institute and River Network, in an initiative titled "Net Blue." The three organizations are developing a model ordinance template that communities can tailor to create a water demand offset approach that meets their respective needs. This literature search and documentation of existing policies represent the first step in that process.

This report begins with a summary of the findings, reviews the associated literature, and provides descriptions of past and present examples the project team found during its search. There are also four appendices. Appendix A includes information about the City of Oxnard, California's Water Neutrality Policy, Appendix B presents information on San Diego County Water Authority's policies for annexation, Appendix C identifies communities with water demand offset language in drought plans, and Appendix D covers the various terminology the project team encountered during its search. If the reader is aware of any water demand offset policies that are not included in this document, please contact AWE at [info@a4we.org](mailto:info@a4we.org).

## Summary

During its research, the project team found discussion of water demand offset policies in the literature, evidence of four policies that once existed but are no longer in place (plus one bylaw that was not enacted), and 13 communities with active policies. These past and present policies are described in this report and summarized in Table 1. Figure 1 illustrates the geographic distribution of the currently active policies identified by the project team.

Water demand offset policies require action on the part of developers to ensure that construction of new developments does not result in an increase in overall water demands. There are various ways a municipality or water provider can design and implement a policy to achieve this. The case examples covered in this report demonstrate several methods, and the issues identified in the literature review highlight important considerations.

The basic components of a water demand offset policy include:

- A condition that triggers the requirement for a water demand offset (e.g., new development and/or expanded use of an existing connection)
- Water demand projection of new development
- Methodology for estimating savings of on-site and off-site efficiency measures
- Water demand offset ratio (e.g., a ratio of 1:1 would require 100 percent of the projected demand to be offset, a ratio of 2:1 would require 200 percent of the projected demand to be offset)
- Demand mitigation implementation options, such as
  - On-site efficiency measures
  - Off-site efficiency measures
  - On-site recycled water use
  - Possible fee option in lieu of developer-implemented efficiency measures
- Administrative fees and other costs
- Verification of demands and implementation of efficiency measures
- A rule that ensures demand reductions are permanent

A water demand offset policy should have comprehensive requirements in place with sound methodologies for estimating the water demands of new development, and for calculating credits resulting from the savings of on-site and off-site water efficiency measures. Having an offset ratio greater than 1:1 will add a safeguard against likely error in projections for new demands and demand reductions resulting from water efficiency measures. While having an offset ratio greater than 1:1 will help ensure adequate savings are achieved to offset the demand of new developments, large ratios may make offsets exceedingly difficult to realize as time goes on due to an accelerated reduction of the installed base of inefficient fixtures. In addition to an adequate offset ratio, it is also important to ensure that the off-site and on-site water efficiency measures are permanent.

As mentioned in the previous paragraph, developers may find it increasingly difficult to earn offsets via off-site efficiency measures as time goes on. For example, water demand offset credits have often been

achieved through the replacement of inefficient toilets. This has been a good option because the replacement of inefficient toilets saves a significant amount of water and the savings estimates are reliable compared to other efficiency measures. However, due to the success of many conservation programs and length of time since the passage of the Energy Policy Act of 1992, there are increasingly less inefficient toilets to replace. In fact, some utilities are completely ending their toilet rebate programs.<sup>1</sup> Many of the case example policies began in the 1990s when there was a large installed base of inefficient toilets. Now, in 2014, it will likely be necessary for policies to include mechanisms for offsetting water demand beyond toilet replacements. It is also imperative to keep the policy language and requirements up to date. There are water demand offset policies in California that still reference 1.6 gallon per flush toilets as an example of efficient replacements for 3.5 and greater per flush toilets. High-efficiency toilets are now required for all installations in the State of California making this language outdated.<sup>2</sup>

There are examples in this report of water demand offset policies that are no longer in place, or that have moved to a fee based system due to offsets being difficult to achieve. This suggests that water demand offset policies may have a finite life. Water demand offset policies should be formulated in a way that they can be easily modified to adapt to new opportunities and challenges in the future.

There are multiple examples of policies in which the developer is allowed to pay a fee in lieu of performing the actual fixture replacements and other efficiency measures. In this case, the water provider, or municipality, assumes responsibility for making sure the efficiency measures are implemented. The City of Lompoc, California discontinued its collection of fees in lieu of retrofits due to the funds not being expended fast enough. Danvers, MA offers relatively high rebates for its water efficiency incentive programs and marketing that arguably encourages free riders. This could be a result of it being difficult to expend funds. If fees are accepted in lieu of actual demand mitigation, the policy must be clear on whether or not building permit approvals hinge on the expenditure of those fees to implement efficiency measures. Furthermore, the fees should also be disbursed in a reasonable and cost-effective manner.

If a water demand offset policy is the only driving force of efficiency in a service area, all of the resulting water savings are theoretically being allocated to growth. Some utilities, such as Denver Water, allocate water saved through efficiency measures to supply storage in an effort to increase drought resiliency.<sup>3</sup> Allocating savings purely to growth could possibly result in inadequate supplies, particularly if the demand projections of new developments are underestimated, and/or the water savings from demand mitigation of said developments are overestimated.

Water demand offset policies are a seemingly effective way to allow for new growth while maintaining overall service area demands. When formulating a policy there are many issues to consider. This report identifies those issues and provides case examples that can help lay the foundation. Future work by

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<sup>1</sup> San Antonio Water System Website. (Accessed February 2014). SAWS Free Toilet Program Ended Dec. 31, 2013. <https://www.saws.org/conservation/indoor/toiletrebate/>

<sup>2</sup> CAL. HEALTH & SAFETY CODE § 17921.3.

<sup>3</sup> Denver Water. (December 2011). Drought Response Plan. <http://cwcbweblink.state.co.us/WebLink/ElectronicFile.aspx?docid=157757&&&dbid=0>

AWE and its project partners the Environmental Law Institute, and River Network on their Net Blue Initiative will take a deeper look into this issue and create tools and resources to help communities develop such policies.

Table 1, on the following page, lists the currently active water demand offset policies identified in this report and contains summary information. Figure 1, on the page after Table 1, illustrates the geographic distribution of water demand offset policies in the United States.

**Table 1: Summary of Water Demand Offset Policies Identified in the United States, as of January 2015**

<b>Community or Water Provider</b>	<b>Type of Policy</b>	<b>Year Began</b>	<b>Offset or Credit Ratio</b>	<b>Offset Fees or Cost In Lieu of Retrofits<sup>1</sup></b>	<b>New Development Demand Methodology</b>	<b>Savings Estimation Methodology</b>	<b>2010 Census Population<sup>2</sup></b>
Cambria Community Services District, California	Water demand offsets for new development	2003	1:1	Based on cost to implement programs	Based on Board approved methodology and the Cambria Community Services District's retrofit points equivalency table		6,032
Town of Danvers, Massachusetts	Fees collected for new development to fund efficiency programs	2008	2:1	Variable (\$1,980 per one bedroom unit for residential, \$9/gallons per day for commercial)	For commercial: Massachusetts Title 5, 314 CMR 7.15: Calculation of Flows	Not applicable	26,493
East Bay Municipal Utility District, California	Water demand offsets for new developments requiring annexation by EBMUD	1993	Project specific				1,300,000 <sup>3</sup>
City of Lompoc, California	Water demand offsets for new development	1990	1:1	In lieu fee suspended as of 2010	General estimate of 94,627 gallons per year per new home	12,904 gallons per year per household retrofit	42,434
Monterey Peninsula Water Management District, California	Water use credits for expanded use of existing residential and nonresidential connections	1992	1:1	Water use credits are earned through on-site efforts. In some cases a water use credit may be transferred.	For existing connections only. Uses fixture unit count values for residential and water use factors for non-residential in MPWMD Rule 24.	MPWMD Rule 25.5 - Table 4: High Efficiency Appliance Credits	104,129
City of Morro Bay, California	Water demand offsets for new development	1985	2:1	No fee option, must perform retrofits	Water equivalency units	Estimated by the planning director	10,234

*(continued on next page)*



Community or Water Provider	Type of Policy	Year Began	Offset or Credit Ratio	Offset Fees or Cost In Lieu of Retrofits <sup>1</sup>	New Development Demand Methodology	Savings Estimation Methodology	2010 Census Population <sup>2</sup>
City of Napa, California	Water demand offsets for new development and increased demand of existing connections	1991	1:1	Cost of retrofits plus staff time	Determined by the Water Department		76,915
City of St. Helena, California	Water demand offsets for new development	1994	1:1	Cost of retrofits plus staff time	Residential developments: set number of retrofits based on number of units being built; nonresidential developments: water demand is evaluated by the director of public works and assigned retrofits based on water use factors		5,814
County of San Luis Obispo, California  Paso Robles Groundwater Basin  Los Osos Groundwater Basin  Nipomo Mesa Conservation Area	Water demand offsets for new development and expanded use of existing well users in three parts of unincorporated San Luis Obispo County.	<u>Paso Robles</u> 2012 and 2013  <u>Los Osos</u> 2008  <u>Nipomo Mesa</u> 2008	<u>Paso Robles</u> 2:1 and 1:1 (two policies)  <u>Los Osos</u> 2:1  <u>Nipomo Mesa</u> Retrofit 5 existing homes to offset 1 new SF structure	<u>Paso Robles</u> ~\$23 per gallon per household per day (gphd)  <u>Los Osos</u> No fee option  <u>Nipomo Mesa</u> \$750 for each toilet in new structure, or \$1500 to = retrofit of 5 existing homes	Based on local planning assumptions. Please see the section on San Luis Obispo County, California for more details.		<u>Paso Robles</u> ~78,000 <sup>4</sup>  <u>Los Osos</u> 14,276  <u>Nipomo Mesa</u> 16,714
City of Santa Fe, New Mexico	Water demand offset for new development projects via credits or water rights transfer	2002	1:1 + 9.8%	\$16,600/ acre-foot per year to purchase from water bank	Water budget approved by the Water Budget Administrative Office	Water conservation credit program, when applicable	67,947

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Community or Water Provider	Type of Policy	Year Began	Offset or Credit Ratio	Offset Fees or Cost In Lieu of Retrofits <sup>1</sup>	New Development Demand Methodology	Savings Estimation Methodology	2010 Census Population <sup>2</sup>
City of Santa Monica, California	Water demand mitigation fee to offset the water use of new development or increased demand of existing connections	1991	1:1	\$3.00/gallon per day	Fees are based on a fee schedule for single-family and multifamily development. Nonresidential development fee is determined by the city.		89,736
The Soquel Creek Water District, California	Water demand offsets for new development and increased demand of existing connections	2003	2:1	No fee option from 2003 through June 2014; now it is a fee only option at a cost of \$55,000/acre-foot per year	Water use factors	Credits based on toilet replacements from 2003 through June 2014, after which the program became strictly fee based	37,720 <sup>5</sup>
Town of Weymouth, Massachusetts	Water demand offsets for new development	Unknown	2:1	\$10/gallon <sup>6</sup>	Massachusetts Title 5, 314 CMR 7.15: Calculation of Flows	Unknown	53,743

1. Costs will vary if developers are allowed, or required, to perform retrofits.

2. Community census population, not service area population except where noted.

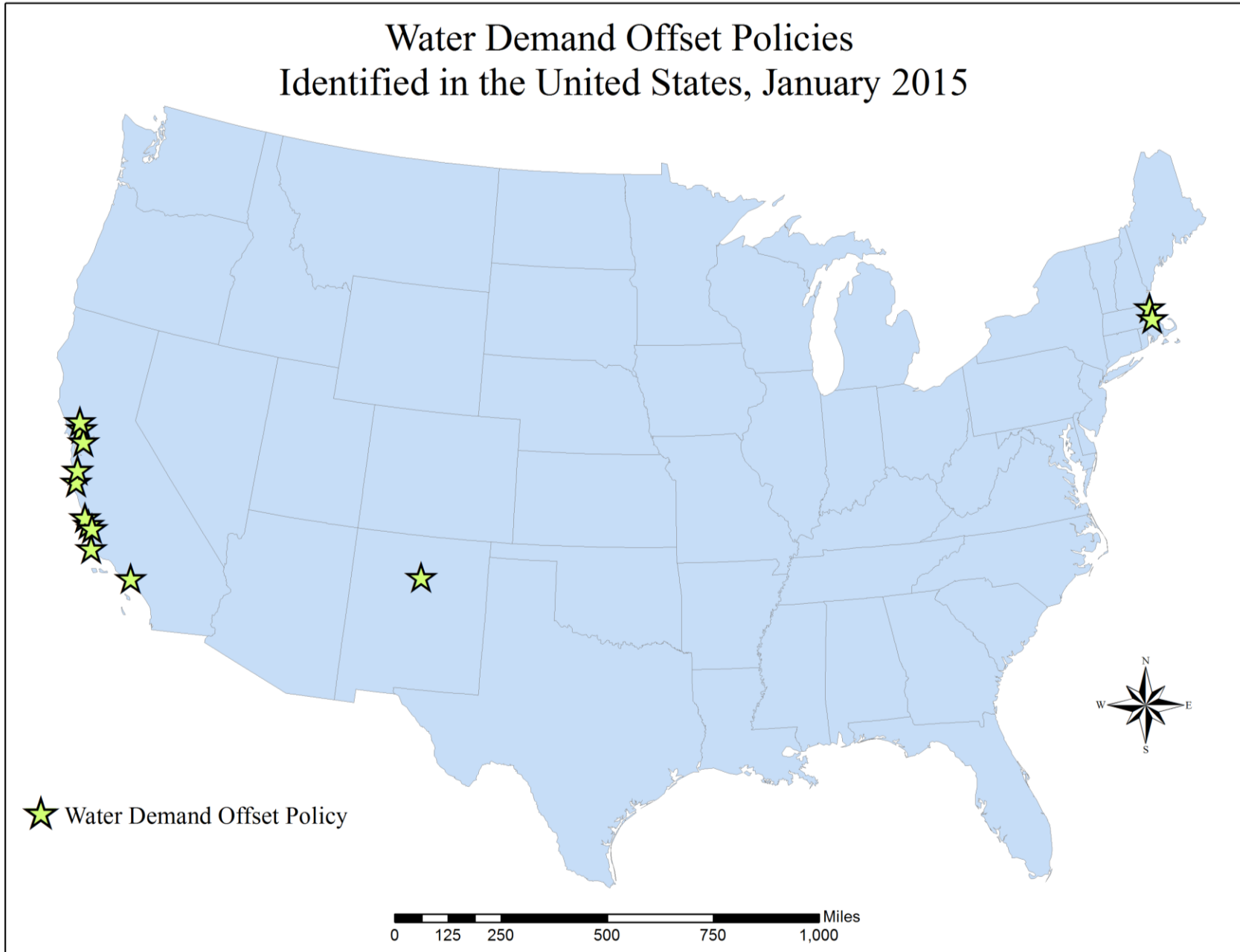
3. Current estimated service area population.

4. Calculated based on total county population and percent of county population overlying the basin.

5. 2010 service area population from 2010 UWMP.

6. Unknown if this is gallons per day, gallons per year, or other specification.

Figure 1: Water Demand Offset Policies Identified in the United States, as of January 2015



## Findings from the Literature

AWE conducted a literature search to find examples of water demand offset policies targeting new development, and to identify issues and other related information. The project team reviewed related reports, municipal ordinances, and other information sources such as municipal and water utility websites. This section presents general findings related to water demand offset policies from articles and other documents. Case examples are presented in the following sections.

In California, the approval of new development is contingent on analysis that demonstrates there is an adequate water supply to accommodate the new water service connections. SB 901 was passed in 1995 and required water supply assessments for some development projects.<sup>4</sup> In 2001, SB 221 and SB 610 were passed and introduced more stringent requirements for water supply assessments and verification. SB 610 requires water assessments to be submitted to local governments and to be included with environmental reports for certain projects. SB 221 requires written verification of sufficient water supply by the city or county for certain proposed residential subdivisions.<sup>5</sup>

From the California Department of Water Resources' *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001*:

“SB 610 and SB 221 are companion measures which seek to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large development projects. Both statutes also require this detailed information be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects.”<sup>5</sup>

California SB 610 and SB 221 do not require the projected water demand of new development to be offset with water efficiency measures. However, requiring verification of adequate water supplies is notable, and may serve as a catalyst for a demand offset policy.

The state of Massachusetts includes guidance on the development of a water bank to offset water demand resulting from new developments in the appendix of its *Water Conservation Standards*. A water bank is described as, “a system of accounting and paying for measures that offset or mitigate water losses.”<sup>6</sup> One of the primary tenets of the water banking concept provided in the *Massachusetts Water Conservation Standards* is offsetting the water demand of new developments with off-site efficiency measures. The guidance includes the following key principles of developing a water bank:

1. “A dedicated fund, or banking mechanism is necessary
2. At least a 2:1 ratio for mitigation should be the goal in medium- and high-stressed basins

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<sup>4</sup> State of California Legislative Information. (1995). Bill Text. Bill Number: BB 901.  
[http://www.leginfo.ca.gov/pub/95-96/bill/sen/sb\\_0901-0950/sb\\_901\\_bill\\_951016\\_chaptered.html](http://www.leginfo.ca.gov/pub/95-96/bill/sen/sb_0901-0950/sb_901_bill_951016_chaptered.html)

<sup>5</sup> California Department of Water Resources. (2003). Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001.  
[http://www.water.ca.gov/pubs/use/sb\\_610\\_sb\\_221\\_guidebook/guidebook.pdf](http://www.water.ca.gov/pubs/use/sb_610_sb_221_guidebook/guidebook.pdf)

<sup>6</sup> The Commonwealth of Massachusetts. (July 2006, updated June 2012). Water Conservation Standards.  
<http://www.mass.gov/eea/docs/dcr/watersupply/intbasin/waterconservationstandards.pdf>

3. If fee-based, the fee charge must bear a reasonable relation to the cost of implementing the offset and the program’s administrative costs, and
4. If the work is performed by the developer, documentation must be provided, and there must be verification by the local department or board administering the program”

The standard goes on to say, “Because a 1:1 ratio only preserves the status quo in already degraded watersheds, and because measuring the gains from individual water offset measures is often imprecise, to protect or restore water resources especially in medium- or high-stressed basins, a ratio of at least 2:1 is recommended. In other words, for every gallon of new water demand projected for development, redevelopment or expansion projects, the goal should be saving or retaining at least two gallons in the basin where the water is being withdrawn.”<sup>6</sup>

The Valley Center Water District in Southern California, a member agency of the San Diego County Water Authority, prepared a white paper regarding the concept of water demand offsets that was most recently updated in 2009. The authors indicated that the white paper was part of a local and regional investigation in the development of a water offset policy that was anticipated to ensue in 2009. In the white paper, seven issues are listed that identify important considerations of a water demand offset policy.

Valley Center Water District in Southern California, Water Demand Offset Concept Policy White Paper, Policy Issues

1. “Since we are facing a long-term shortage of supply even with existing demand, should a portion of the cost of developing the new supplies be born by the existing users?

Current thought is that if new development wants to move forward in a time of supply shortage and developing the offset supply is necessary for that to occur, then the cost of these supplies should be born by those needing to offset new demand.

What about the issue of timing between when the development pays the offset fee, when the development actually creates a new demand, and when the supply supported by the fee is actually available.

2. Should new demand be allowed to come on line prior to the new supply being available, or should the local supply be developed in advance of the new development coming on line?

The current thought is that these supplies should be on line at the time the new development demand comes on line.

3. How would local supply development opportunities be prioritized and allocated between development on land currently within the District boundaries, and on land outside, but currently seeking annexation?

The current thought is that demand within the current service area should be given the opportunity to access the new supply opportunities prior to lands currently outside the District boundary.

4. Should local supply development opportunities within the district boundaries or sphere be exhausted first before development interests are allowed to participate in a regional program if it is developed?

(continued)

Current thought is that local supply development opportunities should be exhausted, irrespective of relative cost, prior to allowing the use of regional opportunities.

5. Should local reclamation projects be credited with a higher offset value, say 1 to 1 offset compared to offsets gained through implemented conservation measures being required at 2 to 1, as supply developed through conservation measures is more difficult to quantify and may not be sustained over long periods of time?

Current thought is that wastewater reclamation projects have a reliable and verifiable yield than to supply developed through conservation offsets, and as such should be credited 1 for 1 once the nominal yields is determined. On the other hand, supplies developed through conservation offsets and less reliable because they are under private control and may not be sustained for the long-term and as such should be developed at a 2 to 1 rate.

6. Should specific developments and the offset cost be linked to specific projects or to the District's enhanced water supply in general?

Current thought is that project yield should be viewed as a general district supply, and yields not be allocated from a specific supply project to a specific new demand. The exception would be if a development is able to develop a project specific supply which results in not imposing a net demand on the district then all the new supply developed would be applied to that specific development.

7. Assuming that the most cost effective projects are developed first, and later projects are less cost effective and more costly on an acre foot-basis, should new development pay a variable cost based upon when they buy in, or should there be a cost averaging, however allowing for inflation, for equity?"

Current thought is that one melded rate be utilized for reclamation projects and conservation projects, rather specific rates for specific projects and measures."<sup>7</sup>

A 2006 paper titled, *Analysis of Water Offset Programs for Implementation in the Ipswich River Watershed, Massachusetts* explores water demand offset policies through the lens of applicability in the Ipswich River Watershed in Massachusetts. The paper is very comprehensive and, among other things, identifies and describes eight water demand offset programs in the United States (Santa Fe, New Mexico, San Luis Obispo, CA, Cambria, CA, Ojai, CA, Soquel Creek, CA, Weymouth, MA, Abington-Rockland, MA, and Sharon, MA). Specific policy issues related to water demand offset programs presented in the paper were:

1. Community outreach and public involvement
2. Design and implementation
3. Program scale (e.g., regional/subregional/municipal)
4. Voluntary or mandatory participation
5. Program administration and enforcement
6. Measuring and accounting
7. Financing mechanisms<sup>8</sup>

<sup>7</sup> Valley Center Water District. (Updated 2009). Water Demand Offset Concept Policy White Paper. [http://www.vcmwd.org/Board%20of%20Directors/Minutes%20and%20Agendas/2009%20Agendas%20and%20Minutes/Minutes/~/\\_media/Files/Admin/DemandOffsetConceptNotes.ashx](http://www.vcmwd.org/Board%20of%20Directors/Minutes%20and%20Agendas/2009%20Agendas%20and%20Minutes/Minutes/~/_media/Files/Admin/DemandOffsetConceptNotes.ashx)

The Ipswich River Watershed Association also provides information about water offsetting in Massachusetts via its 2006 resource, *Water Wise Communities: A Handbook for Municipal Managers in the Ipswich River Watershed*. It discusses the definition of a water bank as it is used in Massachusetts, and provides three local examples.<sup>9</sup>

A 2012 Western Resource Advocates paper described the concept of a water demand offset program, listed possible components in reference to the report, *Analysis of Water Offset Programs for Implementation in the Ipswich River Watershed, Massachusetts*, and summarized three programs: Soquel Creek Water District, CA, San Luis Obispo, CA, and Santa Fe, NM.<sup>10</sup>

A paper written by John Olaf Nelson (no date) titled, *Zero Footprint Design for Urban Development Project* explored a strategy to offset the water demand for a proposed development in an unidentified community in Northern California. The development was projected to contain approximately 1,700 homes with additional commercial development and open spaces with an expected demand of 189 million gallons per year. The offsets were planned to be accomplished via on-site efficiency measures in the new development, use of recycled water for irrigation in the new development, and off-site conservation programs that targeted existing service connections. The author adjusted the savings calculations based on a +/- 15 percent error to plan for uncertainty. The author also emphasized the importance of using home owners associations (HOA's) to create rules that uphold savings, and bind future property owners to the established rules.<sup>11</sup>

An article with a similar analysis appeared in the May 2008 Journal of the American Water Works Association. *Innovative water conservation supports sustainable housing development*, details an offset program for a new development related to the East Bay Municipal Utility District in California. The article is described in the section showcasing examples of current policies.<sup>12</sup>

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<sup>8</sup> Anderson, Krista. (2006). Analysis of Water Offset Programs for Implementation in the Ipswich River Watershed, Massachusetts. Master's Program, Yale University, School of Forestry and Environmental Studies.

[http://ipswich-river.org/wp-content/uploads/2010/04/Analysis\\_of\\_Water\\_Offset\\_Programs.pdf](http://ipswich-river.org/wp-content/uploads/2010/04/Analysis_of_Water_Offset_Programs.pdf)

<sup>9</sup> Ipswich River Watershed Association. 2006. Water Wise Communities Handbook.

<http://www.ipswichriver.org/resources/water-wise-communities-handbook/12-water-bank-water-demand-mitigation-program/>

<sup>10</sup> Western Resource Advocates. (June 2012). Water Conservation Offset Programs Summary.

[http://verderiverinstitute.org/Water\\_Offset\\_Programs.doc](http://verderiverinstitute.org/Water_Offset_Programs.doc)

<sup>11</sup> Nelson, John Olaf. (No Date). Zero Footprint Design for Urban Development. <http://www.scribd.com/doc/19003252/Zero-Footprint-Design-for-Urban-Development#>

<sup>12</sup> Maddaus, M. L., Maddaus, W. O., Torre, M., & Harris, R. (2008). Innovative water conservation supports sustainable housing development. *Journal-American Water Works Association*, 100(5), 104.

## Identification of Water Demand Offset Policies in the United States

The project team searched for water demand offset policies in the United States to gather detailed information. The goal was to characterize water demand offset policies, identify components of said policies, and inform future efforts to create resources for communities wishing to pursue the development of such a strategy.

The following two sections contain information on past and existing policies that were identified by the project team. Additionally, there are four appendices with information about the City of Oxnard California's Water Neutrality Policy, the San Diego County Water Authority's (SDCWA) annexation policies, water demand offsets policies contained in drought plans, and a discussion on the terminology related to water demand offsets.

The City of Oxnard's Water Neutrality Policy is included in the appendix because the offsets can be achieved through securing new supply in addition to efficiency measures. Additionally, the policy is not codified. The San Diego County Water Authority's annexation policies are presented in Appendix B and not in the main body of this report because water demand offsets are not required for all annexations, and offsets do not have to be efficiency based. The information for drought plan offset requirements are in Appendix C and not included in the main body of this report because the requirements are only in effect during severe stages of drought, detailed information about the offset requirements were not found beyond the drought plans, and offsets were often not specified as being required to result from implementation of efficiency measures. The discussion of terminology is in Appendix D for readers interested the nomenclature associated with water demand offsets.

### Examples of Past Policies

During its search for water offset case studies, AWE found example policies that are now defunct, or lack evidence of current enforcement. The team also found an example of a draft policy that was never enacted. Past examples are valuable, and may provide lessons learned and reasons for discontinuation.

1. Abington Rockland Joint Water Works, Massachusetts
2. City of Ojai, California
3. City of San Luis Obispo, California
4. City of Santa Barbara, California
5. Town of Sharon, Massachusetts

#### Abington-Rockland Joint Water Works, Massachusetts

According to the report, *Analysis of Water Offset Programs for Implementation in the Ipswich River Watershed, Massachusetts*, the Abington-Rockland Joint Water Works did have a water offset program in the past. It required new water demands to be offset at a 2:1 ratio via the replacement of inefficient fixtures. The program concluded in 2004 when the Board of Water Commissioners determined that it had, "Run its course."<sup>8</sup> A fee charging \$5.50/gallon per day of new demand reportedly replaced the program.



## City of Ojai, CA

The City of Ojai, California is mentioned as having a water demand offset program in the *2005 California Water Plan Update*.

"Water savings have been achieved using the Offset program in the city of San Luis Obispo (2 acre-feet of retrofit water savings required for each new acre foot of demand, a 2:1 Offset), Cambria (7-8% less water use per year), Ojai (3:1 Offset) (pg. 22-8)."<sup>13</sup>

This is the only information that was found regarding an offset program in Ojai, California. Ojai, California had a population of 7,461 in 2010 according to the U.S. Census, and is served by Golden State Water. No information about a water demand offset program was found via searches through City of Ojai, CA or Golden State Water documents and resources.

## City of San Luis Obispo, California

The City of San Luis Obispo's water demand offset program began in ~1990 and ended in 2005. The project team was unable to find any official City documentation detailing the program. Personal communication with City of San Luis Obispo staff provided some very useful information about the program and lessons learned. While in effect, the program required a 2:1 offset for new development and relied on toilet replacements as the primary demand reduction mechanism, although other efficiency measures were reportedly allowed and utilized.

The City of San Luis Obispo was in a severe drought when the water demand offset requirements were implemented. This helped the community and developers accept the program. City staff noted that new construction would likely have been prohibited during this time without a water demand offset program. The City of San Luis Obispo also offered a credit toward the development impact fee for completing retrofits. The program ended in 2005 due to the city obtaining a new water supply source. City staff also indicated that they were running out of toilets to replace, which may have ended the program or required it to be redesigned.<sup>14</sup>

## City of Santa Barbara, California

According to the proceedings of the American Council for an Energy-Efficient Economy's 1992 Summer Study, the City of Santa Barbara had a water demand offset policy. This is the only evidence the project team found.

Proceedings from the American Council for an Energy-Efficient Economy's 1992 Summer Study

"In 1991, Santa Barbara amended its 1988 growth moratorium to allow new construction with water offsets, at 2:1 for residential and 3:1 for commercial units. In the past year, only a few permits for new hookups have been issued. Most builders have funded city-supervised retrofit program rather than

<sup>13</sup> State of California Department of Water Resources. (2005). California Water Plan Update 2005: A Framework for Action. Volume 2, Chapter 22: Urban Water Use Efficiency. <http://www.waterplan.water.ca.gov/docs/cwpu2005/vol2/v2complete.pdf>

<sup>14</sup> City of San Luis Obispo, California Staff. (March 2013). Personal Communication.

Implement their own. The Offset program may end this year with termination of the City's drought emergency, the original motive for the moratorium (pg. 8)."<sup>15</sup>

### **Town of Sharon, Massachusetts**

Sharon Massachusetts has not implemented a water demand offset policy, but city staff did draft a bylaw pertaining to water banking in 2005. The full text of the draft bylaw can be found in the Appendix to the report, *Analysis of Water Offset Programs for Implementation in the Ipswich River Watershed, Massachusetts*.<sup>16</sup> Sharon's legal counsel deemed the bylaw invalid under state law. One reason cited is that the offset fees would only be paid by developers, yet the benefits would be experienced by the whole Town of Sharon.<sup>8</sup> This is a valuable example of legal counsel deeming a proposed water demand offset policy to be illegitimate.

### **Examples of Current Policies**

1. Cambria Community Services District, California
2. Town of Danvers, Massachusetts
3. East Bay Municipal Utility District, California
4. City of Lompoc, California
5. Monterey Peninsula Water Management District, California
6. City of Morro Bay, California
7. City of Napa, California
8. City of St. Helena, California
9. County of San Luis Obispo, California
  - a. Paso Robles Groundwater Basin
  - b. Los Osos Groundwater Basin
  - c. Nipomo Mesa Conservation Area
10. City of Santa Fe, New Mexico
11. City of Santa Monica, California
12. The Soquel Creek Water District, California
13. Town of Weymouth, Massachusetts

### **Cambria Community Services District, California**

The Cambria Community Services District (CCSD) requires applicants for new construction projects to offset projected water use via plumbing retrofits in order to obtain water service. Retrofits must be complete within 90 days of receipt of an intent to serve letter. Applicants have the option to opt out of the plumbing retrofit process, and instead pay fees to earn retrofit points from the CCSD points bank.

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<sup>15</sup> Dyballa, C. and Connelly, C. (1992). Electric and Water Utilities: Building Cooperation and Savings. Presented at the 1992 Summer Study, Efficiency in Buildings, American Council for an Energy-Efficient Economy, Pacific Grove, California. [http://www.aceee.org/files/proceedings/1992/data/papers/SS92\\_Panel5\\_Paper07.pdf](http://www.aceee.org/files/proceedings/1992/data/papers/SS92_Panel5_Paper07.pdf)

<sup>16</sup> Anderson, Krista. (2006). Appendix of Selected Massachusetts Laws, Bylaws, and Guidance [http://ipswich-river.org/wp-content/uploads/2010/04/Analysis\\_of\\_Water\\_Offset\\_Programs\\_APPENDIX.pdf](http://ipswich-river.org/wp-content/uploads/2010/04/Analysis_of_Water_Offset_Programs_APPENDIX.pdf)

Remodels that increase square footage by 20 percent, or that add any new water fixtures, are subject to review by CCSD and may require retrofit points.<sup>17</sup>

According to the CCSD municipal code, offset requirements are determined by administrative procedures that are adopted by the board and by the District's equivalency table. The equivalency table was previously included in the municipal code but has been removed.<sup>18</sup> The municipal code also requires a points bank to be maintained by CCSD which tracks retrofit points that accrue from the installation of efficient water fixtures. Text from the municipal code is included at the end of this section.

The specifications of the water demand offset policy are found in Chapter 4.20 of the municipal code. The requirements indicate three types of new (or expanded) service:

1. New construction from waiting lists
2. Grandfathered services
3. Remodels and active service transfers

Growth in San Luis Obispo County, California, where the Cambria Community Services District is located, is limited by the San Luis Obispo County *Growth Management Ordinance*. According to the *Growth Management Ordinance*, "The annual number of new dwelling units to be allocated shall not exceed 2.3% of the total number of dwelling units within the community services district boundary within the Urban Reserve Line as designated in the County General Plan."<sup>19</sup> According to the CCSD website, San Luis Obispo County limited Cambria's growth to 1 percent in the year 2000. However, the *Growth Management Ordinance*, approved by the Board of Supervisors on April 26, 2011, further states, "the Maximum Annual Allocation shall be set at zero percent per fiscal year for the period from July 1, 2012 through June 30, 2015, resulting in no new allocation requests other than those accompanied by an intent-to-serve letter from the Cambria Community Services District for transferred meters and 8 grandfathered allocations for new residences in Cambria each fiscal year in the period from July 1, 2012 through June 30, 2015."

Due to the limits on growth, CCSD created a waiting list for new water connections in 1986. In 1990 the list was closed to new applicants. As of November 26, 2014 (the most recent update as of this writing) the new water and sewer service wait list contained 666 single-family properties, 11 multifamily properties, and 10 commercial properties. Grandfather meters and active service transfers do not require that you wait for an intent to serve letter from the waiting list.

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<sup>17</sup> Cambria Community Services District, California, Code of Ordinances - Title 4 - Water Systems - Chapter 4.20 - Water Conservation and Retrofit Program. <https://library.municode.com/index.aspx?clientId=16102>

<sup>18</sup> Cambria Community Services District. (June 21, 2013). Special Meeting Materials. <http://www.cambriacsd.org/Library/PDFs/BOARD%20OF%20DIRECTORS/AGENDAS/2013/Special%20meeting%20June%2021%202013%20combined.pdf>

<sup>19</sup> Growth Management Ordinance of the County of San Luis Obispo, Title 26 of the San Luis Obispo County Code. <http://www.slocounty.ca.gov/Assets/PL/Ordinances/Title+26+-+Growth+Management+Ordinance.pdf>

Grandfathered meters and active service meter transfers qualify differently than new development, and active service transfers, in particular, have different requirements. The Cambria Community Services District defines grandfathered meters and active service meter transfers as follows:

Grandfathered Meter: "A water connection (and in some cases, sewer also) that was previously paid for, but a structure was not subsequently built. The water meter may or may not necessarily actually be in the ground."

Active Service Transfer: "A water (and usually but not necessarily sewer also) service currently providing service to a property, where the structure is being, or has been, removed and the service is transferred to an alternate property under the District's transfer program."<sup>20</sup>

Grandfathered meters are subject to the same retrofit requirements as new construction if there was no previously existing structure. According to the Cambria Code of Ordinances, "If the grandfather status was the result of a previously existent residence, the retrofit requirement shall be as for a 'remodel.' If there was no previous existent residence, the retrofit requirement shall be due and payable upon issuance of a county-approved building permit." Active service transfers receive credit for any water fixtures in the previous structure. Additional fixtures will require a retrofit point offset in the same manner as new construction.

Cambria Community Services District, California Municipal Code  
Chapter 4.20 - Water Conservation and Retrofit Program  
4.20.030 - Program implementation.

No new residential or commercial water and sewer connections or remodel approvals will be allowed except under this water conservation and retrofit program. The water conservation and retrofit program, hereinafter referred to as "program" shall be initiated as follows:

A. New Construction From Waiting Lists.

1. As provided in Section 8.04.080(C) and as further provided in the administrative policy adopted in accordance with that section, the board of directors of the Cambria Community Services District may authorize issuance of intent to serve letters;
2. Points and Points Bank.
  - a. The number of points required to offset water use for the project shall be calculated based upon administrative procedures approved by the board and a retrofit points equivalency table, which shall be adopted by the board by resolution. Points for commercial projects shall be determined based upon either values contained in the retrofit points equivalency table or based upon factors deemed appropriate by CCSD staff for the particular type of commercial use, including but not limited to the number of employees and whether facilities such as restrooms are to be made available for use by the public. Points shall represent water units (i.e. 1 point shall equal .72 annual water unit or 1.47 gallons per day). The retrofit points equivalency table shall include point values

<sup>20</sup> Cambria Community Services District. (Accessed February 2014). "Grandfathered" and "Active Service Transfer" Water Meters. [http://www.cambriacsd.org/Library/PDFs/WATER%20WASTEWATER/Grandfather\\_Water\\_Meter.pdf](http://www.cambriacsd.org/Library/PDFs/WATER%20WASTEWATER/Grandfather_Water_Meter.pdf)

for fixtures, and the methodology for calculating the number of points required for a project in order to offset water use. Applicants shall be notified of the number of points required for his or her project.

- b. A points bank shall be maintained by the district which shall represent retrofit points that accrue from the installation of high-efficiency water use fixtures that result from retrofits when there is a change of ownership or use (Section 4.16.050), expansion of use (Section 4.16.060, resale (4.16.070), district rebate programs, and other district programs used to achieve verifiable reductions in existing water use in the district's service area.
  - c. Applicants shall have the obligation to provide retrofits in the district's service area that offset the water demand of the project, as represented by the required number of points as determined by district staff. The district may permit all or a portion of the required points to be satisfied by payment of in-lieu fees for points from the points bank. In-lieu fees shall be established by the board by resolution, and shall be based upon a determination of the cost to implement programs and projects that will reduce existing water use within the district's service area in an amount equal to or greater than the anticipated water use of projects being issued intent to serve letters.
3. The district will issue a notification to eligible waiting list position holders along with an invoice for administrative fees, as required by the district's adopted fee schedule. Within thirty (30) days of issuance of notification or such other time established by the general manager, the applicant must make full payment of administrative fees and, if permitted by the district to pay an in-lieu fee, tender to the district the amount of in-lieu fees that are required. On receipt of the administrative fee and in-lieu fees, if applicable, and when in compliance with all other applicable laws and regulations, the district shall issue an intent to serve letter.
  4. In the event in-lieu fees are not requested by the applicant, or are not permitted or only satisfy a portion of the points required for the project, within sixty (60) days of the issuance of the intent to serve letter, applicant must submit properties proposed for retrofit. All retrofit work then must be completed within ninety (90) days of the issuance date of the intent to serve letter. Also within that same ninety (90) days (or no later than the last business day of the calendar year, whichever comes first), all residential applicants must show proof to the district, that they have applied for a building permit allocation under the San Luis Obispo County growth management ordinance. The allocation requires that a complete application be submitted to the county building and planning department for a building permit (and a minor use permit, where required) within the deadline set by the allocation.
  5. Failure to complete items in subsections (A)(3) and (A)(4) within the prescribed time periods will result in the general manager revoking the intent to serve letter and notify the county that the applicant is not eligible for water and sewer service. All persons returned to the water and sewer waiting list shall be notified in writing. Such persons returned to the water and sewer waiting list shall be placed back on the list in the same relative order that their original position bears to all others on to the list. Any administrative fee paid shall be forfeited. Any retrofit in-lieu fees paid by the applicant shall be refunded and related retrofit points shall be returned to the points bank.

## Town of Danvers, Massachusetts

The Town of Danvers, Massachusetts is required to implement a water use mitigation program (WUMP) based on the requirements of its Massachusetts Water Management Act Permit.<sup>21</sup> Danvers' mitigation program collects fees to offset two times the estimated water use of new construction, or other projects that will cause a new or increased water demand. The fees are put into a fund and expended toward demand reduction programs such as rebates for the replacement of inefficient fixtures. Additionally, all new construction and other projects must install water and energy efficient faucets, showerheads, clothes washers, dishwashers, and toilets. The construction requirements of the *Danvers Water Use Mitigation Program* indicates that these fixtures and appliances must meet the, "Environmental Protection Agency's Water Efficiency Standards." However, it does not clearly identify WaterSense or Energy Star specifications. Irrigation systems installed in new construction, and other applicable projects, must have a rain and soil moisture sensor.

Water Use Mitigation Program fees are based on the size of the proposed project and are indicated in Table 2. Residential buildings projects incur fees based on the number of bedrooms in a dwelling unit. Commercial and industrial projects incur fees of \$9.00/gpd and demands are based on *Massachusetts Title 5, 314 CMR 7.15: Calculation of Flows*.<sup>21,22</sup>

**Table 2: Danvers, MA WUMP Fees for Development Types**

Development Type	Fee
Residential - 1 Bedroom	\$1,980/unit
Residential - 2 Bedroom	\$3,960/unit
Residential - 3 Bedroom	\$5,940/unit
Residential - 4 Bedroom	\$7,920/unit
Commercial and Industrial	\$9.00/gpd

Currently, the Town of Danvers, Massachusetts offers rebates through its WUMP for toilets, clothes washers, showerheads, faucets, and rain sensors for existing irrigation systems. Toilet rebates are available for three different scenarios: (1) \$200 for a 1.28 gpf toilet that replaces a fixture manufactured before 1994, (2) \$150 for a 1.6 gpf toilet that replaces a fixture manufactured before 1994, and (3) \$25 for a 1.28 gpf toilet that replaces a fixture manufactured in or after 1994. WaterSense toilets are recommended but not required. Toilets being installed for a new home addition are not eligible, only replacements.<sup>23</sup> Newly purchased clothes washers that replace a unit manufactured before 2005, and meet the requirements for Tiers II or III of the Consortium for Energy Efficiency (CEE) *Qualifying Product List* are eligible for a \$200 rebate.<sup>24,25</sup> This means that new clothes washers must have a water factor of

<sup>21</sup> Town of Danvers, Massachusetts. (2008). Danvers Water Use Mitigation Program.

<sup>22</sup> Massachusetts Title 5, 314 Code of Massachusetts Regulations - Sewer System Extension and Connection Permit Program. Section 7.15: Calculation of Flows. <http://www.mass.gov/eea/docs/dep/service/regulations/314cmr07.pdf>

<sup>23</sup> Town of Danvers-Department of Public Works Water Use Mitigation Program-2014 Toilet Rebate Application [http://www.danvers.govoffice.com/vertical/sites/%7BCFC0250F-19AB-46E7-B599-146187CB1799%7D/uploads/2014\\_Toilet\\_Application%282%29.pdf](http://www.danvers.govoffice.com/vertical/sites/%7BCFC0250F-19AB-46E7-B599-146187CB1799%7D/uploads/2014_Toilet_Application%282%29.pdf)

<sup>24</sup> Town of Danvers-Department of Public Works Water Use Mitigation Program-2014 Clothes Washer Rebate Application [http://www.danvers.govoffice.com/vertical/sites/%7BCFC0250F-19AB-46E7-B599-146187CB1799%7D/uploads/2014\\_Clothes\\_Washer\\_Application%281%29.pdf](http://www.danvers.govoffice.com/vertical/sites/%7BCFC0250F-19AB-46E7-B599-146187CB1799%7D/uploads/2014_Clothes_Washer_Application%281%29.pdf)

<sup>25</sup> Consortium for Energy Efficiency. Accessed March 2014). Residential Clothes Washers Qualifying Product List.

4.5 or less to be eligible.<sup>26</sup> Showerheads with a 2.0 gpm or less flow rate and faucets with a 1.5 gpm or less flow rate are eligible for \$50 rebates from the Town of Danvers. Like toilet rebates, WaterSense products are not mandatory and fixtures for additions and new construction are not eligible.<sup>27</sup> Rebates are also available for wireless rain sensors in the amount of \$100. The rebate form indicates that irrigation systems installed after January 2008 are not eligible, because the consumption of new systems is considered an additional draw on Danvers's water reserves.<sup>28</sup>

The Town of Danvers' website contains the following message to water customers:

"Replacing an old toilet, clothes washer, faucet, showerhead or adding a wireless rain sensor to your existing irrigation system? Submit a rebate application and get \$ back!"<sup>29</sup>

While this report is not critiquing each of the water demand offset policies, it is notable that this advertisement is essentially promoting free ridership. A water efficiency program free rider is a customer that would have taken the same water conserving action in the same timeframe had the incentive program not existed. The Danvers's advertisement to customers offers money specifically for action that is already being taken. Water efficiency rebates are typically designed to incentivize efficient behavior, not reward action already taken.

Because 1.6 gpf toilets are the maximum allowed by the Energy Policy Act of 1992, rebates should be limited to 1.28 gpf fixtures. Rain sensors may not be the optimal technology to incentivize for outdoor water savings, as they have been shown to be less effective than soil moisture sensors and weather based irrigation controllers.<sup>30</sup> Additionally, the \$100 rebate is higher than the retail cost of most rain sensors. The rebate amounts do not explicitly state that the rebate is "up to" the dollar amount listed (i.e., limited to the actual cost of an item). A \$50 rebate for a faucet or showerhead is quite high, and efficiency incentives for faucets are uncommon throughout the United States due to the potentially limited, and difficult to calculate, water efficiency benefit. Additionally, requiring WaterSense products would help ensure the products meet efficiency specifications and that customers will be satisfied with performance.

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<sup>26</sup> Consortium for Energy Efficiency. (Effective January 1, 2011). High efficiency specifications for residential clothes washers. [http://library.cee1.org/sites/default/files/library/5927/CEE\\_CW\\_Spec\\_for\\_web\\_site.pdf](http://library.cee1.org/sites/default/files/library/5927/CEE_CW_Spec_for_web_site.pdf)

<sup>27</sup> Town of Danvers-Department of Public Works Water Use Mitigation Program-2014 Showerhead and Faucet Rebate Application. [http://www.danvers.govoffice.com/vertical/sites/%7BCFC0250F-19AB-46E7-B599-146187CB1799%7D/uploads/2014\\_Faucet\\_and\\_Showerhead\\_Application%282%29.pdf](http://www.danvers.govoffice.com/vertical/sites/%7BCFC0250F-19AB-46E7-B599-146187CB1799%7D/uploads/2014_Faucet_and_Showerhead_Application%282%29.pdf)

<sup>28</sup> Town of Danvers -Department of Public Works Water Use Mitigation Program -2014 Lawn Irrigation Rain Sensor Rebate Application [http://www.danvers.govoffice.com/vertical/sites/%7BCFC0250F-19AB-46E7-B599-146187CB1799%7D/uploads/2014\\_Lawn\\_Irrigation\\_Rain\\_Sensor\\_Application%282%29.pdf](http://www.danvers.govoffice.com/vertical/sites/%7BCFC0250F-19AB-46E7-B599-146187CB1799%7D/uploads/2014_Lawn_Irrigation_Rain_Sensor_Application%282%29.pdf)

<sup>29</sup> Town of Danvers-Department of Public Works. (Accessed March 2014). Water Efficient Appliance Rebate Applications & Water Conservation. Water Use Mitigation Program. [http://www.danvers.govoffice.com/index.asp?Type=B\\_PRGRSRV&SEC={ACF61B43-8096-408C-8DFF-4DA558A9FEB6}&DE={432C1F10-C557-4EFD-AE68-D60AFE5BD82}](http://www.danvers.govoffice.com/index.asp?Type=B_PRGRSRV&SEC={ACF61B43-8096-408C-8DFF-4DA558A9FEB6}&DE={432C1F10-C557-4EFD-AE68-D60AFE5BD82})

<sup>30</sup> Dukes, M. D. (2012). Water conservation potential of landscape irrigation smart controllers. Transactions of the ASABE, 55(2), 563-569.

## East Bay Municipal Utility District, California

The East Bay Municipal Utility District (EBMUD) provides water to 1.3 million people in a 331 square mile area east of the San Francisco Bay. The service area includes cities such as Oakland, Berkeley, and Alameda. EBMUD requires water demand offsets when new developments are being proposed in an area that is partially or completely outside of the District's service area and requires annexation. As documented in the 2008 Journal of the American Water Works Association article, *Innovative water conservation supports sustainable housing development*, EBMUD has formed partnerships with developers to mitigate the projected water demand of newly planned communities. The primary focus of the article is a development referred to as the "Alamo Creek project." Three other developments that required offset fees are also mentioned in the article: (1) Wendt Ranch, (2) Wiedemann Ranch, and (3) the Meadows.

The Alamo Creek project was reported to have 1,060 single-family homes, 340 townhomes, senior rental homes, a community center and pool, nine neighborhood parks, an elementary school, a 10 acre soccer complex, a fire station, and over 300 additional acres of open space.<sup>12</sup> The land comprising Alamo Creek was not entirely within the existing EBMUD service area and required annexation. This was reportedly controversial because EBMUD did not have a long range supply planned for the area outside its service area boundaries.

The projected water demand was offset through on-site and off-site water conservation programs. The projected 0.63 million gallons per day (mgd) demand of Alamo Creek was reduced to 0.45 mgd through planned on-site conservation and the use of recycled water for irrigation. The planned on-site conservation included high-efficiency toilets, efficient washing machines, efficient dishwashers, low water using landscapes, artificial turf soccer field, and irrigation controllers. The developer prepared a set of covenants, conditions, and restrictions for development to ensure the on-site conservation remained permanent. The covenants, conditions, and restrictions indicate that each water meter has a water budget based on the type of connection, building size, and lot size. If the water budget for the entire development exceeds 0.45 mgd by 20 percent in a given year, the homeowners association (HOA) will receive a penalty water bill and will be given access to readings of all individual meters. The HOA can then pay the penalty collectively or allocate it to the over budget accounts.

The off-site conservation mitigation required an offset of the remaining 0.45 mgd at 2:1, or 0.9 mgd. The agreement reached required the developers to pay \$6,000 per new home that would be used to sponsor conservation projects within the existing EBMUD service area. The end result was \$8 million to save 0.9 mgd. Table 3 is reproduced from the AWWA Journal article *Innovative water conservation supports sustainable housing development*, and lists the conservation activities, estimated savings, and estimated costs for the Alamo Creek off-site water offsets.<sup>12</sup>



**Table 3: Alamo Creek Off-site Conservation Measures to Achieve Offsets – EBMUD**

Conservation Measure	Activity Level	Estimated Demand Offset (mgd)	Estimated Cost (\$1,000)
Indoor Water Use			
Single-family			
Point-of-use hot water heaters	450	0.0040	\$59,000
Multifamily			
Submetering	2,500	0.0300	\$313,000
Toilet flapper replacements	102,500	0.1550	\$1,179,000
CII			
Onsite water reuse systems	4	0.1600	\$1,600,000
Ice Machines	900	0.0360	\$338,000
Connectionless steamers	400	0.1800	\$596,000
Outdoor Water Use			
Single-family			
Water budgets	7,000	0.1960	\$2,800,000
Irrigation controllers (ET)	1,500	0.1170	\$675,000
Graywater reuse systems	10	0.0004	\$8,000
Multifamily			
Water budgets	500	0.0265	\$200,000
Total		0.9049	\$7,768,000

Water demand offsets have been required for Alamo Creek and five other developments that required annexation: (1) The Meadows, (2) Wendt Ranch, (3) Wiedemann Ranch, (4) Camino Tassajara, and (5) Gale Ranch. Details about the associated water demand mitigation fees, and other information, can be found in *Schedule N – Water Demand Mitigation Fees*, of the 2014 EBMUD Water Services Rates, Charges and Fees.<sup>31</sup>

New development within the service area does not require water demand offsets, but there are water efficiency requirements that must be met. According to the Section 31 of EBMUD’s *New Water Service Regulations*: "Water service shall not be furnished to any Applicant for new or expanded service, or for any change in customer classification (such as a change from industrial to commercial, residential to commercial, or the like) that includes new or retrofitted water using equipment, unless all the applicable water-efficiency measures hereinafter described in this Section 31 have been reviewed and approved by the District. All the applicable and required water-efficiency measures shall be installed at Applicant expense (pg. 1)."<sup>32</sup>

The *EBMUD Water Efficiency Requirements* set standards for indoor and outdoor water use for residential and nonresidential accounts. For example, there are efficiency requirements for toilets, showerheads, faucets, clothes washers, and dishwashers for new residential connections. Indoor water

<sup>31</sup> East Bay Municipal Utility District. Fiscal Year 2014 Water Services Rates, Charges and Fees. Schedule N – Water Demand Mitigation Fees (Effective 08/12/13). <https://www.ebmud.com/sites/default/files/pdfs/SchedN%20081213.pdf>

<sup>32</sup> East Bay Municipal Utility District. (July 2013). New Water Service Regulations. Section 31: Water Efficiency Requirements. [https://www.ebmud.com/sites/default/files/pdfs/Section%2031%20Water%20Efficiency%20Requirements%20070113\\_0.pdf](https://www.ebmud.com/sites/default/files/pdfs/Section%2031%20Water%20Efficiency%20Requirements%20070113_0.pdf)

efficiency requirements for new nonresidential connections include the aforementioned residential fixtures and also contain specifications for cooling towers, food steamers, ice machines, refrigeration, pre-rinse spray valves, and vehicle wash facilities.<sup>32</sup>

### **City of Lompoc, California**

The City of Lompoc, California adopted a city code in 1990 (Section 13.04.070) that requires demand offsets for new development. The guidelines for the water offset policy were established by a series of resolutions (No. 4000 in 1990, No. 4286 in 1993, No. 4397 in 1994, No. 4988 in 2002, and No. 5629 in 2010). Under the policy, new single-family homes, condominiums, and apartment units are estimated to use an average of 94,627 gallons per year. One household retrofit of faucets, showerheads and toilets was estimated to save 12,904 gallons per year. Therefore, eight retrofits were required to offset the demand of one new single-family home, condominium, or apartment unit.<sup>33</sup> In the past, developers were given the option to pay a fee in lieu of directly providing the retrofits.

The option for in lieu fees was suspended on May 18, 2010 by the Lompoc City Council when they approved Resolution No. 5629. The temporary suspension of collecting in lieu fees was to last until June 30, 2011. However, at the June 21, 2011 City Council Meeting, the suspension was requested to continue beyond June 30, 2011.<sup>34</sup> According to City of Lompoc staff, the in lieu fee requirements remain suspended and Resolution No. 5629 has not been superseded.<sup>35</sup>

An excerpt from a July 5, 2011 City Council agenda suggests existing funds would last for five years, “Through May 31, 2011, a balance of \$1,519,347.18 remains, and is available, in a restricted account set aside for payment of such rebates and programs. Since May 31, 2010 to date, \$84,850.21 was spent from the fund. It is anticipated that another \$250,000 for approved conservation programs will be expended from this fund during the 2011-12 fiscal year, and an additional \$50,000 will be requested for new water conservation programs. At the expected rate of expenditure, the City will not draw down all available funds for five years.”

Resolution No. 5929 rescinded 4988 and suspended the in lieu fee option, but Section 13.04.070 of the Lompoc City Code continues to allow for application for new building permits that will result in an increase in water demand.<sup>36</sup>

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<sup>33</sup> City of Lompoc, California. (2002). Appendix A: Resolution No. 4988(02) Retrofit Program Schedule Retrofit Requirements. <http://www1.cityoflompoc.com/councilagenda/2002/020319/020319No8B.pdf>

<sup>34</sup> Lompoc City Council Agenda Item. (July 5, 2011). Replace Resolution No. 5629 (10) with Amended Resolution NO. 5732 (11) to Temporarily Suspend Collection of Retrofit Fees. <http://www1.cityoflompoc.com/councilagenda/2011/110705/110705n08.pdf>

<sup>35</sup> City of Lompoc, California Staff. March 26, 2014). Personal Communication.

<sup>36</sup> City of Lompoc, California. (2010). Resolution No. 5629 (10) A Resolution Of The Council Of The City Of Lompoc, County of Santa Barbara, State of California, Amending the Standards and Guidelines Relating to Development Project Impact on Water Supply (Retrofit/Rebate Program). <http://www1.cityoflompoc.com/councilagenda/2010/100601/100601n09a.pdf>

Lompoc Municipal Code - Title 13 PUBLIC SERVICES  
Chapter 13.04 Water System Generally  
13.04.070 Development Project Impact on Water Supply.

A. Prohibitions. Except as specifically exempted elsewhere herein, the City shall not issue grading or building permits for new construction unless they are consistent with the provisions of this Section and any implementation resolutions and policies.

B. That commencing immediately, urgency water regulations are hereby declared instituted and placed on the filing and issuance of all grading and building permit applications for new construction before the City's Building Department.

C. That commencing immediately, and more specifically, the urgency water regulations shall apply to the application for an issuance of any building permit for new construction which, in the determination of the Public Works Department, may result in increased water consumption.

D. That commencing immediately, the urgency water regulations shall suspend the processing at the point of consideration of approval or acceptance of tentative or final parcel maps, subdivision maps or lot line adjustments that may result in the issuance of building permits for new construction unless water programs have been put in place by the applicant that ensures that the project shall mitigate and offset water usage.

E. This Section authorizes the Building Department to issue building permits for new construction to those projects where it has been demonstrated to the satisfaction of the Utility Director in accordance with standards and guidelines adopted by resolution of the City Council, that the applicant can and will participate in and provide water conservation measures and remedies to the existing City supply and distribution system that results in a decrease in the demand on the existing system equal to the proposed project demand.

F. This Section permits the acceptance, processing, and approval, of parcel maps, tentative and final maps, subdivision maps, or lot line adjustments that may result in the subdivision of land where it has been demonstrated to the satisfaction of the Utility Director, in accordance with standards and guidelines adopted by Resolution of the City Council, that the applicant can and will participate in and provide water conservation measures and remedies to the existing City supply and distribution systems that will result in a decrease in the demand on the existing system equal to the proposed project demand.

G. Exception. Projects supported by proven and assignable water from other than the Lompoc Valley Groundwater Basin. (Prior code § 3306.1)<sup>37</sup>

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<sup>37</sup> City of Lompoc, California Municipal Code. Title 13 Public Services-Chapter 13.04 Water System Generally-Section 13.04.070 Development Project Impact on Water Supply. <http://qcode.us/codes/lompoc/>

## Monterey Peninsula Water Management District, California

The Monterey Peninsula Water Management District (MPWMD) is a regulatory agency in Monterey, California responsible for managing water for a population of approximately 104,000. MPWMD has the following legislative functions:

1. Augment the water supply through integrated management of ground and surface water resources
2. Promote water conservation
3. Promote water reuse and reclamation of storm and wastewater
4. Foster the scenic values, environmental quality, native vegetation, fish and wildlife, and recreation on the Monterey Peninsula and in the Carmel River basin.<sup>38</sup>

The District manages water from two sources, (1) surface water from the Carmel River, and (2) ground water pumped from municipal and private wells in Carmel Valley and the Seaside Coastal Area. Ninety-five percent of the population residing within MPWMD's boundaries is served by California American Water (Cal-Am), a private water utility.<sup>39</sup>

In 2009 the California State Water Resources Control Board (CA SWRCB) issued *Order WR 2009-0060 (Cease and Desist Order)* against Cal-Am for unpermitted withdrawals from the Carmel River that were identified in the 1995 CA SWRCB *Order WR 95-10 (Order on Four Complaints Filed Against the California-American Water Company)*. *Order WR 95-10* stated that Cal-Am was diverting 10,730 acre-feet of water per year from the Carmel River in 1995, despite its legal right being limited to 3,376 acre-feet per year, and required Cal-Am to reduce surface water diversions from the Carmel River that were in excess of its legal entitlement. Fourteen years later *Order WR 2009-0060* found that Cal-Am was not in compliance with *Order WR 95-10* and required Cal-Am to develop replacement supplies by December 2016. *Order WR 2009-0060* also effectively placed a moratorium on new connections in the portions of MPWMD service area that receive water from Cal-Am.<sup>40,41</sup> The California Public Utilities Commission supported the moratorium on January 25, 2011 via an administrative law judge's proposed decision.<sup>42</sup>

Because of the current moratorium on new connections, MPWMD's Rules and Regulations related to new connections and expanded use of existing connections are temporarily invalid. Nonetheless, the District's policies are included in this literature review to demonstrate a unique approach to permitting and offsetting expanded water use in existing connections.

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<sup>38</sup> Monterey Peninsula Water Management District. (Accessed April 2014). *The Basics*. [www.mpwmd.dst.ca.us/whatis/basicsREV20111004.htm](http://www.mpwmd.dst.ca.us/whatis/basicsREV20111004.htm)

<sup>39</sup> Monterey Peninsula Water Management District. (February 2011). *Frequently Asked Questions and Answers About the Cease and Desist Order Issued by the State Water Resources Control Board*. [www.mpwmd.dst.ca.us/CDO/FAQ/CDO\\_FAQ\\_20110202\\_HS.pdf](http://www.mpwmd.dst.ca.us/CDO/FAQ/CDO_FAQ_20110202_HS.pdf)

<sup>40</sup> State of California State Water Resources Control Board. (July 6, 1995). *Order WR 95-10 - Order on Four Complaints Filed Against the California-American Water Company*. [www.swrcb.ca.gov/waterrights/board\\_decisions/adopted\\_orders/orders/1995/wro95-10.pdf](http://www.swrcb.ca.gov/waterrights/board_decisions/adopted_orders/orders/1995/wro95-10.pdf)

<sup>41</sup> State of California State Water Resources Control Board. (10/20/09). *Order WR 2009-0060 - In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company*. [www.waterboards.ca.gov/waterrights/board\\_decisions/adopted\\_orders/orders/2009/wro2009\\_0060.pdf](http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2009/wro2009_0060.pdf)

<sup>42</sup> Public Utilities Commission of the State of California. (1/25/2011). *Decision Directing Tariff Modifications to Recognize Moratorium Mandated by State Water Resources Control Board*. [www.mpwmd.dst.ca.us/puc/cawmoratorium\\_2011/LegalFilings/ALJWeatherfordProposed\\_Adopted\\_20110324.pdf](http://www.mpwmd.dst.ca.us/puc/cawmoratorium_2011/LegalFilings/ALJWeatherfordProposed_Adopted_20110324.pdf)

The MPWMD website lists 160 ordinances that have been adopted by the Board of Directors since 1980 to establish and amend its Rules and Regulations.<sup>43</sup> In 1981, MPWMD established a water allocation program to manage the distribution of water resources of the Monterey Peninsula. In addition to apportioning water among local jurisdictions, it set a total production limit for public and private water providers.<sup>44</sup> Permits for new connections are only approved if the local jurisdiction can accommodate the resulting increase in demand with its allocation as is stated in Rule 23.

#### MPWMD Rule 23 - Action on Application for a Water Permit to Connect to or Modify and Existing Water Distribution System

##### A. Process

##### 1. New and Amended Water Permit

....

g. When the Adjusted Water Use Capacity as determined in Rule 24 is a positive number, that amount of water shall be deducted from the Jurisdiction's Allocation or Water Entitlement as authorized on the Water Release Form. If additional water is required to meet the Adjusted Water Use Capacity of the Project and the Applicant is unable to reduce the Adjusted Water Use Capacity, the application shall be denied and returned to the Applicant to secure additional water resources.<sup>45</sup>

Additionally, the Monterey Peninsula Water Management District prohibits property owners from expanding existing water use through the installation of additional fixtures (e.g., residential remodel or addition), changing the use (e.g., retail space converting to food service), or enlarging a commercial building without first obtaining a permit.

MPWMD's current permitting process was established in 1985 via Ordinance No. 21. Exhibit "A" of Ordinance 21 (Rule 24) states:

"Each individual, prior to increasing the use of water from a potable water distribution system within the District, and before adding a connection or changing the character of use of an existing connection to a potable water distribution system within the District, shall obtain a permit from the Monterey Peninsula Water Management District."

Approval must be given by MPWMD if a property owner with an existing water connection wishes to add water consuming fixtures and/or appliances, convert commercial space to another use, or otherwise increase the water consumption associated with the property. To facilitate the expansion of on-site water use without an increase in the overall water demand of the property, MPWMD allowed property owners to earn water use credits. Water use credits were first introduced by Ordinance No. 60 which was adopted on June 15, 1992.

<sup>43</sup> Monterey Peninsula Water Management District. (Last updated May 7, 2014). *Ordinances*. [www.mpwmd.dst.ca.us/ordinances/ordinances.htm](http://www.mpwmd.dst.ca.us/ordinances/ordinances.htm)

<sup>44</sup> Monterey Peninsula Water Management District. (April 2012). *White Paper: The MPWMD Mitigation Program*. [www.mpwmd.dst.ca.us/WaterUseFee/MitigationProgramWhitePaper\\_April2012.pdf](http://www.mpwmd.dst.ca.us/WaterUseFee/MitigationProgramWhitePaper_April2012.pdf)

<sup>45</sup> Monterey Peninsula Water Management District. (Last amended by Ordinance No. 145 9/20/2010). *Rule 23 - Action on Application for a Water Permit to Connect to or Modify and Existing Water Distribution System*. [www.mpwmd.dst.ca.us/rules/2011/20110301/pdfs/RegII/RegII\\_rule23.pdf](http://www.mpwmd.dst.ca.us/rules/2011/20110301/pdfs/RegII/RegII_rule23.pdf)

Ordinance No. 60 - *An Ordinance of the Board of Directors of the Monterey Peninsula Water Management District Amending the Procedure for Issuance of Permits to Authorize New or Intensified Water Use*

Section Six: Permits Required for Intensified Water Use.

A. An expansion/extension permit shall be required from the District for each Intensified Water Use (defined by Rule 11). Intensification of Water Use without a permit shall provide cause for evocation by the District of all water use by any person on that Site. Each application for a permit to expand or extend a water distribution system and each application for an amended expansion/extension permit shall follow the process set forth in Rule 23. The District may issue the permit when the following applies:

(1) The District shall issue an expansion/extension permit for a project when:

....

(2) As an alternate to the process set forth in (1) above, the District may issue an expansion/extension permit for an application without a Water Release Request because of one of the following reasons:

....

(d) the application requests a permit based on a prior Water Use Credit which applies to that Site.<sup>46</sup>

Many ordinances have been adopted by the MPWMD Board of Directors over the years to refine the District's policies regarding water use credits and the transfer of water use credits. This includes rules and regulations that provide a methodology for calculating the increased demand associated with an expanded use as well as methods for computing a water use credit.

Permit applications for expanded use have the new water use capacity calculated using methodologies in MPWMD Rule 24. Residential water use capacities are calculated using *Rule 24, Table 1: Residential Fixture Unit Count Values*, and nonresidential water use capacities are calculated using *Rule 24, Table 2: Non-Residential Water Use Factors*. In some cases the General Manager may make estimates based on water consumption records.<sup>47</sup>

Water use credits to offset the expanded use may be earned from on-site efficiency improvements (i.e., replacing inefficient fixtures/appliances with highly-efficient models), on-site removal of water using fixtures/appliances, or through a water credit transfer from another connection. The credits are calculated using MPWMD *Rule 25.5, Table 4: High Efficiency Appliance Credits*.<sup>48</sup> Water credits are site specific, and water credit transfers may not be used to establish a new connection. The recipient of a water credit transfer can pay the supplier of the credit the original permit fees for the amount of water being transferred, but no additional compensation is allowed by law. According to MPWMD staff, there has not been a water credit transfer since 2004.<sup>49</sup> The following is related text from Rule 25.5 and Rule 28 - Permit and Water Use Transfers:

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<sup>46</sup> Monterey Peninsula Water Management District. (June 15, 1992). *Ordinance No. 60 - An Ordinance of the Board of Directors of the Monterey Peninsula Water Management District Amending the Procedure for Issuance of Permits to Authorize New or Intensified Water Use*. <http://www.mpwmd.dst.ca.us/ordinances/final/pdf/Ordinance%20060.pdf>

<sup>47</sup> Monterey Peninsula Water Management District. (Last amended by Ordinance No. 145 9/20/2010). *Rule 24 - Calculation of Water Use Capacity and Connection Charges*. [http://www.mpwmd.dst.ca.us/rules/2011/20110301/pdfs/RegII/RegII\\_rule24.pdf](http://www.mpwmd.dst.ca.us/rules/2011/20110301/pdfs/RegII/RegII_rule24.pdf)

<sup>48</sup> Monterey Peninsula Water Management District. (Last amended by Ordinance No. 145 9/20/2010). *Rule 25.5 - Water Use Credits and On-site Water Credits*. [www.mpwmd.dst.ca.us/rules/2011/20110301/pdfs/RegII/RegII\\_rule25.5.pdf](http://www.mpwmd.dst.ca.us/rules/2011/20110301/pdfs/RegII/RegII_rule25.5.pdf)

<sup>49</sup> Monterey Peninsula Water Management District Staff. (April 2014). Personal communication.

#### MPWMD Rule 25.5 - Water Use Credits and On-site Water Credits

A. Except where a Water Permit has been abandoned, expired, Revoked, Suspended, or canceled under these Rules, a Person may receive a Water Use Credit for the permanent abandonment of some or all of the prior water use on that Site by one of the methods set forth in this Rule...

....

E. The following types of Permanent Abandonment of Capacity shall qualify for a Water Use Credit under this Rule:

1. Demolition of a building or use that has been recognized by the District as being a lawful water use;
2. Permanent disconnection of a lawful water use from a Water Distribution System;
3. Residential removal of water fixtures;
4. Permanent installation of non-Mandated water fixtures or appliances.<sup>48</sup>

#### MPWMD Rule 28 - Permit and Water Use Credit Transfers

....

B. Property-to-Property and Property-to Jurisdiction Transfers of Water Use Credits for Commercial and Industrial Uses

6. Property-to-property Water Use Credit transfers shall only be used for intensification purposes. New water Connections shall not be issued based upon a property-to-property transferred Water Use Credit.

....

11. Transfer of Water Use Credits shall only occur upon approval by the District. The District shall have sole and exclusive authority to determine the Water Use Capacity, which cannot be transferred by reason of Capacity requirements for the originating Site. The District shall have sole and exclusive authority to determine the Water Use Capacity requirements for the receiving Site. The District shall not approve any water credit transfer where money or other valuable consideration has been given in exchange for the water credit transfer. The District shall not approve any Capacity for expanded water use deriving from a transferred water credit in any circumstance where money or other valuable consideration has been given in exchange for use of the water credit. These limitations shall nonetheless allow the recipient of a water credit transfer to reimburse the donor of that credit for connection fees previously paid to the District for that increment of water.<sup>50</sup>

Although MPWMD does not have a water demand offset policy for new development or new connections, its rules and regulations related to jurisdictional water allocations, water credits, and water credit transfers are designed to cap overall and site specific demands. And while the current moratorium on new connections has virtually halted permits for new connections and expanded uses, MPWD adopted Ordinance No. 154 on September 17, 2012 to reinstate water use credits when the Cease and Desist order is lifted.<sup>51</sup>

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<sup>50</sup> Monterey Peninsula Water Management District. (Last amended by Ordinance No. 158 12/9/2013). *Rule 28 - Permit and Water Use Credit Transfers*. [www.mpwmd.dst.ca.us/rules/2014/20140423/Ord158/pdfs/Rule28.pdf](http://www.mpwmd.dst.ca.us/rules/2014/20140423/Ord158/pdfs/Rule28.pdf)

<sup>51</sup> Monterey Peninsula Water Management District. (September 17, 2012). *Ordinance No. 154 - Tolling Water Use Credits Affected by State Water Resources Control Board Order WR 2009-0060*.

## City of Morro Bay, California

The City of Morro Bay's Municipal Code requires building projects that will increase water usage to be offset in an amount based on water equivalency units. Section 13.20.070 of the Municipal Code provides water equivalency units for over 50 land uses relative to that of a single-family home.<sup>52</sup> Section 13.20.080 also states that, "no more than one-half of the water savings from a project resulting from a retrofit proposal may be credited to a new use or development project."<sup>53</sup> This effectively makes the offset requirement 2:1 due to only half of the estimated savings being credited toward obtaining the necessary equivalency units. The Municipal Code makes no mention of fees being an option in lieu of retrofits. Thus, it appears that developers are required to find and perform the retrofits. Section 13.20.080 indicates that if city staff assists developers in locating retrofit opportunities that priority will be given to low-income households. Due to its length, only a portion of Section 13.20.080 is included below. A link to the full text can be found in the footnote.

Morro Bay, California, Code of Ordinances - Title 13 - Public Utilities - Chapter 13.20 Building Limitation - 13.20.080 Allocation of water equivalency units to projects.

A. No project as defined in this chapter shall be permitted unless it is first reviewed by the community development director to ascertain whether it will increase likely water usage and thereby needs water equivalencies. The director shall use the "water equivalency table" contained in Section 13.20.070 for determining water equivalencies for various uses. If a particular use is not listed on the table, the director shall estimate equivalencies for that use. Generally, the water usage records of a sample of like uses already operating in the city shall be used if available. The time frame for the sampling should be at least seven years of use if available. Any other relevant information may be used in making a reasonable estimate. The director's decisions regarding estimates of water usage may be appealed to the planning commission. If a proposed project, as defined in this chapter, is found to require water equivalencies, it shall not be approved for construction, or in cases of changes to, or the expansion or intensification of, existing uses, the occupancy shall not be approved until and unless the required water equivalencies have been obtained in accordance with the annual water equivalency program, except as provided in this section.<sup>53</sup>

On May 13, 2014 the Morro Bay City Council adopted Resolution No. 32-14, *A Resolution of the City Council of the City of Morro Bay, California, Modifying the Water Allocation Program for 2014*. Resolution No. 32-14 contains requirements for water demand offsets for new water allocations and lists options for achieving offsets which includes an in lieu fee.

City Council of Morro Bay, California

Resolution No. 32-14: A Resolution of the City Council of the City of Morro Bay, California, Modifying the Water Allocation Program for 2014

WHEREAS, Chapter 13.20 of the Morro Bay Municipal Code, calls for the City Council of the City of Morro Bay to adopt a yearly Water Allocation Program based on a report by the Public Services Director after

<sup>52</sup> Morro Bay, California, Code of Ordinances - Title 13 - Public Utilities - Chapter 13.20 Building Limitation - 13.20.070 Water equivalency table. [http://library.municode.com/HTML/16505/level2/TIT13PUUT\\_CH13.20BULI.html#TIT13PUUT\\_CH13.20BULI\\_13.20.070WAEQTA](http://library.municode.com/HTML/16505/level2/TIT13PUUT_CH13.20BULI.html#TIT13PUUT_CH13.20BULI_13.20.070WAEQTA)

<sup>53</sup> Morro Bay, California, Code of Ordinances - Title 13 - Public Utilities - Chapter 13.20 Building Limitation - 13.20.080 Allocation of water equivalency units to projects. [http://library.municode.com/HTML/16505/level2/TIT13PUUT\\_CH13.20BULI.html#TIT13PUUT\\_CH13.20BULI\\_13.20.080ALWAEQUNPR](http://library.municode.com/HTML/16505/level2/TIT13PUUT_CH13.20BULI.html#TIT13PUUT_CH13.20BULI_13.20.080ALWAEQUNPR)



review by the City of Morro Bay Planning Commission and Public Works Advisory Board; and

WHEREAS, the Local Coastal Program Land Use Plan and Ordinance Number 266, requires the City Council to set an annual limit on new residential units and to prescribe the mix of multi-family and single family residences allowed within that limit; and

....

WHEREAS, on February 11, 2014, City Council did also direct staff to develop a water retrofit program that will offset water demand from new development, held a duly noticed Public Hearing on the 2013 Annual Water Progress Report and the proposed 2014 Water Allocation Program, and...

....

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Morro Bay, California, as follows:

A Water Allocation Program for the year 2014 is hereby modified to contain the following element:

New water allocations requested for 2014 be offset on a two-to-one basis (or 440 gallons per day) by providing retrofits to existing uses or providing non-required water savings features for new development that is seeking the water allocation. The Public Services Director is responsible for the review and approval of the proposed retrofits to ensure that they offset the water supply requested by new development. Retrofits may include any of the following water saving best management practices:

- Irrigation Retrofits
- Waterless Urinals
- Ultra-Low Flow Toilets
- Lawn/Landscape Replacement Program
- Gray water system installation in new construction
- Installation of Rainwater Recovery Systems
- Other Water Savings Best Management Practices as approved by the Public Services Director
- Payment of an "In-Lieu" fee program of \$2,900 per Water Equivalency Unit<sup>54</sup>

### City of Napa, California

As per its Municipal Code, the City of Napa, California requires the water requirements of new development to be completely offset by replacing 3.5 gpf or greater toilets with 1.6 gpf models in existing construction. Remodels are also required to offset water use if the remodel would increase water use (e.g., "adding or remodeling a bathroom, adding a bedroom, granny unit, hot tub, spa, pool or laundry)." The details of the offsetting requirement can be found in Title 13 (Section 13.09.010) of the Napa Municipal Code. If direct installation is determined to constitute, "an unusual hardship on an applicant" the general manager may allow the option of an in lieu retrofit fee that covers the cost of replacing the necessary number of toilets to meet the offset requirement. There are some exemptions as well. For example, new homes for sale with monthly housing costs (payment of principal and interest on the mortgage loan, utility cost, taxes and insurance) less than or equal to 30 percent of the median family income for Napa County are exempt.

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<sup>54</sup> City Council of Morro Bay, California. (May 13, 2014). Resolution No. 32-14: A Resolution of the City Council of the City of Morro Bay, California, Modifying the Water Allocation Program for 2014. <http://www.morro-bay.ca.us/DocumentCenter/View/7541>

According to City of Napa staff, WaterSense labeled 1.28 gpf high-efficiency toilets are now required for replacements. City staff also indicated that recent development projects have been offset with recycled water conversions, and that the diminishing number of 3.5 gpf and greater toilets in the service area will likely require creative approaches in the future. While the Municipal Code requires a new development to “completely offset” its water requirements, City Staff reported that commercial development is historically offset at half of the demand requirement.<sup>55</sup> The full text of Section 13.09.010 of the Napa Municipal Code follows this paragraph.

Napa, California Municipal Code  
Title 13 Public Services  
13.09.010 New development and remodels

A. New development shall completely offset its water requirements by installing ultra low-flush toilets which use no more than 1.6 gallons per flush and which meet performance standards established by the American Society of Mechanical Engineers Standards A112.19.2M and A112.19.6 in a sufficient number of existing residences having toilets that use three and one-half gallons or more per flush. Other existing noncommercial and commercial facilities may also be retrofitted to offset new development, by installing ultra low-flush toilets which use no more than 1.6 gallons per flush and/or urinals which use no more than one gallon per flush and which also meet the above performance standards. Any new development which obtained a building permit prior to January 16, 1991 and whose foundation was constructed prior to May 8, 1991 shall be exempted from this requirement.

1. New dwelling units offered for sale shall be exempt from this retrofit requirement if the monthly housing costs are not greater than 30% of 100% of the median family income for Napa County. “Monthly housing costs” shall include the payment of principal and interest on the mortgage loan, utility cost, taxes and insurance.
2. New rental units shall be exempted from this retrofit requirement if the monthly housing costs (rent and utilities) are not greater than 30% of 80% of the median family income for Napa County.
3. The maximum income limits and monthly housing costs allowable for this retrofit exemption are as set forth in “Exhibit A” to Resolution 89-480. The housing authority of the city shall revise these figures on an annual basis.
4. The housing authority of the city shall certify on initial sale or renting that each affording dwelling unit qualifies for the retrofit exemption.

B. In the event the water general manager determines that actual retrofitting of existing residences, other noncommercial facilities, or commercial facilities is impractical or constitutes an unusual hardship on an applicant, the manager may authorize the payment to the city of an in-lieu retrofit fee equivalent to the cost of retrofitting a sufficient number of existing residences, other noncommercial facilities, or commercial facilities with ultra low-flush toilets, urinals, and other required water saving devices as described in subsection D. The fee shall also include the cost of staff time to accomplish the required retrofitting using the fees collected. The in-lieu fee may be established by resolution. The Water Department is authorized to require retrofitting and not accept in-lieu retrofit fee, regardless of hardship, if it appears unlikely the city can complete retrofitting prior to the expected occupancy.

C. All residences, other noncommercial facilities, or commercial facilities that are retrofitted with toilets and/or urinals shall also be retrofitted with the following water saving devices: shower heads emitting no more than 2.5 gallons per minute, interior faucet aerators that emit no more than 2.2 gallons per minute.

<sup>55</sup> City of Napa, California. (August 2014). Personal Communication.

D. The city Water Department will determine the number of existing residences, other noncommercial facilities, or commercial facilities that will offset the water use of each new development and must verify that the retrofits have been completed prior to issuance of a certificate of occupancy. The city is authorized to charge the developer a fee for the staff time spent on any retrofit requirements. In the event that an in-lieu fee has been paid, the city Water Department will administer a program to retrofit existing residences, other noncommercial facilities, or commercial facilities using the fees collected. In-lieu fees must be paid upon issuance of a building permit so that sufficient time exists for the retrofits to be made prior to occupancy of the new development.

E. All new development shall use water closets and associated flush/o/meter valves, if any, which use no more than 1.6 gallons per flush and which meet performance standards established by the American Society of Mechanical Engineers Standards A112.19.2M and A112.19.6 and urinals and associated flush/o/meter valves, if any, which use no more than one gallon per flush and which also meet the above performance standards.

F. In the city, building permits, certificates of occupancy and/or water connections can be withheld pending compliance with these regulations. In the county, water service will be withheld pending compliance.

G. Residential remodeling would trigger a retrofit if the remodeling involved work that would increase water use, such as adding or remodeling a bathroom, adding a bedroom, granny unit, hot tub, spa, pool or laundry. Remodeling that does not increase water use, such as reroofing, adding a family room or increasing the size of a room would not trigger a retrofit.<sup>56</sup>

### City of St. Helena, California

The City of St. Helena, California established mandatory water efficiency measures for new construction, and water demand offset requirements in Chapter 13.12.050 of its Municipal Code. The projected water demand of new construction may be offset via retrofits performed by the developer, in lieu fees, a combination of retrofits and fees, or by a proposed alternative. The Municipal Code does not contain details regarding the cost of in lieu fees, other than it will require the full cost of performing the retrofits which includes staff time. Incidentally, City of St. Helena staff indicated that in lieu fees are no longer an option and that the developers must conduct the retrofits.<sup>57</sup> The Municipal Code lists the number of single-family retrofits a developer must perform for building various types of residential units. It is also important to note that Chapter 13.04 of the Municipal Code prohibits all new connections during a Phase II water shortage.<sup>58</sup>

<sup>56</sup> City of Napa, California Municipal Code. Title 13 Public Services - Chapter 13.09 Permanent Water Conservation Regulations - Section 13.09.010 New development and remodels. [http://qcode.us/codes/napa/view.php?topic=13-13\\_09-13\\_09\\_010&frames=on](http://qcode.us/codes/napa/view.php?topic=13-13_09-13_09_010&frames=on)

<sup>57</sup> City of St. Helena, California Staff. (August 2014). Personal Communication.

<sup>58</sup> City of St. Helena, California Municipal Code. Chapter 13.04 Water Use Efficiency and Use Guidelines -13.12.050 New development. <http://www.codepublishing.com/ca/sthelen/>

City of St. Helena, California Municipal Code. Chapter 13.12 Water Use Efficiency and Use Guidelines - 13.12.050 New development.

- A. All new development shall apply the following water use efficiency measures, as applicable:
1. Installation of ultra-low flush (ULF) toilets, low flow showerheads and faucet aerators;
  2. Installation of water efficient hot water instantaneous dispensing systems;
  3. Installation of swimming pool covers.

Except as allowed in subsections B and C in this section, new development shall completely offset its water requirement by installing city-approved ULF toilets and associated water-efficient hardware in a sufficient number of existing homes or nonresidential properties having toilets that use greater than 1.6 gpf.

B. If the city council determines that actual retrofitting of existing residential or nonresidential buildings is impractical or constitutes an unusual hardship on an applicant, it may authorize the payment to the city of an in-lieu retrofit fee equivalent to the cost of retrofitting a sufficient number of existing homes with the ULF toilets and other required water-saving devices as described in subsection E of this section. The in-lieu fee shall also include the cost of staff time to accomplish the required retrofitting using the fees collected. The in-lieu fee may be established by resolution. The public works department is authorized to require retrofitting and not accept in-lieu retrofit fee, regardless of hardship, if it appears likely that existing home retrofitting prior to the expected occupancy by the new development can be completed. In the event that an in-lieu fee is accepted, the city will administer a rebate program to retrofit existing homes using the fees collected or may use the fees for another water use efficiency purpose as approved by the council. In-lieu fees must be paid upon issuance of a building permit.

C. In place of or in combination with retrofitting and/or payment of an in-lieu retrofit fee as allowed in subsections A and B of this section, an applicant may petition the city council to allow an alternative innovative method of mitigating water use for new development.

D. All structures that are retrofitted with toilets shall also be retrofitted with the following water-saving devices, as applicable: showerheads emitting no more than 2.5 gallons per minute, interior faucet aerators that emit no more than 2.2 gallons per minute, urinals that use no more than 1.0 gallon per flush.

E. If a developer of residential units elects to retrofit existing residential units, the number (rounded to the next unit) a developer will be required to retrofit per single-family unit is as follows:

1. Single-family detached	5.0 per unit
2. Condominium/townhouse/duplex	4.0 per unit
3. Apartment (three units or more)	3.5 per unit
4. Mobile home	3.5 per unit
5. Guest homes/second dwelling unit	3.5 per unit

F. The developer shall be responsible for identifying residential or nonresidential properties eligible for retrofitting and verify to the department of public works that the required number of retrofits have been completed prior to the issuance of a certificate of occupancy. If the certificate of occupancy has been issued without completion of the retrofit requirement, in-lieu fees will be retained by the city. In-lieu fees will be maintained in a separate account and administered by the director of public works for water use efficiency program elements.

G. Nonresidential projects will have their water demand evaluated during the project review or use permit review stage by the director of public works. They will be required to mitigate their water demand through off-site retrofitting according to a schedule of water use factors.

H. All new development shall use toilets and associated flush-o-meter valves, if any, which use no more than 1.6 gallons per flush and which meet performance standards established by the American Society of Mechanical Engineers Standard A112.19.2.M. and urinals and associated flush-o-meter valves, if any, which

use no more than 1.0 gallon per flush and which also meet the above performance standards.

I. In the city, building permits, certificates of occupancy and/or water connections can be withheld pending compliance with these regulations. In the county, water service from the city of St. Helena water enterprise shall require a water agreement limiting water use and can be withheld pending compliance.<sup>59</sup>

## San Luis Obispo County, California

There are three unincorporated communities in San Luis Obispo County with water demand offset policies that pertain to new development. Two of the communities overlie specific groundwater basins and one is contained within a designated conservation area.

1. Paso Robles Groundwater Basin
2. Los Osos Groundwater Basin
3. Nipomo Mesa Conservation Area

### *Paso Robles Groundwater Basin, San Luis Obispo County, California*

The Paso Robles Groundwater Basin is located in Northern San Luis Obispo County and Southern Monterey County in California. In San Luis Obispo County, 29 percent of the county population relies on the Paso Robles Groundwater Basin for water supplies.<sup>60</sup> According to the 2010 Census, the population of San Luis Obispo County was 269,637, meaning approximately 78,000 people are reliant on the Paso Robles Groundwater Basin.

The County of San Luis Obispo has two ordinances that require water demand offsets for new construction in the unincorporated portion of the Paso Robles Groundwater Basin.

1. Ordinance Number 3231 - *Paso Robles Groundwater Basin Water Conservation Ordinance*
2. Ordinance Number 3246 - *Paso Robles Groundwater Basin Urgency Ordinance*

Ordinance Number 3231, *Paso Robles Groundwater Basin Water Conservation Ordinance*, was passed on September 25, 2012 and requires water demand offsets at a 2:1 ratio for discretionary land use permits, and does not apply to ministerial permits. Ordinance 3231 pertains to the unincorporated area of San Luis Obispo County overlying the Paso Robles Groundwater Basin. The San Luis Obispo County website states that the drilling of new wells and the construction of new single-family homes are exempt from Ordinance 3231.<sup>61</sup> New agricultural water use also is exempt from offset requirements. Ordinance Number 3231 is listed on the county's online code database as a county code that has been adopted but not yet codified.<sup>62</sup> Ordinance 3231 requires a 2:1 offset ratio that can be achieved through water

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<sup>59</sup> City of St. Helena, California Municipal Code. Chapter 13.12 Water Use Efficiency and Use Guidelines -13.12.050 New development. <http://www.codepublishing.com/ca/sthelen/>

<sup>60</sup> Paso Robles Groundwater Basin Groundwater Advisory Committee. (February 2011). Paso Robles Groundwater Basin Management Plan. [http://www.prcity.com/government/departments/publicworks/water/pdf/GBMP/plan/PasoBasin\\_FinalGMP.pdf](http://www.prcity.com/government/departments/publicworks/water/pdf/GBMP/plan/PasoBasin_FinalGMP.pdf)

<sup>61</sup> San Luis Obispo County, California Website. (Accessed January 2015). How are Property Owners Affected by the Urgency Ordinance? <http://pasobasin.org/urgency-ordinance/>

<sup>62</sup> San Luis Obispo County, California Website. (Accessed January 2015). County Codes/Traffic Codes: County codes adopted but not yet codified. [http://www.slocounty.ca.gov/clerk/County\\_Codes\\_\\_\\_Traffic\\_Codes/codesadopted.htm](http://www.slocounty.ca.gov/clerk/County_Codes___Traffic_Codes/codesadopted.htm)

conservation programs or other efforts that reduce demands in the Paso Robles Groundwater Basin. Ordinance 3231 also contains outdoor water use efficiency requirements for new development.<sup>63</sup>

San Luis Obispo County, California, Ordinance Number 3231

Section 1, Part D

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5. Offset requirements for discretionary permits. New development requiring discretionary land use permits shall offset the resulting net new water demand as follows:

- a. Land use permit applications shall include existing water use data, if it is available, that is sufficient to calculate net existing water demand on the proposed project site. The land use application shall include descriptions of all proposed uses on the site in a level of detail adequate to calculate the proposed project's net new water demand. In any case, determinations of net new water demand, net existing water demand and net increase shall be the responsibility of the Planning Director or designee.
- b. The net new water demand shall be offset at a ratio of 2:1 through participation in water conservation programs listed in subsection c
- c. below. Any net existing water demand shall be taken into account in the calculation of required offsets of net new water demand.
- d. Programs to offset water used for non-agricultural purposes may include but are not limited to the following, but in any case, shall conserve only water used or potentially used for non-agricultural purposes:
  1. Retiring the development potential of lots in the Paso Robles Groundwater basin through an agreement with the County or qualified land trust.
  2. Retrofitting plumbing fixtures in the Paso Robles Groundwater Basin.
  3. Purchasing supplemental water for a water supplier that uses ground water from the main Paso Robles Groundwater Basin.
  4. Participating in an approved water conservation program in the Paso Robles Groundwater Basin that results in water savings.
  5. Reducing water demand in the Paso Robles Groundwater Basin through other means approved by the Planning Director.
  6. Water from the Nacimiento or State Water Projects shall not be used for development in the rural area.
- e. Any required offset of net new water demand shall be completed at the time of final inspection or issuance of a certificate of occupancy unless an alternative completion time (which may be more or less time) is approved by the review authority. In any case, the review authority must find the offsets to be verifiable, permanent and enforceable.

On August 27, 2013 the County of San Luis Obispo enacted its *Urgency Ordinance* (Ordinance 3246) that required water demand offsets at a 1:1 ratio for all new development for a period of 45 days. The *Urgency Ordinance* was created to help deal with water shortage concerns. For example, the United

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<sup>63</sup> County of San Luis Obispo, California. (September 25, 2012). Ordinance 3231: An Ordinance Amending Article 9 of Title 22 of the San Luis Obispo County Code, The Land Use Ordinance. <http://www.slocounty.ca.gov/Assets/CR/New+Codes/3231.pdf>

States Department of Agriculture designated San Luis Obispo County as a disaster area due to agricultural losses from severe drought. Additionally, the Paso Robles Groundwater Basin was assigned a Level of Severity of III in February 2011 after the Board of Supervisors approved the Paso Robles Groundwater Basin Resource Capacity Study.<sup>64,65</sup> The County has three levels of severity that are characterized as follows:

1. Level I: Resource capacity problem
2. Level II: Diminishing resource capacity
3. Level III: Resource capacity met or exceeded<sup>66</sup>

Ordinance 3246 applies to properties within the unincorporated areas of San Luis Obispo County that overlie the Paso Robles Groundwater Basin. In addition to water demand offsets, Ordinance 3246 also requires meters for new wells. On October 8, 2013 Ordinance Number 3247 was passed and effectively extended Ordinance Number 3246 until August 26, 2015. San Luis Obispo County staff indicated that a permanent ordinance is being developed in the interim and, if adopted, may require water demand offsets for new development and new irrigated agriculture in the unincorporated area of the Paso Robles Groundwater Basin.<sup>67</sup> The same is also indicated in Ordinance 3246, "This urgency and interim zoning ordinance will allow County staff time to complete necessary studies and reports for the contemplated amendments to its general plan and/or zoning ordinance while preserving the resources of the Basin."

Unlike Ordinance 3231 which only applies to discretionary land use permits, Ordinance 3246 pertains to ministerial land use permits such as those for single-family homes.<sup>61</sup> New agricultural water use is exempt in Ordinance 3231 but not in Ordinance 3246. The following text box contains selected language from Ordinance 3246.

San Luis Obispo County, California, Ordinance Number 3246  
Section 7

A. Offset Clearance. New or Expanded Irrigated Crop Production, Conversion of Dry Farm or Grazing Land to New Irrigated Crop Production, and New Development dependent upon a well in the groundwater Basin shall be required to obtain an Offset Clearance prior to the issuance of a permit filed pursuant to Chapter 8.40 of the County Code to construct, repair or modify a water system, issuance of a construction permit or the use being established, commenced or initiated whichever is applicable. An Offset Clearance is a ministerial permit and may be granted if the following requirements are met.

1. Application content. Requests for an Offset Clearance shall be accompanied by the following:
  - a. Evidence that the net new water demand (based on actual water data or by approved assumptions about the water demand for that use) has been offset (based on actual water data or by approved

<sup>64</sup> County of San Luis Obispo, California Website. (Accessed January 2015). What is known about the Paso Robles Groundwater Basin? [www.pasobasin.org/technical-studies/](http://www.pasobasin.org/technical-studies/)

<sup>65</sup> County of San Luis Obispo, California. (Adopted by Board of Supervisors, February 2011). Resource Capacity Study: Water Supply in the Paso Robles Groundwater Basin. <http://www.slocounty.ca.gov/Assets/PL/PR+Groundwater/rcs.pdf>

<sup>66</sup> County of San Luis Obispo, California. (March 2014). The Land Use and Circulation Elements of the San Luis Obispo County General Plan, Inland Framework. <http://www.slocounty.ca.gov/Assets/PL/Elements/inlandframework.pdf>

<sup>67</sup> County of San Luis Obispo, California Staff. (January 2015). Personal Communication.

(continued)

assumptions about the water demand for that use) at a ratio of at least 1:1 through verifiable evidence or participation in an Approved County Water Conservation Program. The offset must occur before, or at the same time as, the new water use is developed.

2. Metering and Monitoring. The following requirements apply to all issued Offset Clearances.

b. Within 30 days of installation of a well for which a permit has been issued pursuant to Chapter 8.40 of the County Code, or prior to final building inspection, whichever is applicable, evidence shall be submitted to the Public Works Director that the property owner has installed a meter on the well serving the use to measure all groundwater used from that well. The configuration of the installation shall conform to a drawing prepared by the property owner and shall conform to the technical standards set forth by the Public Works Director.

c. On or near the first day of each month the property owner or other person designated by the property owner shall read the water meter and record the data. These records shall be maintained by the property owner.

Discretionary Permits. In approving a Site Plan, Minor Use Permit, Conditional Use Permit, Variance or other discretionary application, the Review Authority shall impose reasonable conditions as needed to satisfy the requirements of this ordinance, including proposed offset requirements for the proposed use that would be equivalent to offsetting the net new water demand at a ratio of at least 1:1 and metering and monitoring consistent with this Ordinance.<sup>68</sup>

The County of San Luis Obispo maintains a website that contains information about the *Urgency Ordinance* and the offsetting process.<sup>69</sup> New development applicants can obtain offsets by participating in the County's water conservation program or can hire a licensed plumber to replace inefficient fixtures in existing homes in the Paso Robles Groundwater Basin. If the applicant chooses to participate in the County's water conservation program they can purchase offset credits from the County's program. The cost of offset credits is equal to the cost of performing enough retrofit work on existing homes in the Paso Robles Groundwater Basin to save the amount of water the new development will use. The County runs this retrofit program with a licensed plumber in order to maintain a supply of credits available for purchase.<sup>67</sup> The cost example provided on the San Luis Obispo County's website is \$6,496 for a single-family home, which is an offset for 280 gallons per day (the County's estimate for the standard use of a new home). This is equivalent to \$23.20 per gallon per day. If the permit indicates more or less water will be consumed, the offset requirement can be adjusted accordingly. The offset fee is put toward the replacement of inefficient toilets, showerheads, and faucet aerators.

Two lawsuits have been filed to challenge the *Urgency Ordinance* (Ordinance Number 3246). One is a writ of mandamus filed by the Paso Robles Water Integrity Network to invalidate the *Urgency Ordinance* with the argument that it did not have sufficient evidence and did not adhere to the requirements of the California Environmental Quality Act. The other, a quiet title suit filed by the group Protect Our Water Rights, argued that the rights of existing property owners to pump groundwater were being limited

<sup>68</sup> County of San Luis Obispo County, California. (August 27, 2013). Ordinance No. 3246. <http://www.slocounty.ca.gov/Assets/PL/PR+Groundwater/prfinalord.pdf>

<sup>69</sup> San Luis Obispo County, California Website. (Accessed January 2015). How Can I Offset Water Use for New Development? <http://pasobasin.org/urgency-ordinance/water-usage-offset-new-development/>



illegally by the county.<sup>70</sup> On January 12, 2015 a judge ruled that the *Urgency Ordinance* is legal under the writ mandamus suit filed by the Paso Robles Water Integrity Network.<sup>71</sup> The quiet title lawsuit was transferred to Santa Clara County, California and the next hearing is set for February 6, 2015.<sup>72</sup>

### ***Los Osos Groundwater Basin, San Luis Obispo County, California***

Los Osos is an unincorporated community located in San Luis Obispo County overlying the Los Osos Groundwater Basin. Los Osos is a census designated place and had an estimated population of 14,276 in 2010.<sup>73</sup> In 2008 Title 19 of the San Luis Obispo County Code was amended to require water demand offsets for new construction in the Los Osos Groundwater Basin. In addition to offsets, new structures must also comply with efficiency standards set forth in Title 19.<sup>74</sup> The County of San Luis Obispo has a webpage that contains information on communities within its boundary that have water demand offset programs and describes the Los Osos Groundwater Basin as having a 2:1 offset.<sup>75</sup> Title 19 does not specifically designate a 2:1 offset requirement. Rather, it indicates that 300 retrofit credits are required to offset the construction of a single-family home, which according to San Luis Obispo County staff is twice the standard daily water use for a new single-family home in Los Osos. Title 19 contains a retrofit credit table that lists the amount of retrofit credits earned for replacing toilets, showerheads, and installing hot water recirculation systems. For example, replacing a 3.5 gpf toilet with a 1.28 gpf toilet in a single-family home generates 24 retrofit credits. In Los Osos, builders must perform the retrofits, an in lieu fee option is not offered. San Luis Obispo County maintains a list of homes that were built before 1994 and are not on record as having been retrofitted with efficient fixtures. This list is available to builders and plumbers so they can locate properties that provide an opportunity for retrofit credits. These home owners were mailed a postcard and given the option of being removed from the list.<sup>76</sup>

Text from Title 19 is included below. The toilet portion of the retrofit table has been recreated as well to give the reader an idea of how credits are earned. Credits are also available for showerhead replacements and the installation of hot water recirculation systems.

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<sup>70</sup> Sneed D., and Lynem, J. (November 26, 2013). Lawsuits filed against emergency ordinance on Paso Robles basin. [http://www.sanluisobispo.com/2013/11/26/2805000\\_paso-robles-groundwater-basin.html?rh=1](http://www.sanluisobispo.com/2013/11/26/2805000_paso-robles-groundwater-basin.html?rh=1)

<sup>71</sup> Superior Court of California, County of San Luis Obispo. (January 12, 2015). Ruling and Notice of Ruling on Petitioners' Petition for Writ of Mandate. Case No: CV13-8301.

<sup>72</sup> The Superior Court of California, County of Santa Clara Website. (Accessed January 2015). Complex Litigation Department Calendar. <http://www.scefiling.org/calendar/docalendar.jsp#searchIt>

<sup>73</sup> United States Census Bureau Website. (Accessed January 2015). State and County QuickFacts. <http://quickfacts.census.gov/qfd/states/06/0644182.html>

<sup>74</sup> County of San Luis Obispo, California. (Amended July 2014). Building and Construction Ordinance: Title 19 of the San Luis Obispo County Code. [http://www.slocounty.ca.gov/Assets/PL/Ordinances/Title\\_19\\_Building\\_and\\_Construction\\_Ordinance.pdf](http://www.slocounty.ca.gov/Assets/PL/Ordinances/Title_19_Building_and_Construction_Ordinance.pdf)

<sup>75</sup> San Luis Obispo County, California Website. (Accessed January 2015). Water Neutral New Development and New Agriculture. <http://www.slocounty.ca.gov/planning/water-amendments/water-neutrality.htm>

<sup>76</sup> San Luis Obispo County, California Website. (Accessed January 2015). Los Osos Retrofit-to-Build. <http://www.slocounty.ca.gov/planning/los-osos-retrofit-to-build.htm>

Title 19 of the San Luis Obispo County Code

19.07.042 - Water Conservation Provisions

...

e. Los Osos Groundwater Basin

...

3. Prior to issuance of a construction permit for a new structure with plumbing fixtures that uses water from the Los Osos Groundwater Basin, the developer of such new structure shall retrofit plumbing fixtures in existing structures within the Los Osos Groundwater Basin. The number and type of plumbing fixtures to be installed shall be as required in the equivalency table as adopted and codified in Appendix A. The equivalency table indicates the point values of existing fixtures which may be retrofitted and the corresponding point requirements for each newly constructed or remodeled structure. A package of proposed retrofits and water conservation requirements must add up to no less than the minimum requirements established in Appendix C.

**Table 4: Los Osos Groundwater Basin Retrofit Credit Table (Updated 2014).  
From Title 19 of the San Luis Obispo County Code.**

Existing Toilet (gpf)	Replacement Toilet (gpf)	Single-family Residential (Credits)	Multifamily Residential Credits	Mobile Home Credits
6	1.28	52	39	26
	1.1	54	41	27
	0.8	57	43	29
3.5	1.28	24	18	12
	1.1	26	20	13
	0.8	30	22	15
1.6	1.28	4	3	2
	1.1	5	4	3
	0.8	9	7	5

***Nipomo Mesa Conservation Area, San Luis Obispo County, California***

Nipomo Mesa is a census designated place in San Luis Obispo County with a 2010 population of 16,714.<sup>77</sup> The Nipomo Mesa Water Conservation Area (also referred to as the Nipomo Mesa Management Area) covers Nipomo Mesa and surrounding areas. Title 19 of the San Luis Obispo County Code contains offset requirements for new construction that will draw water Nipomo Mesa Conservation Area. Title 19 requires developers to provide evidence that five existing structures that contain toilets with a flush volume of 3.5 gpf or greater have been fully retrofitted with 1.28 gpf toilets. Showerheads and sink aerators must be brought up to the federal standard as well. Title 19 provides two additional options. First, the builder can choose to pay a fee in lieu of performing the toilet replacements at \$750 for each toilet that will be installed in the new structure. The fees are paid to the Nipomo Community Services District and used to fund water conservation programs in the Nipomo

<sup>77</sup> United States Census Bureau Website. (Accessed January 2015). State and County QuickFacts. <http://quickfacts.census.gov/qfd/states/06/0651476.html>

Mesa Conservation Area. Second, the builder can fund a conservation program for a public facility in the Nipomo Mesa Water Conservation Area. Each \$1,500 contribution toward such a project will be considered the equivalent of retrofitting fixtures in five existing structures.<sup>74</sup> Related text from Title 19 is below.

Title 19 of the San Luis Obispo County Code  
19.07.042 - Water Conservation Provisions

....

d. Nipomo Mesa Water Conservation Area. : In addition to the requirements in sections a, b and c above, the requirements in paragraphs (1) through (6) below shall apply to all new development that uses water from the Nipomo Mesa Water Conservation Area shown in Figure 7-1.

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3. Prior to issuance of a construction permit for a new structure with plumbing fixtures that use water from the Nipomo Mesa Water Conservation Area, the developer of such new structure shall provide evidence to the Department of Planning and Building that the plumbing fixtures in five (5) existing structures within the Nipomo Mesa Water Conservation Area with toilets rated at 3.5 or more gallons per flush have been retrofitted by replacing all toilets, showerheads and faucet aerators as follows:
  - I. Toilets rated at no more than 1.28 gallons per flush (HET);
  - II. Showerheads rated at no more than 2.5 gallons per minute;
  - III. Bathroom sink aerators with a volume of no more than 2.0 gallons per minute;
  - IV. All urinals in commercial structures shall be replaced with waterless urinals.

Owners of existing structures that are retrofitted under this program shall agree to allow their water purveyors to release water use data to the Department of Planning and Building in order to gauge the effectiveness of the program to the extent allowed by California law.

Upon retrofitting of the required number of plumbing fixtures, the developer shall submit evidence of the completed retrofits to the Department of Planning and Building. This evidence shall consist of a Retrofit Verification Declaration completed and executed by a licensed plumber and/or contractor. Upon submittal to the Department of Planning and Building of a completed and executed Retrofit Verification Declaration accompanied by the required fee, the developer shall be issued a Water Conservation Certificate from the Department of Planning and Building. Once the Water Conservation Certificate is issued, a construction permit may be issued.

4. In lieu of retrofitting plumbing fixtures in existing structures as specified in subsection d.3., a developer of a new structure may instead pay to the Nipomo Community Services District (hereinafter referred to as the "District") the amount of \$750.00 per toilet to be installed in the new structure. Prior to issuance of a building permit for the new structure specified in subsection d.3., a receipt for the payment to the District shall be submitted to the Department of Planning and Building.
5. The District shall use the in lieu fees specified in subsection d.4. for programs that result in measurable water conservation in the Nipomo Mesa Water Conservation Area, including but not limited to the following:
  - I. Subsidize toilet/showerhead retrofits.
  - II. Subsidize interior water audits.
  - III. Subsidize exterior water audits.
  - IV. Subsidize irrigation system changes that will save water pursuant to the results of a District-sponsored water audit.
  - V. Subsidize removal of high water-using turf and landscape materials and replacement with low water-using landscape material.

(continued)

VI. Provide repairs to irrigation systems at a cost not to exceed \$100.00 per parcel. Fees collected from new development located within the District boundaries shall only be used for water conservation projects within the District. Fees collected from new development that is located outside of the District boundaries shall be used for water conservation projects outside of the District boundaries.

6. As an alternative to Subsection d.4., a developer or developers may choose to fund a water conservation program for public parks, school grounds or other public facilities in the Nipomo Mesa Water Conservation Area. The program to be funded will have been prepared by a California-licensed landscape architect for either the County Parks Department, the Lucia Mar School District or another public entity, as applicable. The program shall be reviewed and approved by the Planning Director and the owner of the public facility, and shall identify water savings and associated costs of conservation measures such as irrigation system replacement and/or repairs, installation of "smart controllers," removal of turf, replacement of high water using landscape material and amendments to soils. The water conservation program shall clearly identify the expected water savings from implementation of the program. Each contribution of \$1,500 to the applicable public entity for the water conservation program will satisfy the requirement to retrofit plumbing fixtures in five (5) existing structures prior to issuance of a construction permit for each new structure, in accordance with subsection d.3.

### City of Santa Fe, New Mexico

In Santa Fe, New Mexico the forecasted water demand for new development projects must be offset before a building permit is granted. Building permits are not issued until a water budget is calculated for the new development and approved by the Water Budget Administrative Office. Water budgets are calculated using standard formulas created by the City of Santa Fe based on historical acre-feet per year (AFY) water use. Residential projects can also use the *Option B Worksheet for Residential Alternative Water Budgets*.

Depending on the characteristics of the development, water may be offset via Santa Fe's water conservation credit program, the water rights transfer program, or a combination of both programs.

**Table 5: Water Demand Offset Mechanism by Development Type – Santa Fe, NM**

<b>Development Type</b>	<b>Water Conservation Credit Program, Water Rights Transfer Program, or Combination</b>	<b>Water Rights Transfer Program Only</b>
Residential	Water budget < 10 AFY	Water budget >= 10 AFY
Nonresidential	Water budget < 5 AFY	Water Budget >= 5 AFY
Residential and Nonresidential	Water budget < 7.5 AFY	Water budget >= 7.5 AFY

According to Chapter 25 Section 11.3 (A) of the Santa Fe City Code, "A water conservation credit represents a fixed quantity of water expressed in acre feet per year (AFY) that is transferable within the City of Santa Fe for annual usage." Chapter 25 Section 12.2 states that the purpose of the water rights transfer program is, "...to administer water right transfers designated for development projects as required by Section 14-8.13 SFCC 1987 and water rights transfers designated for the city water bank as

provided for in Section 25-10 SFCC 1987.” Both the water conservation credit program and the water rights transfer program function as part of the City’s water bank program. The water bank program contains accounts of consumptive water right holders, holders of water credits, and water conservation credits. Consumptive use water rights, water credits, and water conservation credits may be transferred to and from the City’s water bank by their owners. All are accounted for in units of acre-feet per year.

The offset amount is equal to the water budget plus an additional 9.8 percent, “contingency water.” According to Article 14 Section 8.13 (E)(1) of the Santa Fe Land Use Code, “This contingency water is comprised of water used for community health and safety purposes, such as firefighting and fire hydrant testing, water used in production for flushing of water distribution and sewer lines, and also results from meter errors, line leaks, and losses from water main breaks.”

The costs of purchasing water from Santa Fe’s water bank are \$15,000/AFY for consumptive use water rights plus a \$1,600/AFY administrative fee, for a total of \$16,600/AFY. Each application also incurs a \$1,000 due diligence fee.<sup>78</sup> Water rights transfers are negotiated between the developer and water right holder.

The City monitors alternative water budgets and water conservation credits created by customers to confirm compliance. Water budgets using the City’s methodology are not monitored. Water conservation credits are created through a water conservation contract or a water conservation retrofit rebate. Water credits created through a water conservation contract are held in the City’s water bank in the customer’s name. Water conservation credits created with a water conservation retrofit rebate are held in the water bank in the City’s name. Customers with a water conservation contract are monitored on an annual basis to ensure compliance under Article 14 Section 8.13 (D) of the Santa Fe Land Use Code. New developments with an alternative water budget are also monitored under Article 14 Section 8.13 (D). If a customer is found to be out of compliance they are notified and then monitored monthly. If they fail to correct their excess consumption the customer is subject to a 50 percent surcharge over the base rate of water on the excess water delivered over annual budgeted or contracted amount for that year. If after four months the customer’s water consumption still exceeds the alternative development water budget or conservation contract by ten percent or more on a monthly basis the customer is again notified. At that time the City will recalculate the alternative development water budget or the conservation contract based on actual consumption. They must then transfer sufficient water rights, water credits, or conservation credits to the City within ninety days. The City will transfer water conservation credits to the customer account to offset the net difference and the customer will be billed accordingly. Depending on the elapsed time the customer may incur additional surcharges.

The following are cited ordinances related to the City of Santa Fe, New Mexico water budget, water bank, water credit, and water rights transfer programs:

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<sup>78</sup> City of Santa Fe, New Mexico. (2010). Water Offset Requirement Fee Chart. [http://www.santafenm.gov/m/document\\_center/document/683](http://www.santafenm.gov/m/document_center/document/683)

Santa Fe Ordinance Number 2011-37 § 11  
*Development Water Budgets (Section 14-8.3 SFCC 1987)*

Santa Fe Ordinance Number 2009-38, § 14  
*City Water Budget (Article 25-9 SFCC 1987)*  
*City Water Bank (Article 25-10 SFCC 1987)*  
*Water Conservation Credit Program (Article 25-11 SFCC 1987)*  
*Water Rights Transfer Program (Article 25-12 SFCC 1987)*

### City of Santa Monica, California

The City of Santa Monica, California has a water demand mitigation fee that is designed to fund water efficiency measures that will offset 100 percent of the projected water demand for new development. In addition to all new development, the water demand mitigation fee is applicable to single-family remodels that increase the square footage by more than fifty percent, multifamily remodels that increase the number of dwelling units on a property, and non-residential construction that changes the water use, alters or adds plumbing fixtures, adds seats in a restaurant, or increases square footage.<sup>79</sup>

The water demand mitigation fee is priced at \$3.00 per gallon per day. Fees listed on the Santa Monica Public Works website are as follows:

**Table 6: Santa Monica, CA Water Demand Mitigation Fee**

Single-Family	\$ 990
Multifamily	
Studio/Single Apartment	\$ 315
1 Bedroom Apartment	\$ 375
2 Bedroom Apartment	\$ 570
3 Bedroom Apartment	\$ 750
Duplex	\$ 900

*\*Water demand mitigation fees for nonresidential developments are determined by the Santa Monica Administrative Services Division.*

According to a City of Santa Monica City Council report, “The Water Demand Mitigation Fee generates approximately \$300,000 annually.”<sup>80</sup> The same report estimates that 92 percent of toilets, showerheads, faucets, and urinals in the City of Santa Monica service area have been replaced with efficient fixtures. It goes on to say that additional water conservation efforts will be needed to meet the City of Santa Monica’s goal of water self-sufficiency by 2020, which were described as, “installations of water-efficient plumbing, pipeline, landscaping, rainwater and stormwater capture equipment and

<sup>79</sup> Santa Monica Public Works Website. (Accessed November 2014). Water Demand Mitigation Fee. <http://www.smgov.net/Departments/PublicWorks/ContentAdminSvc.aspx?id=10809>

<sup>80</sup> City of Santa Monica, California. (March 2014). City Council Report: Recommendation to Adopt a Resolution Clarifying Uses of the Water Demand Mitigation Fees. <http://www.smgov.net/departments/council/agendas/2014/20140325/s2014032503-F.htm>

processes and equipment that minimize the water needed for the distribution system.”<sup>80</sup> As of May 2013 the city was reportedly 70 percent self-supplied and relied on imported water for the remainder.<sup>81</sup>

Water consumption fees for new development (water demand mitigation fee) are permitted by the City of Santa Monica Municipal Code.

Santa Monica, California Municipal Code  
Article 7 Public Works  
Chapter 7.16 Water Conservation

7.16.050 Water consumption limits and fees for new development.

Effective April 1, 1992, no person shall be issued a building permit for any development project unless:

- (a) The development will not affect or alter any plumbing fixture; or
- (b) The development involves a single family residence and is not a substantial remodel as defined in Santa Monica Municipal Code Section 9.04.02.030 and will not increase by more than fifty percent the square footage of the principal building; or
- (c) The development involves a multi-family residence and is not a substantial remodel as defined in Santa Monica Municipal Code Section 9.04.02.030 and will not increase the number of dwelling units on the property; or
- (d) The person pays in advance a fee to the of EPWM sufficient to mitigate the estimated daily water consumption rate projected for the development, except that any person requesting a building permit for any low and moderate income housing development shall be required to pay a fee sufficient to mitigate only the estimated net increase in daily water consumption rate projected for the development. The City Council shall by resolution establish or amend any fee permitted by this Section.<sup>82</sup>

### The Soquel Creek Water District, California

The Soquel Creek Water District (SCWD) implemented its Water Demand Offset (WDO) Policy in 2003. Water demand offsets are required for all development requiring new water service, and for projects that will increase the water demand of an existing service connection. In the past, offset credits were achieved by replacing 1.6 gpf and greater toilets with toilets that use 1.0 gpf or less. On June 17, 2014 SCWD changed to a fee based system and now charges \$55,000/acre foot per year to offset the demand of new development.<sup>83</sup> Developers are also able to earn green credits for efficiency measures put into place in the proposed development, which lower offset requirements.

The Soquel Creek Water District had one of the most comprehensive water demand offset programs in the United States before it changed to a fee based system on June 17, 2014. The details of the program are included below as it provides examples planners can learn from if designing a water demand offset program.

<sup>81</sup> City of Santa Monica, California. (May 2013). City Council Report: Sustainable Water Master Plan update. <http://www.smgov.net/departments/council/agendas/2013/20130514/s2013051404-A.htm>

<sup>82</sup> City of Santa Monica, California. (2008). Municipal Code: Article 7 Public Works - Chapter 7.16 Water Conservation. [http://www.qcode.us/codes/santamonica/view.php?topic=7-7\\_16-7\\_16\\_050](http://www.qcode.us/codes/santamonica/view.php?topic=7-7_16-7_16_050)

<sup>83</sup> Soquel Creek Water District Website. (Accessed October 2014). Water Demand Offset Program. <http://www.soquelcreekwater.org/conserving-water/water-demand-offset-program>

The District calculates the projected water demand of the development and provides developers with the water demand offset requirement. The water demand of the new or expanded water use is calculated based on water use factors per number of housing units, or per total square feet of nonresidential developments. Some developments such as laundromats undergo site specific calculations and do not have general water use factors. Developers are required to offset 200 percent of the projected water demand.

Before June 17, 2014, offsets were earned when developers paid for the replacement of 1.6 gpf or greater toilets with toilets that use 1.0 gpf or less. The offset total per toilet replacement depended on the flush volume of the toilet replaced (i.e., replacing a 5.0 gpf toilet earns more credit than a 3.5 gpf toilet).

**Table 7: Historical Offset Credits for Toilet Replacements**  
**Soquel Creek Water District, CA**

Flush Volume of Replaced Toilet	Replacement Toilet AF Credit	
	1.0 gpf	0.8 gpf
First 5.0 gpf toilet	0.0390	0.0410
Additional 5.0 gpf toilets	0.0168	0.0174
First 3.5 gpf toilet	0.0270	0.0290
Additional 3.5 gpf toilets	0.0120	0.0123
First 1.6 gpf toilet	0.0070	0.0090
Additional 1.6 gpf toilets	0.0030	0.0040

Soquel Creek Water District’s residential customers were sent letters by the developer to inform them that they may qualify for free toilet replacement(s) under the Water Demand Offset Program. If they chose to participate they were required to replace all toilets in their home that had a flush volume greater than 1.28 gpf. Participants could choose between three toilet options:

1. Niagara Stealth Bottom Outlet Toilet (0.8 gpf)
2. Toto Drake II 1G Close Coupled Toilet (1.0 gpf)
3. Kohler Highline Pressure Lite K-3519 (1.0 gpf)

The owner of the residential property and the developer were also required to sign a form that released SCWD from any liability associated with toilet installation. When the toilet replacements were complete the residential property owner, licensed plumber, and developer signed a form to verify that all conditions were met.

Fees associated with water offsets in Soquel Creek varied based on the cost of toilet fixtures and installation by a licensed plumber. The offset cost in \$/AF was also effected by the flush volume of the toilets being replaced (5.0, 3.5, or 1.6 gpf), and that of the replacement toilets (1.0 or 0.8 gpf). The District used \$18,000 per acre-foot as a benchmark to estimate cost savings resulting from earned green credits. Table 8 demonstrates how the cost per AF could have varied based on different flush volumes of the toilets being replaced, and various fixture + installation costs. The replacement toilet flush volume is held constant at 1.0 gpf. These hypothetical examples show that a developer would have



undoubtedly earned more offset credit per dollar if they replaced the most inefficient toilets, and could keep toilet and installation costs to a minimum.

**Table 8: Hypothetical Costs of Historical Offset Credits  
Soquel Creek Water District, CA**

<b>Hypothetical Average \$/AF Costs Assuming Replacement toilet is 1.0 gpf</b>				
<b>Replaced Toilet Flush Volume</b>	<b>\$400 per toilet install</b>	<b>\$300 per toilet install</b>	<b>\$200 per toilet install</b>	<b>\$150 per toilet install</b>
5.0 gpf	\$22,881	\$17,161	\$11,440	\$8,580
3.5 gpf	\$32,433	\$24,325	\$16,217	\$12,163
1.6 gpf	\$132,400	\$99,300	\$66,200	\$49,650

The cited authority for the water offset program was the Soquel Creek Water District Resolution No. 13-17, which referenced Sections 31020, 31023, 31035, and 375 of the California Water Code. Soquel Creek Water District Ordinance No. 64-1 is also referenced as the established rules and regulations for water service by the District.

Even under the new fee based system the water demand offset requirement of a new development can be reduced through the SCWD WDO Go Green Credit Program. Credits are earned if the proposed development uses fixtures that are more efficient than the District’s requirements, or achieves efficiency in other ways such as zero turf. The water efficiency requirements are set forth by the District’s Indoor and Landscape Water Use Efficiency Ordinances and primarily relate to new developments. For example, the Indoor Ordinance requirements for residential water users creates efficiency standards such as ≤ 1.28 gpf toilets, ≤ 0.5 gpf urinals, ≤ 2.0 gpm showerheads, ≤ 1.5 gpm bathroom faucets, ≤ 2.2 gpm kitchen faucets, ≤ 6.0 water factor clothes washers, ≤ 6.5 gallon per cycle dishwashers, and individual meters for each unit. Toilets, urinals, bathroom faucets, and showerheads must be WaterSense qualified, clothes washers and dishwashers must be Energy Star qualified. Residential green credit options are listed in Table 9.

**Table 9: Residential Green Credits – Soquel Creek Water District, CA**

Residential Green Credits	
Cumulative Categories:	
Blue	Ultra High-Efficiency Toilets (UHET): 0.8 gpf or less
Silver	Blue + 1.5 gpm or less showerheads
Gold	Silver + 1.0 gpm or less bathroom faucets
Platinum	Gold + no turf and no overhead spray irrigation
Additional Options:	
A	Weather-based irrigation controllers
B	Clothes washers with 4.5 water factor or less
C	Hot-water recirculation system
D	Graywater: rough plumbed or connected to irrigation
E	Measure proposed by applicant

Commercial green credits can be earned if the development utilizes 0.8 gpf toilets. If 0.8 gpf toilets are proposed then the following additional options may be included:

- Waterless urinals
- Showerheads: 1.5 gpf or less
- Bathroom Faucets: private applications, 1 gpm or less
- Washing Machines: 4.5 Water Factor or less
- Dishwashers: standard residential type, CEE Tier 2
- Ice Machines: CEE Tier 3 for potable water use
- Pre-rinse spray valves: 1 gpm or less
- Rain water harvesting systems: 1000 gallon storage minimum
- Hot-water recirculation systems
- Graywater: rough plumbed
- Graywater: connected to an irrigation system
- No turf and no overhead spray irrigation
- Measure proposed by applicant

### **Town of Weymouth, Massachusetts**

According to the Weymouth, Massachusetts website, “Any new water use applications issued by the Town are required to complete a 2:1 water savings ratio.”<sup>84</sup> The project team found mention of Weymouth’s water demand offset program in literature reviews and in the *Massachusetts Water Conservation Standards*, but was unable to find any additional information in its municipal code or other regulatory documents. Personal communication with staff of the Weymouth Department of Public Works Water and Sewer Division did not yield anything beyond what is stated on the Weymouth website:

<sup>84</sup> Weymouth, Massachusetts Department of Public Works Water & Sewer Division. (Accessed December 2013). <http://www.weymouth.ma.us/index.php/departments/dpw/water-sewer/>

*Water Conservation Measures*

“In the past several years, the Town of Weymouth has taken an aggressive approach to the water conservation program. Any new water use applications issued by the Town are required to complete a 2:1 water savings ratio. These savings may be gained through the retrofitting of existing buildings with water savings devices. The retrofitting of all public buildings, schools, and some businesses and residences has been accomplished with the cooperation of the Town, new users, and contractors. These projects include the furnishing and installation of low flow toilets, low flow showerheads, low flow faucets, and low flow flushometers. The water conservation program has been a huge success and a key element in reducing our daily water demand.”<sup>84</sup>

According to the *Massachusetts Water Conservation Standards*, contractors and developers can earn credits by retrofitting older residential and nonresidential buildings with water saving devices and by modifying water processes and practices for existing nonresidential connections. They also have the option of paying a \$10/gallon fee that goes into a dedicated fund the town uses to implement mitigation projects.<sup>85</sup> Weymouth reportedly has a separate offset program for new sewer connections with a 6:1 offset requirement that also includes a \$10/gallon fee. A \$7/gallon administrative fee brings the total to \$27/gallon.<sup>86</sup> The fees are expressed in gallons, and not indicated to be in gallons per day, gallons per year, or other specification. Therefore, it is difficult to understand the true cost. Weymouth reportedly uses water factors from *Massachusetts Title 5, 314 CMR 7.15: Calculation of Flows* (pg. 17) to estimate the water and wastewater demands of new developments.<sup>22,85</sup>

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<sup>85</sup> The Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs and Water Resources Commission. (July 2006, Updated June 2012). *Massachusetts Water Conservation Standards*.  
<http://www.mass.gov/eea/docs/dcr/watersupply/intbasin/waterconservationstandards.pdf>

<sup>86</sup> Ipswich River Watershed Association. (2006). *Water Wise Communities: A Handbook for Municipal Managers in the Ipswich River Watershed*.  
<http://www.ipswichriver.org/resources/water-wise-communities-handbook/12-water-bank-water-demand-mitigation-program/>

## Appendix A – City of Oxnard, California Water Neutrality Policy

According to the Oxnard, California *2010 Urban Water Management Plan (UWMP)*, the City has a Water Neutrality Policy that requires water demand offsets for all new development. Offsets can be achieved by the transfer of groundwater allocations, providing other water supplies, through efficiency programs, recycled water projects, or a combination of these options. The Water Neutrality Policy is described by the City of Oxnard as not being codified, but has reportedly been applied to all new development applications since 2008. The Oxnard, California Municipal Code does contain offset requirements during drought, however, the language lacks specifics in regard to the stage that triggers offset requirements or the details of the offsets.

Oxnard, California 2010 Urban Water Management Plan  
Chapter 2: Water Use  
2.4.1.1 Water Neutrality Policy

“First established in 2008 and recently reaffirmed in 2011, the Oxnard City council has established a water demand “neutrality” policy. That is, all new development approved within the City must offset the water demand associated with the project with a supplemental water supply. As noted above, “new development” includes all planned (anticipated in the current General Plan) and any unplanned future development occurring in the City.” Under the policy, a development can be water neutral by meeting its projected demand through: existing FCGMA groundwater allocations that are transferred to the City; contributing to increased efficiency by funding water conservation or recycled water retrofit projects; providing additional water supplies; or any combination of these options. While this City policy has not been codified, it has been applied to every development project approved since 2008.”<sup>87</sup>

Beyond the description of the Water Neutrality Policy in the *2010 Urban Water Management Plan*, the project team found policy details in a staff report in the archived agenda from the January 15, 2008 Oxnard, California City Council meeting. The text from the January 15, 2008 City Council meeting report suggests the offset requirements are tied to the City’s *Water Shortage Contingency Plan*, while the text from the *2010 UWMP* suggests it is applicable to all new development. The water shortage contingency planning section in the *2010 UWMP* does not include language regarding offsets, but the municipal code’s section on drought does. The Municipal Code only mentions new development offsets in relation to drought, but does not indicate a specific stage that would trigger such a policy. Text from (1) the City of Oxnard, California Municipal Code, (2) Water Short Contingency Planning section of the *2010 UWMP*, and (3) City of Oxnard, California January 15, 2008 City Council Meeting Report follows this paragraph.

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<sup>87</sup> City of Oxnard, California. (2012). 2010 Urban Water Management Plan.  
[http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Oxnard,%20City%20of/CityofOxnard\\_2010UWMP\\_PublicDraft\\_May2012.pdf](http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Oxnard,%20City%20of/CityofOxnard_2010UWMP_PublicDraft_May2012.pdf)

## Chapter 22: Water

### Article IX. Water Conservation and Water Shortage Response Procedures

#### SEC. 22-154. Mandatory Water Conservation Measures.

....

(11) Limit new water service. Depending on the severity of the drought, issuance of building permits which require new or expanded water service may be limited or withheld, except to protect the public's health, safety and welfare, or in cases which meet city council adopted conservation offset requirements.<sup>88</sup>

## Oxnard, California 2010 Urban Water Management Plan

### Chapter 8: Water Shortage Contingency Planning

#### 8.3.2.4 New Customer

Any commercial, industrial, agricultural, or landscape customer that was not a customer during the historical base period will be assigned an average monthly allocation of water that corresponds to the usage of a similar customer. Each new customer will be solely responsible for managing the customer's water uses in such a manner as to not exceed the amount of water allocated to that customer.<sup>87</sup>

## City of Oxnard, California City Council Meeting Report January 15, 2008

Oxnard's adopted 2005 Urban Water Management Plan (UWMP) contains a comprehensive evaluation of the supply versus anticipated demand from 2006 through 2030. The Water Resources Manager anticipates a gradually increasing reliable water supply throughout the entire period considered in the UWMP. Development and water usage demand projections included in the UWMP remain very accurate and must be consistent with the water demand data being used in the General Plan Update EIR.

However, the possibility exists that water demand may temporarily exceed planned supply under five situations: 1) development "spikes" faster than planned water supply increases, 2) unanticipated development proposals are filed, 3) existing users significantly increase demand, 4) completion of GREAT Program facilities are delayed, or 5) United Water Conservation District and/or Calleguas Municipal Water District water supply is decreased due to extended drought or other reasons.

The 2005 UWMP already includes a Water Shortage Contingency Plan (Contingency Plan) that would be activated during a declared Water Shortage Emergency. The emphasis of the Contingency Plan is on voluntary and mandatory conservation, setting water allocations based on recent usage, and enforcement. Staff proposes to augment the Contingency Plan to satisfy the criteria of the Vineyard decision in the unlikely event that the circumstances described above result in new water user connection request temporarily exceeding available supply. The proposed mitigation program would divide new water use request in those projects included in the 2005 UWMP (A Users) and those that are not (B Users). Each new user would then have CEQA mitigation measures which would facilitate the continued processing of their respective development application. Initially, this program would be included in EIRs and MND, including the General Plan Update EIR, and then added into the next update of the UWMP.

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<sup>88</sup> City of Oxnard, California. (Accessed January 2015). Codified Ordinances. Chapter 22: Water. [http://www.amlegal.com/nxt/gateway.dll/California/oxnard/oxnardcaliforniacodifiedordinances?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:oxnard\\_c](http://www.amlegal.com/nxt/gateway.dll/California/oxnard/oxnardcaliforniacodifiedordinances?f=templates$fn=default.htm$3.0$vid=amlegal:oxnard_c)

- (A) New Users included in the 2005 UWMP have three options:
- A-1. Agree to phased development based on pro rata share of the reliable water supply growth anticipated with the UWMP, or
  - A-2. Participate in program(s) developed by the Water Department that offsets existing water demand (permanent, verifiable, and quantifiable), and then be entitled to the amount of the offset, or
  - A-3. Be managed by an allocation formula to be developed by the Development Services Director.
- (B) New Users not included in the 2005 UWMP have three options:
- B-1. Small new water users (threshold to be defined) would be exempt from the mitigation program and receive water service as requested, or
  - B-2. Large new water users could participate in program(s) developed by the Water Department that offset existing water demand (permanent, verifiable, and quantifiable) and then be entitled to the amount of the offset, or
  - B-3. Suspend project approval contingent on confirmed availability of reliable water supplies.

The mitigation program would remain in place until reliable water supplies are consistent with anticipated demand. This is likely to occur when the GREAT Program facilities are operational.

Staff is requesting directions as to whether augmenting the 2005 Contingency Plan in this manner as mitigation within the 2020 General Plan Update EIR and other project EIRs is an acceptable approach to satisfying the Vineyard decision requirements.<sup>89</sup>

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<sup>89</sup> City of Oxnard, California. (January 15, 2008). City Council Meeting Report: Report and Direction to Staff on Water Supply Management and Traffic Level of Service Policies Related to the 2020 General Plan Update.  
[http://oxnard.granicus.com/MetaViewer.php?view\\_id=32&clip\\_id=770&meta\\_id=53763](http://oxnard.granicus.com/MetaViewer.php?view_id=32&clip_id=770&meta_id=53763)

## Appendix B – San Diego County Water Authority Annexation Policy

The San Diego County Water Authority (SDCWA) is a wholesale water provider that supplies imported water to 24 member agencies in San Diego County, California. SDCWA has 13 annexation policies in place to provide guidance if and when its member agencies submit a request to expand their service area. If one of SDCWA’s member agencies expands its service area, the SDCWA service area is also effectively expanded. In assessing the proposed annexation’s impact, the second of the 13 policies indicates that SDCWA will evaluate the impact it will have on supply reliability for the rest of the member agencies. If annexation is deemed to cause an adverse impact the annexation request may be denied. If action is taken to mitigate an adverse impact, such as a water demand offset, the annexation request may be approved. The SDCWA annexation policies are included in the appendix because annexations are decided on a case by case basis, may not require offsets, and offsets may be earned through the development of new supply (i.e., not necessarily via the implementation of efficiency measures). Text from SDCWA Annexation Policy #2 follows this paragraph.

### SDCWA Annexation Policies

...

#### 2. Protection of Member Agency Supply Reliability

The Water Authority shall evaluate the adequacy of water supplies and facilities to meet the needs of the proposed annexed territory based on adopted Water Authority facilities and supply plans, including without limitation the 2004 Water Facilities Master Plan and the 2005 Urban Water Management Plan, or the most recent update of either. The Board may deny an annexation if it determines the annexation would adversely affect water supply reliability to Water Authority member agencies, or may approve an annexation upon compliance with conditions to mitigate, or avoid adverse affects to water supply reliability of member agencies.<sup>90</sup>

As previously stated, the last sentence of Policy #2 indicates an annexation that would otherwise be denied may be approved if action is taken to mitigate any adverse effects. One way to mitigate adverse effects is through water demand offsets. The SDCWA 2011 Annexation Packet contains guidelines for utilizing offset programs. Offsets may be earned through the development of new supply or conservation measures. The Annexation Packet also indicates that a water demand offset calculator was developed for SDCWA and its member agencies in 2010 that can be used to estimate and verify net demands. The guidelines for utilizing offset programs are as follows:

### SDCWA Annexation Packet

#### Section 4 – Procedure for Implementation of Annexation Policy #2

...

#### G. Guidelines for Member Agencies Utilizing Offset Programs

Under situations where a member agency or applicant utilizes an offset program to mitigate an adverse effect determination associated with the annexation demands not being included in the Urban Water

<sup>90</sup> San Diego County Water Authority. (2006). San Diego County Water Authority Annexations Policies.

(continued)

Management Plan (UWMP) or regional demands are exceeding the forecasted demands included in the UWMP, the information below serves as guidelines. The Board has the discretion to modify, eliminate, or impose additional requirements based on the annexation and supply situation.

1. The member agency will be responsible for identifying, developing and maintaining the offset project. The member agency will work with annexing territory in regard to development of the project and any payment/fee to be made by the annexing territory related to the offset project.
2. Prior to final approval of the potential annexation, member agency must provide detailed information on specific offset project that will be used for mitigation (cost, yield, schedule, etc.) and agree that deliveries of imported water will not be made to the annexing territory until the offset project is completed and producing yield.
3. Member agency will certify to the Board that the offset project is in place and producing yield prior to delivery of imported supplies to annexing parcel.
4. Member agency will be responsible for derivation of estimated demands, which shall be verified by Water Authority staff. Demands to be offset include existing demands of annexing territory or demands tied to development project plans, environmental documentation, or Tentative Map that will be developed on the annexing territory. Once territory is annexed, customer will be treated like similar classes of service in regard to provision of water delivery and implementation of the WSDRP allocation methodology or subsequent methodology approved by the Board.
5. Additional offsets will not be required if demands increase on the annexing parcel in the future beyond development plans in place or proposed at time of annexation. Future increases in demands will be captured in future planning documents.
6. Offset will be considered a new supply or savings, become a part of member agency municipal supply and be included in member agency planning documents as assisting in meeting supply reliability for the region. The offset project will not be tied to the annexing parcel for purposes of water management, such as allocation of supplies.
7. Through annual reporting, member agency will provide Board status on development and yield of offset project.<sup>91</sup>

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<sup>91</sup> San Diego County Water Authority. (2011). San Diego County Water Authority Annexation Packet.



## Appendix C – Communities with Water Demand Offset Language in Drought Plans

The project team discovered numerous communities in California with language in drought plans that indicate water demand offsets are required for new development during times of declared drought. These communities were not included in the main body of the report for three reasons:

1. The policies are only in effect during declared drought
2. Specific details beyond limited language in drought plans were typically not found
3. Offsets were often not specified as being required to result from implementation of efficiency measures (i.e., could be earned by such action as letting agricultural land go fallow)

Table A-1 contains 14 communities that have drought plans with water demand offset requirements for new development, and one model ordinance from the San Diego County Water Authority. There are likely more communities with such requirements. Twelve of these communities have nearly identical language in their drought plans. First, a statement that pertains to new potable water service is often included such as, “The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the City.” Then a statement about new building permits is frequently included in the same section such as, “The city will limit or withhold the issuance of building permits which require new or expanded water service, except to protect the public health, safety and welfare, or in cases which meet the city’s adopted conservation offset requirements.” Not all drought plans with demand offset language contain both statements.

The first statement is effectively identical to the language in the San Diego County Water Authority’s *Model Drought Response Ordinance*.<sup>92</sup> The second (and first) statement can be found in the *Draft Model Water Conservation Ordinance* included in materials from the December 9, 2008 Metropolitan Water District of Southern California Board meeting. This suggests that the language found in many of the community drought plans related to water demand offsets originated in a model ordinance.<sup>93</sup>

The San Diego Water Authority has water demand offsets built into its *Model Drought Response Ordinance* for stage 3, which is termed a “drought critical” stage that may require up to a 40 percent mandatory reduction in water use.<sup>92</sup>

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<sup>92</sup> San Diego County Water Authority, Website. (Accessed December 2014). Model Drought Response Ordinance Page. <http://www.sdcwa.org/model-drought-response-ordinance>

<sup>93</sup> Metropolitan Water District of Southern California. (December 9, 2008). Board Meeting Materials. <http://edmsidm.mwdh2o.com/idmweb/cache/MWD%20EDMS/003724746-1.pdf>

San Diego Water Authority Model Drought Response Ordinance  
Section 6.0 Drought Response Level 3 - Drought Critical Condition

...

c) Upon the declaration of a Drought

Response Level 3 condition, no new potable water service shall be provided, no new temporary meters or permanent meters shall be provided, and no statements of immediate ability to serve or provide potable water service (such as, will serve letters, certificates, or letters of availability) shall be issued, except under the following circumstances:

1. A valid, unexpired building permit has been issued for the project; or
2. The project is necessary to protect the public's health, safety, and welfare; or
3. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of [AGENCY].<sup>94</sup>

The City of Santa Rosa's drought plan has unique language compared to the other communities in regard to water demand offsets. Additionally, the city has specific offsets ratios indicated for various stages of drought and the policy specifically indicates that the offsets must be achieved through the implementation of water efficiency measures. New developments must offset 100 percent of projected demand during Stage 2, 200 percent during Stage 3, and 300 percent during Stage 4. According to the City of Santa Rosa website, fees are charged to fund water efficiency programs that will offset the demand of new developments during drought.<sup>95</sup> City of Santa Rosa Staff indicated that the specific water demand offset procedures are still being developed.<sup>96</sup> As of January 2015 the City of Santa Rosa was in a stage 1 drought that was adopted on August 5, 2014, thus the new development water demand offsets are not currently being enforced.<sup>97</sup> Sample text from the City of Santa Rosa's *2010 Urban Water Shortage Contingency Plan* for stage three is below.

City of Santa Rosa, California 2010 Urban Water Shortage Contingency Plan

Stage 3 -

All prohibitions established in previous stage plus:

- No water using landscape installation in new construction
- New construction must offset new demand by conserving two times the new demand within the community<sup>98</sup>

<sup>94</sup> San Diego County Water Authority. (2008). Model Drought Response Ordinance. [http://www.sdcwa.org/sites/default/files/files/droughtordinance\\_03272008.pdf](http://www.sdcwa.org/sites/default/files/files/droughtordinance_03272008.pdf)

<sup>95</sup> City of Santa Rosa, California Website. (Accessed December 2014). 2014 Drought - Frequently Asked Questions. [http://ci.santa-rosa.ca.us/doclib/Documents/Water%20Shortage%20FAQs\\_Residential\\_2014.pdf](http://ci.santa-rosa.ca.us/doclib/Documents/Water%20Shortage%20FAQs_Residential_2014.pdf)

<sup>96</sup> City of Santa Rosa, California Staff. (December 2014). Personal Communication.

<sup>97</sup> City of Santa Rosa, California Website. (Accessed January 2015). Drought. <http://srcity.org/departments/utilities/conserves/Pages/watershortage.aspx>

<sup>98</sup> City of Santa Rosa, California. (2010). Urban Water Shortage Contingency Plan. [http://srcity.org/doclib/Documents/Final\\_UWSCPlan-2010.pdf](http://srcity.org/doclib/Documents/Final_UWSCPlan-2010.pdf)

**Table A-1: Communities with Water Demand Offset Requirements During Drought**

<b>Community</b>	<b>Drought Stage that Triggers Offsets</b>	<b>Curtailment Target of Corresponding Drought Stage</b>	<b>Offset Ratio</b>
Bell Gardens, California	3	Not specified. Level 3 is "water shortage emergency"	Unspecified
Brea, California	3	Up to 30%	Unspecified
Gilroy, California	3	36% - 50%	Unspecified
Port Hueneme, California	3	Not specified. Level 3 is "emergency condition"	Unspecified
Huntington Beach, California	3	Not specified. Level 3 is "emergency condition"	Unspecified
Montebello, California	3	Not specified. Level 3 is "water emergency"	Unspecified
Morgan Hill, California	3	>35%	Unspecified
Oxnard, California	Unspecified	N/A	Unspecified
Rainbow Municipal Water District, California	2	Up to 20%	Unspecified
San Diego County Water Authority, California (Model Ordinance)	3	Up to 40%	Unspecified
San Dieguito Water District, California	2	Up to 20%	Unspecified
Santa Rosa, California	Stages 2, 3 and 4		
	Stage 2	30%	1:1
	Stage 3	40%	2:1
	Stage 4	50%+	3:1
Torrance, California	Unspecified	N/A	Unspecified
Valley Center, California	2	20%	Unspecified
Vista Irrigation District, California	3	40%	Unspecified

## Appendix D - Terminology

The concept of requiring the projected water consumption of a new development to be offset by on-site and off-site efficiency measures has historically been referred to with different terms. Appendix D identifies the varied nomenclature the project team encountered. AWE began this effort with the phrase “net zero” in mind, but learned this term has multiple uses and interpretations. Because of this, the project team spent time clarifying the terminology and various terms are described below.

Net Zero Water - The term “net zero water” (or simply “net zero”) has been used to describe water demand offsets for new development.<sup>11,99</sup> This particular use of the term means the construction of a new development will effectively net a zero increase in system wide water demand after on-site and off-site efficiency measures are implemented. However, the green building industry and the U.S. Army have different definitions for “net zero water,” and the potential for confusion is significant...

“Net zero” is often used in the green building industry to refer to the water system of an individual building. The following are examples of its application:

“The net-zero water use goal is not intended to suggest that all the rainfall should be captured and subsequently used on-site but that the total quantity of water used at a particular site corresponds to the annual volume of rainfall on that site.”<sup>100</sup>

"Net zero water projects are described as those that operate solely within the water budget of their site on an annual basis, meeting all water needs from on-site sources and managing all wastewater and stormwater on-site."<sup>101</sup>

A net-zero building is off-grid and "eliminates the need for municipal water & exported sewage or stormwater."<sup>102</sup>

According to the U.S Army, “A Net Zero Water installation limits the consumption of freshwater resources and returns water back to the same watershed so not to deplete the groundwater and surface water resources of that region in quantity and quality over the course of a year.”<sup>103</sup>

“Net zero energy” is a common phrase that refers to the energy consumption of buildings. Below is an excerpt from a National Renewable Energy Laboratory paper on the topic of net zero energy that offers a definition, but also notes that there is a lack of understanding of what it actually means.

"A net zero-energy building (ZEB) is a residential or commercial building with greatly reduced energy needs through efficiency gains such that the balance of energy needs can be supplied

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<sup>99</sup> City of St. Helena, California. (Accessed February 2014). St. Helena Water Neutral Policy for Development. <http://cityofstheleena.org/sites/default/files/Water%20Demand%20Analysis%20White%20Paper%20r1.pdf>

<sup>100</sup> Olmos, K. C., & Loge, F. J. (2013). Offsetting water conservation costs to achieve net-zero water use. *Journal: American Water Works Association*, 105(2).

<sup>101</sup> City of Seattle. (2011). *Regulatory Pathways to Net Zero Water Guidance for Innovative Water Projects in Seattle Phase II Summary Report*.

<sup>102</sup> Interface Engineering. (2010). *Achieving Net-Zero Water*. [http://interfaceengineering.com/files/2010/04/Interface\\_Net-Zero-Water\\_Final1.pdf](http://interfaceengineering.com/files/2010/04/Interface_Net-Zero-Water_Final1.pdf)

<sup>103</sup> United States Army. (October 2011). *Army Vision for Net Zero*.

with renewable technologies. Despite the excitement over the phrase “zero energy,” we lack a common definition, or even a common understanding, of what it means.”<sup>104</sup>

Zero Water Footprint - “Zero water footprint” has been used to describe offsetting the projected water demands of new developments with investments in on-site and off-site water efficiency. In this context it is confusing terminology because “water footprint” commonly refers to the amount of water something directly and indirectly consumes. The following definition is provided via the Water Footprint Network: “the water footprint of an individual, community or business is defined as the total volume of freshwater used to produce the goods and services consumed by the individual or community or produced by the business.”<sup>105</sup> Suggesting that a new development will have a “zero water footprint” may be interpreted to mean that it will have zero direct and indirect water consumption. Therefore “zero water footprint” was not used in this report to describe offsetting the water demand of new development except when a specific article or other resource was referenced that uses such language.

Water Offset - the term “water offset,” or “water demand offset,” refers to the projected demand of new water connections (or new development) being offset by on-site and off-site water conservation efforts. This terminology is used by many water utilities and was used in this report to describe the mitigation of the water demand associated with new development. Offsets can refer to actions such as finding new supply or letting agricultural land go fallow. In this report the primary focus was on water offsets that achieved through efficiency measures.

Water Credits - water credits are earned when water conservation efforts achieve savings intended to offset the water consumption of a new service connection or development. Water credits may be put toward a water offset, or in some cases credits can be banked. Some communities allow water credits to be purchased in lieu of performing fixture replacements or other conservation activity. This term is used by several water utilities to describe the related components of a water demand offset policy.

Water Banking - This term is used in Massachusetts to refer to water demand offset policies. The *Massachusetts Water Conservation Standards* specifically define a water bank as, “a system of accounting and paying for measures that offset or mitigate water losses due to water withdrawals, sewerage, and/or increased impervious areas that prevent aquifer recharge.”<sup>85</sup>

The City of Santa Fe, New Mexico has a water bank that contains accounts of consumptive water right holders, holders of water credits, and water conservation credits. Water conservation credits can be added to and purchased from the bank, and water rights may be transferred to and from it. This is described in more detail in the case example section.

In this report “water bank” refers to the aforementioned uses and not regional water banks designed to convey large volumes of water via water trading, such as the California Drought Water Bank.

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<sup>104</sup> Torcellini, P., Pless, S., Deru, M., & Crawley, D. (2006). Zero energy buildings: a critical look at the definition. National Renewable Energy Laboratory and Department of Energy, US. [http://www.biomassthermal.org/programs/documents/118\\_ZEBCriticalLookDefinition.pdf](http://www.biomassthermal.org/programs/documents/118_ZEBCriticalLookDefinition.pdf)

<sup>105</sup> Water Footprint Network Glossary. (Accessed March 2014). Water footprint definition. <http://www.waterfootprint.org/?page=files/Glossary>

Water Neutral Development - “Water neutral development” refers to offsetting the projected water demand of new development with on-site and off-site water efficiency measures to neutralize the impact on overall service area demands.

Water Neutral Growth - “Water neutral growth” refers to offsetting the projected water demand of new development with on-site and off-site water efficiency measures.