Yucaipa Valley Water District

Notice and Agenda of a Board Workshop

Tuesday, September 29, 2015 at 4:00 p.m.

MEETING LOCATION: District Administration Building
12770 Second Street, Yucaipa

MEMBERS OF THE BOARD: Director Ken Munoz, Division 1
Director Bruce Granlund, Division 2
Director Jay Bogh, Division 3
Director Lonni Granlund, Division 4
Director Tom Shalhoub, Division 5

I. Call to Order

II. Public Comments At this time, members of the public may address the Board of Directors on matters within its jurisdiction; however, no action or significant discussion may take place on any item not on the meeting agenda.

III. Staff Report

IV. Presentations

A. Overview of the California Drought and Yucaipa Valley Water District's Action Plan Related to the State Water Resources Control Board Mandatory Restrictions to Achieve a 36% Reduction in Potable Urban Water Use [Workshop Memorandum No. 15-186 - Page 9 of 80]

B. Consideration of Implementing a Watershed Protection and Open Space Management Program to Protect and Enhance Local Water Resources [Workshop Memorandum No. 15-187 - Page 16 of 80]

V. Operational Updates

A. Implementation of a Recycled Water Filling Station for Customers of the Yucaipa Valley Water District [Workshop Memorandum No. 15-188 - Page 20 of 80]

B. Consideration of Installing a Passive Fueling Automation System for the District's Fleet of Vehicles and Construction Equipment [Workshop Memorandum No. 15-189 - Page 24 of 80]

VI. Capital Improvement Projects

A. Status Report on the Construction of a 6.0 Million Gallon Drinking Water Reservoir R-12.4 - Calimesa [Workshop Memorandum No. 15-190 - Page 30 of 80]

Any person with a disability who requires accommodation in order to participate in this meeting should telephone Erin Anton at (909) 797-5117, at least 48 hours prior to the meeting in order to make a request for a disability-related modification or accommodation.

Materials related to an item on this agenda submitted to the Board of Directors after distribution of the workshop packet are available for public inspection during normal business hours at the District office located at 12770 Second Street, Yucaipa. Meeting material is also be available on the District's website at www.yvwd.dst.ca.us

B. Status Report on the Digester Cleaning and Cover Replacement Project at the Wochholz Regional Water Recycling Facility [Workshop Memorandum No. 15-191 - Page 35 of 80]

C. Status Report on the Construction of Interim Recycled Water Booster Station NB-12.2 [Workshop Memorandum No. 15-192 - Page 38 of 80]

VII. Administrative Issues

A. Issuance of a Request for Proposals for the Demolition of the Building, Basement and Foundation at 35192 Cedar Avenue, Yucaipa (Assessor Parcel Number 0303-232-17) [Workshop Memorandum No. 15-193 - Page 41 of 80]

B. Participation by the Yucaipa Valley Water District in the 2015 San Bernardino Valley Regional Urban Water Management Plan [Workshop Memorandum No. 15-194 - Page 44 of 80]

VIII. Director Comments

IX. Adjournment

Staff Report

Yucaipa Valley Water District

The banality of California's '1,200-year' drought

Posted on September 23, 2015 by UC Davis Center for Watershed Sciences

By Jay Lund

The south fork of Lake Oroville, California's second largest reservoir, in September 2014. *Photo by Kelly M. Grow/California Department of Water Resources*

California's ongoing drought will continue to break records and grab headlines, but it is unlikely to be especially rare from a water policy and management perspective.

Estimates of the current drought's rarity range from once in 15 years to once in 1,200 years (Griffin and Anchukaitis 2014), depending on the region and indicators used (precipitation, stream runoff, soil moisture or snowpack). In the Middle Ages, large parts of California had droughts far worse than this one, some lasting more than a century (Stine 1994). The probability of California experiencing a once in 1,200-year drought during a short human lifetime is extremely low.

The chance that this dry period is a "new normal" is probably small. Many parts of Australia are paying for expensive desalination plants built when a severe drought was misinterpreted as a new normal. If this drought is as unusual as once in 1,200 years, then why pay heed beyond just getting through it? We are unlikely to see the likes of it again.

The obsession over El Niño and the California drought masks the reality that the atmospheric condition is poorly correlated with stream flows in Northern California, where 75 percent of the state's water supply originates.

East Coast news media should keep this perspective: Every summer California has a drought far drier and longer than the eastern U.S. has ever seen. This explains California's extensive water and irrigation infrastructure (and why people move to California).

Drought-stressed vineyard in Coachella Valley in July 2014. *Photo by Kelly M. Grow/California Department of Water Resources*

The uniqueness of an individual drought is fascinating. Each drought is unique in area, persistence, dryness, temperature, internal pattern and how it ends. California's current drought is unusually severe, and certainly the worst since 1988-1992. Groundwater in the Tulare basin is probably lower than at any time in human history. This drought also has been unusually warm, leading to it having the lowest snowpack in 500 years and driest soil in 1,200 years). In precipitation or stream flow, this drought so far is between the third and eighth driest years on record for most big rivers.

By focusing on unique aspects of a drought, any drought can become an incredibly rare event. Becoming engrossed in the superlatives, however, can distract from the business of managing water shortages and preparing longer-term solutions.

What's more relevant for water policy and management is the banality of drought. We should expect to see droughts in California of severity similar to the current drought about once or twice in a generation. Given climate change and the growth in expectations and values for diverse water uses, it seems reasonable to expect such droughts a bit more frequently than in the past. The warmer temperatures in this drought seem likely to become normal for future droughts, with disproportionate effects on ecosystems and small streams.

Agencies, cities, bankers, insurers, farmers and residents should prepare for greater regularity of droughts as harsh as the current one. Severe drought in California should be reclassified from a rare "act of God" to something more like a business cycle swing that recurs several times in a lifetime or career.

California is managing pretty well under the current drought in most areas (Howitt et al. 2015; Hanak et al, 2015) and can survive much more severe and prolonged droughts, if managed well (Harou et al, 2010).

It is more important to focus on managing the dry event and preparing for future ones than understanding the fascinating intricacies of drought origins and statistics. But we probably will continue to obsess about drought statistics and El Niño anyway.

Lake Oroville's Bidwell Marina in September 2014. *Photo by Kelly M. Grow/California Department of Water Resources*

Further reading

Belmecheri S, Babst F, Wahl ER, Stahle DW and Trouet V. (2015). "Multi-century evaluation of Sierra Nevada snowpack." *Nature Climate Change.* doi.org/10.1038/nclimate2809

Cayan D and Mount J. "Don't count on El Niño to end the drought." *Viewpoints/The PPIC Blog*. July 9, 2015

Griffin D and Anchukaitis KJ. (2014), "How unusual is the 2012–2014 California drought?" *Geophys. Res. Lett*., 41, 9017–9023, doi:10.1002/2014GL062433

Hanak E, Mount J, Chappelle C, Lund J, Medellín-Azuara J, Moyle P and Seavy N. What If California's Drought Continues? 20 pp. PPIC Water Policy Center, San Francisco, CA, August 2015

Harou JJ, Medellin-Azuara J, Zhu T, Tanaka SK, Lund J, Stine S, Olivares MA and Jenkins MA. (2010). "Economic consequences of optimized water management for a prolonged, severe drought in California." *Water Resources Research*, doi:10.1029/2008WR007681, Vol. 46

Howitt R, MacEwan J, Medellín-Azuara J, Lund J. "Drought bites harder, but agriculture remains robust" *CaliforniaWaterBlog*. Aug. 18, 2015

Howitt R, Medellín-Azuara J, MacEwan D, Lund J and Sumner D. (2015). "Economic Analysis of the 2015 Drought for California Agriculture." Center for Watershed Sciences, UC Davis. 16 pp. August 2015

Lund J. (2014). "Could California weather a mega-drought?" *California WaterBlog*. June 29, 2014

Lund J and Mount J. "Will California's drought extend into 2015?" *California WaterBlog*. June 15, 2014

Schonher T and Nicholson SE. (1989). "The Relationship between California Rainfall and ENSO Events." *Journal of Climate*, Vol. 2, Nov. pp. 1258-1269

Stine S. (1994). "Extreme and persistent drought in California and Patagonia during medieval time". *Nature, 369,* 546–549, doi:10.1038/369546a0

Presentations

Yucaipa Valley Water District

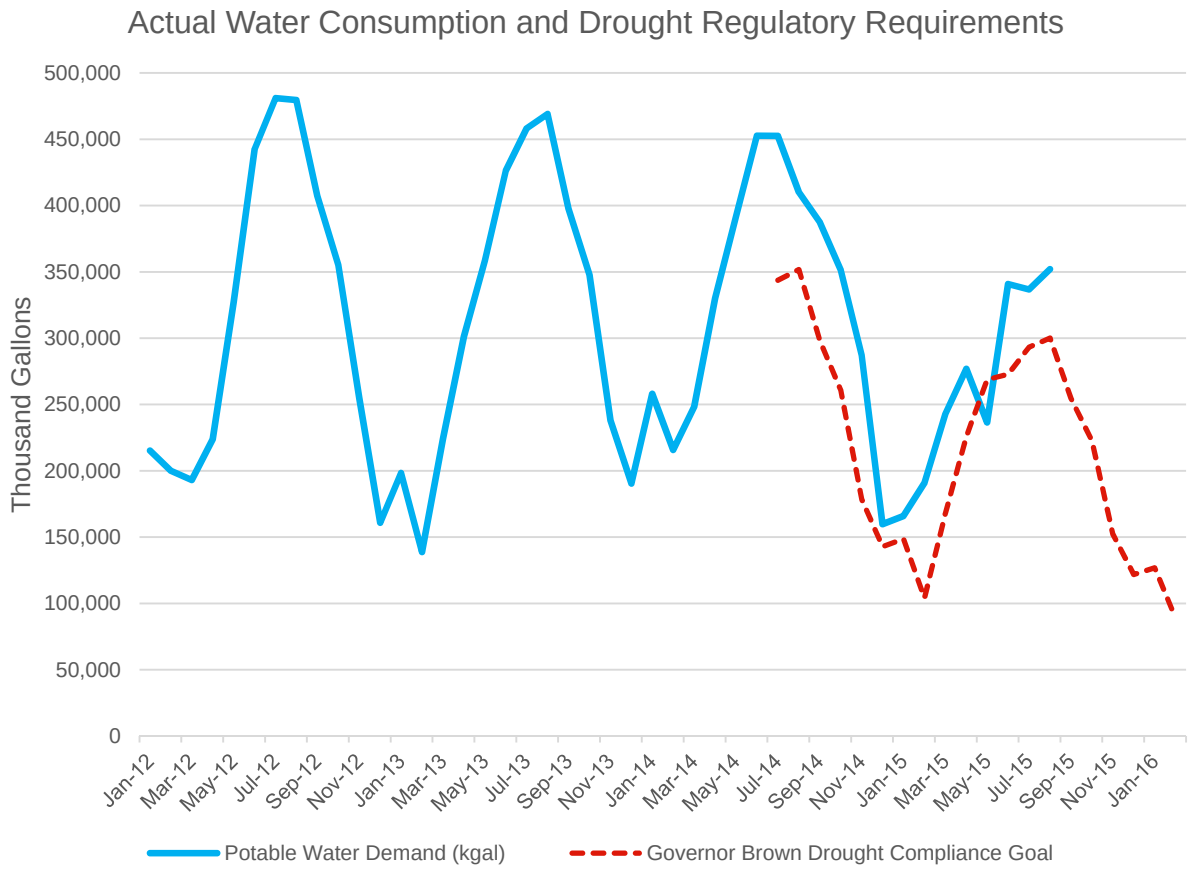
Yucaipa Valley Water District

Workshop Memorandum 15-186

Date: **September 29, 2015**

Subject: **Overview of the California Drought and Yucaipa Valley Water District's Action Plan Related to the State Water Resources Control Board Mandatory Restrictions to Achieve a 36% Reduction in Potable Urban Water Use**

On May 5, 2015, the State Water Resources Control Board ("SWRCB") adopted emergency regulations to achieve a 25% statewide reduction in potable urban water use. These stringent water use regulations will require the Yucaipa Valley Water District to achieve a 36% reduction from the amount of drinking water produced in 2013. In order to achieve this level of water conservation, the Yucaipa Valley Water District will need to provide water based on the following water demand curve.



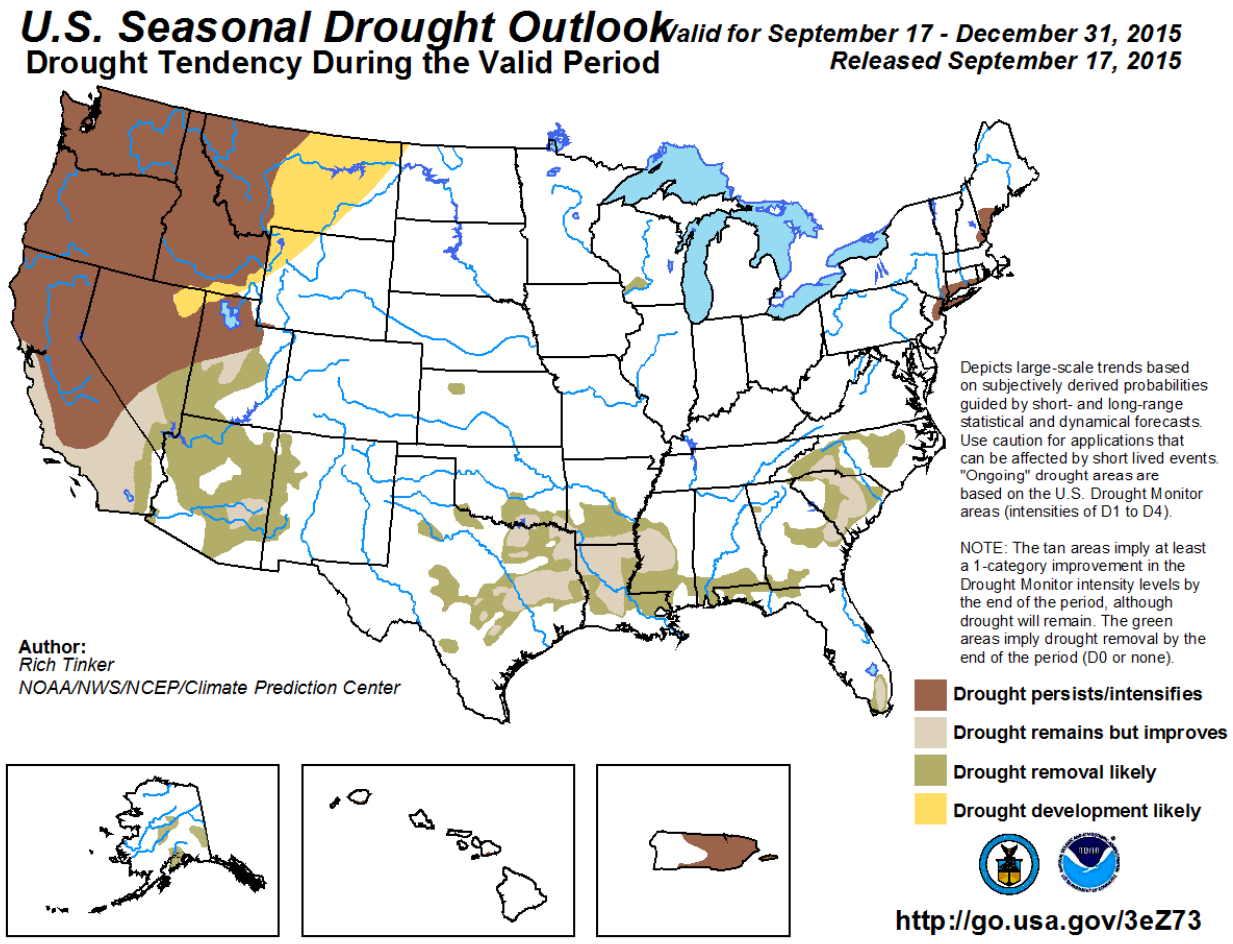
The chart above illustrates the difference between Governor Brown's Drought Compliance Goal in 2014 at a 25% reduction, and in 2015 at a 36% reduction in potable water use based on the 2013 baseline period.

To achieve Governor Brown's Drought Compliance Goal of a 36% reduction in potable water use from the 2013 baseline period, the Yucaipa Valley Water District has initiated numerous drought conservation programs and conducted a series of monthly community workshops to provide information to our customers.

To achieve the 36% reduction, customers will need to immediately reduce the amount of water used for outdoor landscape purposes by 50% to 60%.

The purpose of this agenda item is to discuss the ongoing and evolving implementation strategy for our community.

Drought Status and Update



Latest Seasonal Assessment - Since the previous seasonal outlook release on August 20, conditions deteriorated substantially from central and northeastern Texas eastward through the lower Mississippi Valley. Record and near-record late summer dryness was observed at a few locations, and accumulated deficits over the last 75 days exceeded 4 inches across much of the region. A few spots in northern Louisiana and east-central Texas had drought intensities go from D0 (abnormally dry) to D3 (extreme drought) during the past month. Heavy rain (6 to 10 inches in the last 30 days) was confined to the Texas and Louisiana Gulf Coast region, where dryness generally eased.

The southwestern monsoon resulted in scattered areas of above-normal rainfall during the past 30 days, while seasonal dryness prevailed elsewhere across the remainder of the interior West. Drought maintained its intensity across most of the region, with abnormally hot weather contributing to some deterioration in the northern Intermountain West, while locally heavy rain prompted improvement in parts of western Washington, southeastern Arizona, and southwestern New Mexico. Scattered heavy rain and flash flooding affected a few spots in the West in mid-September. Los Angeles, CA recorded over an inch of rain on September 15, which almost equaled their normal for the 6-month May - October period. A few inches of rain fell quickly in northern and southern Utah, causing excessive runoff and deadly flash. However, these isolated extreme events did not affect the longer-term dryness and drought that covers the region. Away from Los Angeles, wildfires spread quickly and consumed homes in a few locations, most notable the mountains outside San Francisco, CA.

A broken pattern of abnormal dryness was observed in the central Plains, the Upper Peninsula of Michigan, the Ohio Valley, the mid-Atlantic, and the Northeast, reflected by areas of new D0 conditions during the last couple of weeks. There was also a slight expansion of the moderate drought in and around the New York City area. Meanwhile, dryness and drought improved in the upper Midwest, parts of the Southeast, and southern Florida. Heavy rain has soaked the Florida Panhandle and the adjacent south Atlantic and northeastern Gulf Coasts. 30-day totals of 6 to 10 inches were common, with isolated sites receiving almost 15 inches, prompting the improvement in south Florida.

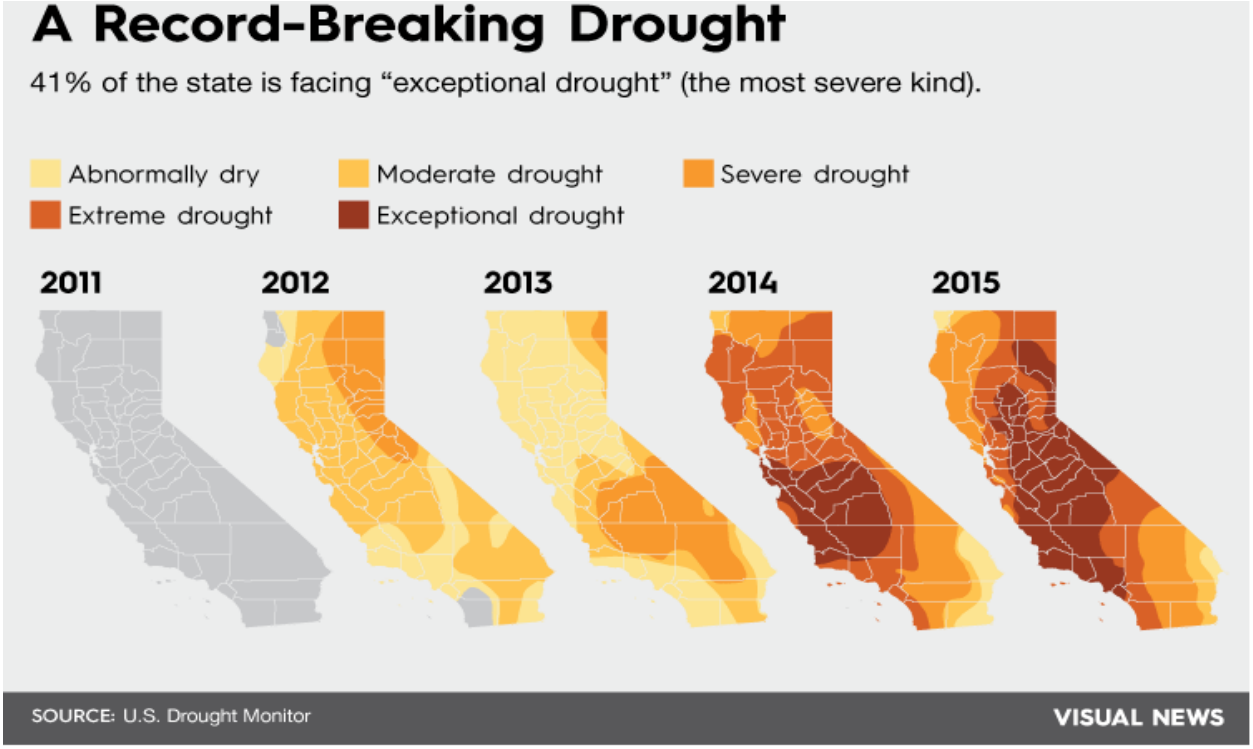
Unseasonably heavy rain continued to pelt much of Hawaii, where widespread improvement has been observed. From mid-August to mid-September, both Honolulu and Lihue received over 10 inches of rain, compared to normal of just 0.5 inch and 1.08 inches, respectively. Both Alaska and Puerto Rico experienced regional relief from moderate rainfall, with a significant decrease in drought coverage across central and southeastern Alaska.

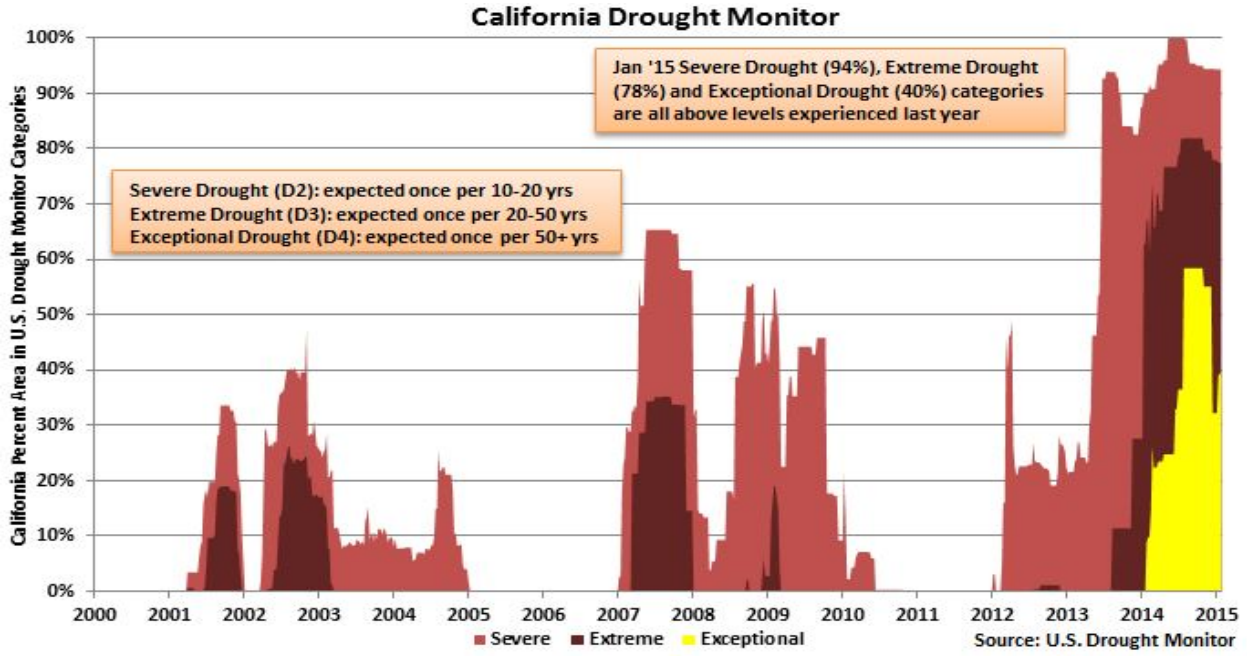
With the strong El Niño event underway and expected to continue through the forecast period, our Outlook is based primarily on conditions typically observed during these events, with some consideration for longer-term trends and model output, all of which is reflected in the October -November-December 3-Month Outlooks. Impacts on the drought include likely persistence for the small areas in the Northeast and the broad area of drought in the northwest and much of California, with some development expected in concert with the favored dryness in the northern Rockies. Along the central and southern California coast, and in a broad swath from the Southwest to the Southeast, abundant precipitation, especially later in the period, is expected to bring widespread improvement. As this is a relatively dry time of year, drought is most likely to persist where it exists in Puerto Rico and Hawaii while additional slow relief is expected in Alaska.

Forecaster: Rich Tinker

Next Seasonal Drought Outlook issued: October 15, 2015 at 8:30 AM EDT

Source: http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.html



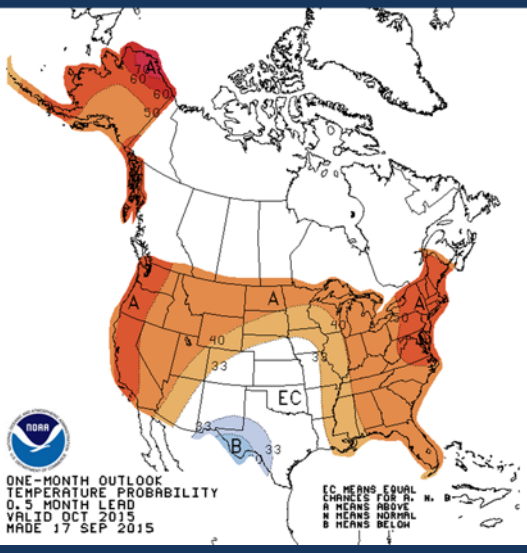


The National Weather Service and the National Oceanic and Atmospheric Administration provides regular predictions for temperature and precipitation forecasts throughout the United States. The following charts show the temperature and precipitation probability for the next month, as well as a compilation of future forecasts for temperature and precipitation.

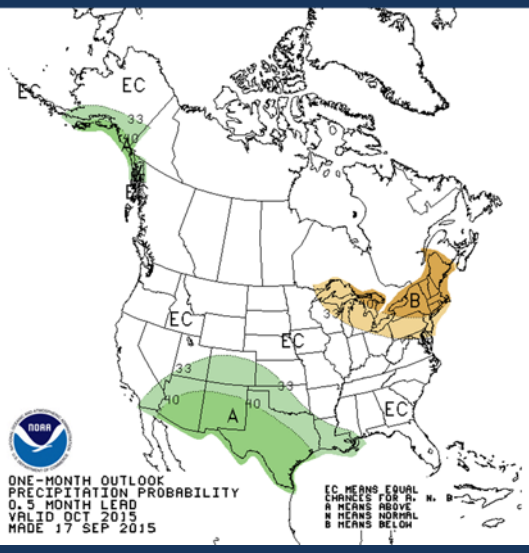
Temperature Forecast Legend: Orange/Red = Above Normal Temperatures
Blue = Below Normal Temperatures

Precipitation Forecast Legend: Green = Above Normal Precipitation
Tan/Brown = Below Normal Precipitation

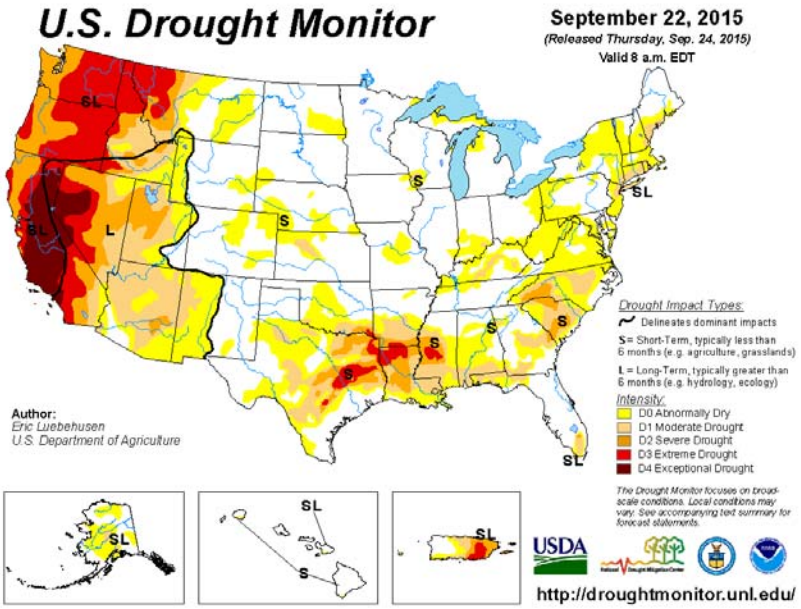
Temperature Probability
October 2015



Precipitation Probability
October 2015

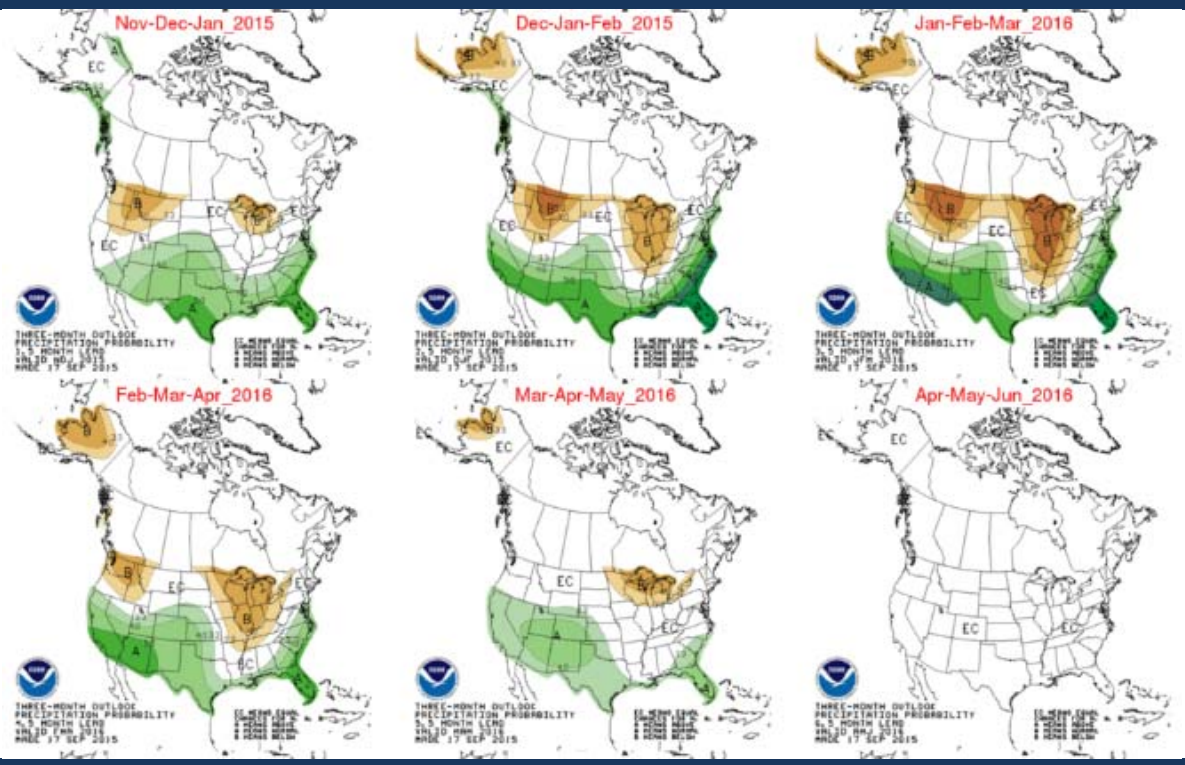


United Stated Drought Monitor Illustration



NOAA Multi-Season Precipitation Predictions - Three Month, Rolling Periods

http://www.cpc.ncep.noaa.gov/products/predictions//multi_season/13_seasonal_outlooks/color/p.gif



NOAA Multi-Season Temperature Predictions - Three Month, Rolling Periods

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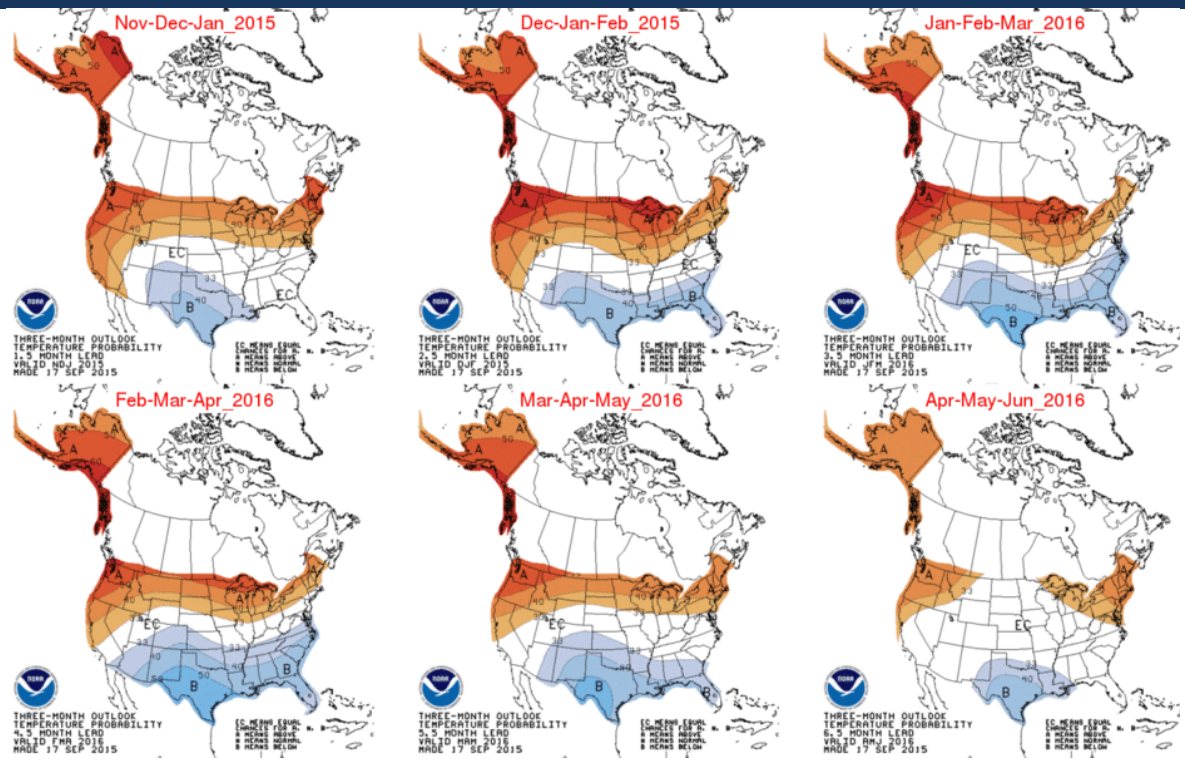
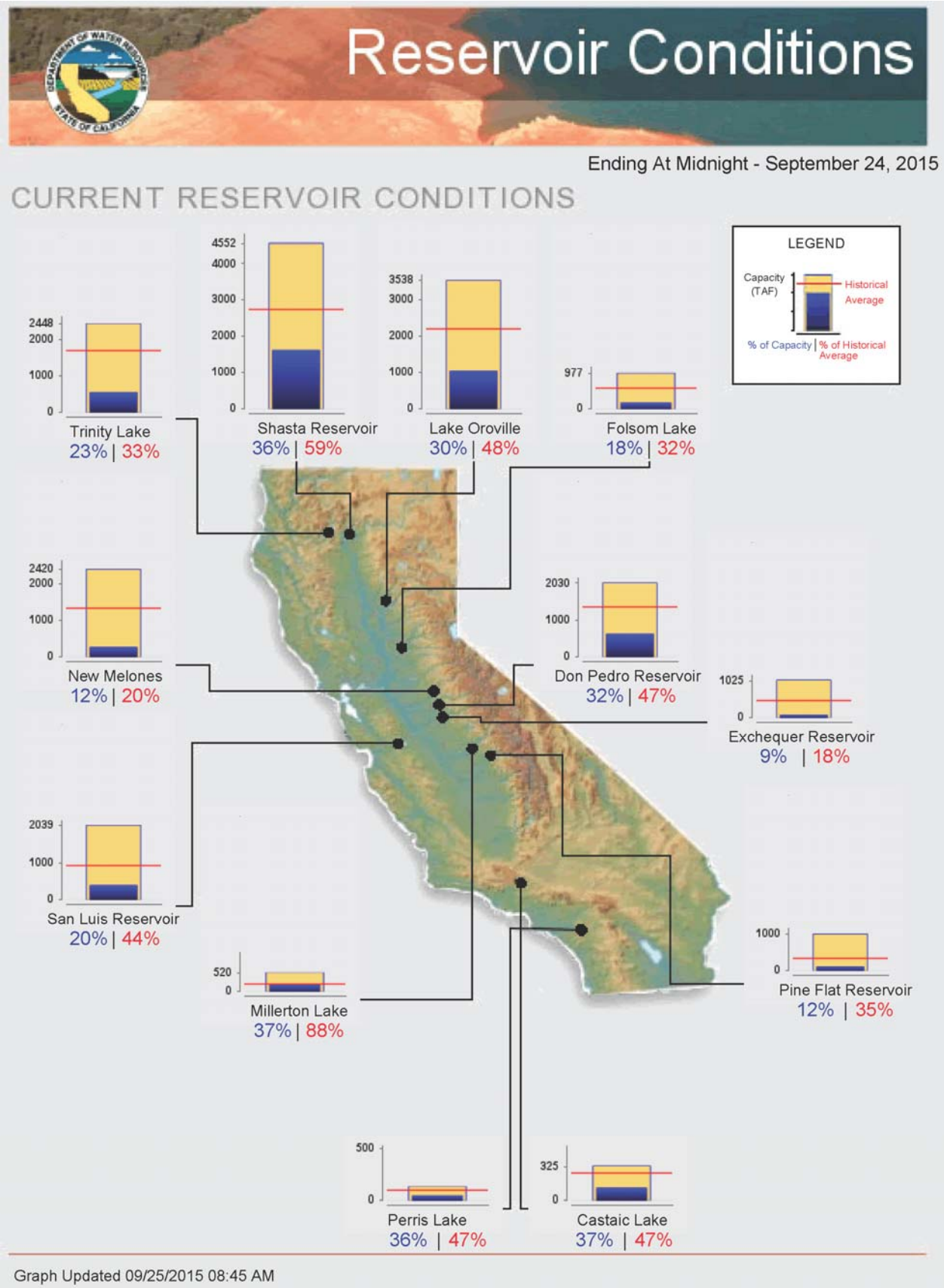



Reservoir Conditions
Ending At Midnight - September 24, 2015
CURRENT RESERVOIR CONDITIONS
LEGEND
Capacity (TAF)
Historical Average
% of Capacity | % of Historical Average
Trinity Lake
23% | 33%
Shasta Reservoir
36% | 59%
Lake Oroville
30% | 48%
Folsom Lake
18% | 32%
New Melones
12% | 20%
Don Pedro Reservoir
32% | 47%
Exchequer Reservoir
9% | 18%
San Luis Reservoir
20% | 44%
Millerton Lake
37% | 88%
Pine Flat Reservoir
12% | 35%
Perris Lake
36% | 47%
Castaic Lake
37% | 47%
Graph Updated 09/25/2015 08:45 AM

Yucaipa Valley Water District

Workshop Memorandum 15-187

Date: **September 29, 2015**

Subject: **Consideration of Implementing a Watershed Protection and Open Space Management Program to Protect and Enhance Local Water Resources**

Stormwater Management

Over the past several decades, developers and land use agencies designed stormwater systems to rapidly convey stormwater away from buildings in order to protect properties and structures. This stormwater strategy resulted in increased frequency and magnitude of tributary flows causing erosion and damage to natural stream systems.

New regulations are now in place to reduce the amount of stormwater runoff discharged to tributary streams. For new developments, stormwater is retained onsite and directed to vegetated swales and basins. There, pollutants settle out to be absorbed by soil before the water drains off slowly or percolates to replenish groundwater.

The new regulatory framework for stormwater management will reduce the damage to natural stream systems during regular storm events and improve the potential for stormwater capture.

- **Low Impact Development** uses site design and storm water management to maintain the site's pre-development runoff rates and volumes.
- **Green Infrastructure** carries this approach to a larger, community scale and presents similar, sustainable opportunities to local governments and regional projects.

SWRCB, *Storm Water Management Fact Sheet*

While stormwater management is usually the responsibility of flood control agencies, there is a definite role for local water purveyors. By creating a linkage between stormwater management and open space management, water purveyors can gain new tools and opportunities to create programs consistent with watershed goals of enhancing the quality of local water resources and improving stormwater capture.

Challenges to Open Space Management

One of the most complicating factors to implement a comprehensive and coordinated open space program is the large number of different entities that oversee the management of open space. In our service area, open space is owned and/or maintained by the following groups and organizations:

- City of Calimesa
- City of Yucaipa
- County of Riverside

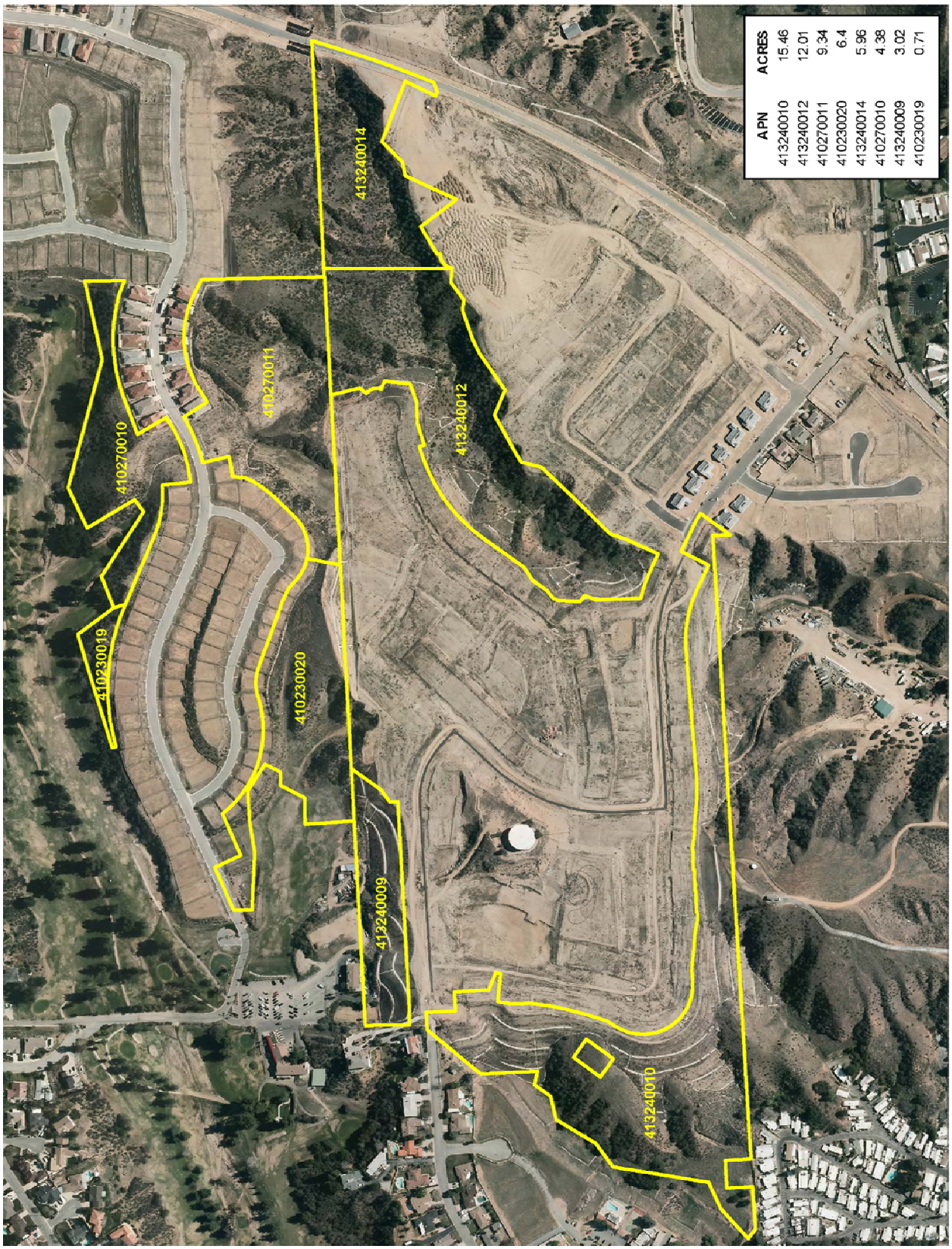
- County of San Bernardino
- Crafton Hills Open Space Conservancy
- Inland Empire Resource Conservation District
- Inland Empire Waterkeeper
- Redlands Conservancy
- Regional Conservation Authority (MSHCP)
- Riverside County Regional Park & Open Space District
- Riverside Land Conservancy
- Santa Ana Watershed Association
- Southwest Resource Management Association
- State of California, Department of Fish and Wildlife
- State of California, State Parks
- United States Department of Forestry
- United States Fish and Wildlife Service
- Wildlands Conservancy
- Yucaipa Valley Water District

While these agencies, organizations and groups provide substantial and meaningful improvements to the quality of life in our area, we are all subject to the same inefficiencies inherent with the duplication of services commonly seen in government today. Just like with local government, as funding becomes more constrained, it does not make sense to provide services on a small scale. Every time services are duplicated in an area, each entity carries the full cost of service and related overhead expenses. The duplication of overhead expenses directly reduces the level of service that could be provided by a more efficient and coordinated structure. Whether it is a government entity, non-profit group, or local business -- by efficiently managing our collective overhead costs, we are able to provide more value to the public we serve.

A Proposed Solution

The staff members from the Yucaipa Valley Water District and the City of Calimesa have identified about 57 acres of open space near Singleton Road that can be part of the first phase of an Open Space Management Program administered by the Yucaipa Valley Water District. The District would own, maintain and improve the open space in a manner that protects the natural landscape and wildlife features while implementing long-term water supply capture and water quality protection strategies.

This multi-functional approach to the management of open space and stormwater management may provide a new paradigm for water purveyors to achieve a long-term, sustainable, and improved quality of life for the public we serve.


APN ACRES
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Operational Updates

Yucaipa Valley Water District

Yucaipa Valley Water District

Workshop Memorandum 15-188

Date: **September 29, 2015**

Subject: **Implementation of the Recycled Water Filling Station for Customers of the Yucaipa Valley Water District**

The Yucaipa Valley Water District staff has been investigating the implementation of a recycled water filling station to meet the needs of customers interested in using recycled water for irrigation use at their homes.

On August 5, 2015, the Board of Directors authorized the District staff to proceed with the implementation of a recycled water filling station.

On September 3rd and September 17th, the District hosted a meeting with interested residential customers. During the community meeting, a copy of the attached application was distributed for customers. The District's website is currently being reconfigured to host information about this program for our customers.

The next step is to receive approval from the Department of Drinking Water for the residential recycled water fill station.

The purpose of this workshop item is to provide an update on the status of this project.

Yard Sign Concept

Yucaipa Valley Water District
12770 Second Street, Yucaipa, California 92399
Phone: (909) 797-5117

Residential Recycled Water Fill Station

Application and Agreement

First Name: _____ Last Name: _____

Contact Phone Number: _____ Email Address: _____

Address: _____ City: _____ Zip: _____

Yucaipa Valley Water District Account Number: _____

Driver's License Number Associated with this Address: _____

Additional Driver's License Number(s) Associated with this Address: _____

Recycled water will be used for:

☐ Irrigation of trees, landscaping, garden ☐ Vehicle washing

☐ Surface washing of outdoor furniture ☐ Surface washing of hard surfaces (paths, walls, etc…)

☐ Other: _____

Things to know about the use of recycled water

1. **What is tertiary-treated recycled water and is it safe?** The District's disinfected tertiary-treated recycled water ("recycled water") is sewage that has been treated to State defined standards in compliance with Title 22 of the California Code of Regulations. The recycled water produced at the Wochholz Regional Water Recycling Facility is regularly tested in compliance with the requirements established by the Santa Ana Regional Water Quality Control Board and is used throughout our service territory for irrigation of parks, school yards, golf courses, and median landscaped areas, and at other approved locations.

2. **What can I use recycled water for?** Title 22 of the California Code of Regulations specifies that recycled water can be used to water your trees, gardens, vegetables, and lawns as well as wash your car, outdoor furniture and hard surfaces (paths, walls, windows, etc.). Please note that recycled water cannot runoff from your property.

3. **What is recycled water NOT suitable for?** Recycled water cannot be used for drinking, cooking, bathing or showering, filling swimming pools or spas, children's water toys, or plumbing to the household domestic plumbing system (including the irrigation system).

4. **Can I water my plants with recycled water?** Yes, all plants can be watered with recycled water. This includes fruit trees, vegetables and herbs. Just remember to wash all fruits, vegetables, and herbs with drinking water prior to consumption.

5. **Do water conservation restrictions apply to recycled water?** No. Water-use restrictions do not apply to recycled water. However, recycled water is a valuable resource and should not be wasted.

6. **Who develops the health standards for recycled water?** Recycled water is strictly monitored to ensure it meets water quality standards set by the Regional Water Quality Control Board and the State Water Resources Control Board.

7. **How much will recycled water cost me?** Nothing, it's free.

8. **How much recycled water can I pick up at a time?** The maximum amount of recycled water one can obtain is 300 gallons per visit. Please remember that water weighs over eight (8) pounds per gallon. A five (5) gallon container weighs over forty (40) pounds. Please be sure your vehicle can handle the amount of recycled water you elect to transport. **The Yucaipa Valley Water District is not liable for any personal injuries or property damages, including to you or your vehicle(s), due to your use of the District's recycled water and the District's Residential Recycled Water Fill Station.**

9. **What are the rules and regulations for residential use of recycled water?**
   - The Program rules and regulations include Yucaipa Valley Water District's Rules and Regulations for Water, Sewer, and Recycled Water, as amended from time to time.
   - Only residents who are Yucaipa Valley Water District customers that have been approved to use recycled water can obtain recycled water through this Program.
   - Only containers that have Yucaipa Valley Water District provided stickers affixed to them can be used to transport recycled water.
   - Recycled water can only be used for the uses identified by Yucaipa Valley Water District.
   - The resale of recycled water provided to a resident under this program is prohibited.
   - Recycled water must not be put into an existing landscape irrigation system.
   - It is **illegal** to connect recycled water containers and equipment to buried irrigation systems or to onsite drinking water supply. If an illegal connection does occur you, your family, and neighbors could end up drinking recycled water. Violators are subject to fines up to $1,000 per day and loss of participation in the Program.
   - Recycled water cannot be used for irrigation within 50 feet of a well.
   - Recycled water shall not be discharged to the street gutter or storm drain system. If you have leftover recycled water and want to dispose of it, either discharge it to a landscaped area or to the sanitary sewer system.
   - Do not drink recycled water or use it for food preparation.
   - Take precautions to avoid contact with food while using recycled water.
   - Wash vegetables with drinking water prior to eating or cooking.
   - Recycled water shall be used and/or applied promptly.
   - Containers with recycled water shall be closed or covered to avoid mosquito and vector control issues.
   - Yucaipa Valley Water District may conduct site visits to monitor the use of recycled water.
   - The hours of the Recycled Water Fill Station may be modified by Yucaipa Valley Water District at any time without prior notice.

10. **What is the process to obtain recycled water?**
   - Complete this **Residential Recycled Water Use Application and Agreement** (form can be filled out online, then printed and signed).
   - Bring the completed form to the Yucaipa Valley Water District's Residential Recycled Water Fill Station. Hours are posted at www.yvwd.dst.ca.us.
   - An attendant will provide training in the proper use of recycled water and procedures for collection, issue you a wallet card, and answer any questions you may have.
   - During training you will be provided with Recycled Water stickers that need to be placed on all containers used to transport and store recycled water.

- After training is complete and stickers have been installed on the containers, you will be able to pick up recycled water during the designated residential fill station "open" hours, posted on the District's website at www.yvwd.dst.ca.us.
- You will be required to show the attendant the wallet card you received at the time of training. Do not share your wallet card with others. All users must receive training to ensure they are informed of the use requirements.
- During each pickup, the attendant will scan the bar code that is on back of the wallet card and will enter the amount of recycled water you are collecting.

In consideration of being allowed to use recycled water, I hereby waive, release, and discharge the Yucaipa Valley Water District, its directors, officers, agents, and employees (herein collectively referred to as "the District") from any liability of any sort (including all claims, demands, damages, actions or causes of action in law or in equity), arising from injuries, including death, or property damages that I may suffer as a result of using the District's recycled water and its Residential Recycled Water Fill Station to obtain recycled water except to the extent arising from the negligence or premises liability of the District.

The undersigned hereby requests recycled water and agrees to abide by all regulations of the District. This application/agreement shall at all times be subject to such changes or modifications of the regulations by the Board of Directors of the District, as said Board of Directors may, from time to time, direct in the exercise of its jurisdiction.

When accepted by the Yucaipa Valley Water District, this application for permission to use the District's recycled water and its Residential Recycled Water Fill Station Program (the "Program") in accordance with all of the terms and conditions described herein, will constitute the agreement between the undersigned customer and the Yucaipa Valley Water District (the "Agreement").

Signature: _____ Date: _____

Thank you for participating in the Residential Recycled Water Fill Station Program.
We sincerely appreciate your involvement and support to make this program a success.

Yucaipa Valley Water District

Workshop Memorandum 15-189

Date: **September 29, 2015**

Subject: **Consideration of Installing a Passive Fueling Automation System for the District's Fleet of Vehicles and Construction Equipment**

Over the past five years, the District has expanded our fleet of vehicles and construction equipment with the purchase of sixteen new vehicles. The District staff has been reviewing fleet management technology to provide maintenance information and usage data so the fleet can be efficiently and effectively maintained.

The District has identified equipment provided by FuelMaster as a potential solution to help maintain our recent investment in vehicles and equipment.

The FuelMaster system uses radio frequency identification tags (RFID) that will eliminate inaccurate driver-entered data from the fueling and data collection process. The odometer or chronometer data, along with other information is automatically collected by the fuel management unit without driver effort. An Automotive Information Module is connected directly to a vehicle's OBD port, and collects vital information, and then sends it to the fuel management unit during fueling operations. Based on odometer/hour readings, the system calculates vehicle efficiency and fuel consumption and provides alerts for maintenance requirements.

Information about this system and a price quotation is attached and will be discussed in further detail at the board workshop.

FUELMASTER

ENGINEERED BY syntech

Leading the Way in Automated Fuel Management Technology

FUELMASTER's ® AIM2.4™ technology is without a doubt the leader in automated fuel management. AIM2.4 is a passive system that eliminates inaccurate driver-entered data from the fueling and data collection process. Our AIM module connects directly to a vehicle's OBD port in order to collect vital information that a fleet manager requires. Using this patented technology prohibits fuel going into unauthorized vehicles or containers. In response to demand for a module that can operate in a rugged environment, Syn-Tech's engineers developed the AIM2.4HD™. It is designed specifically for extreme conditions such as those found at hydraulic fracturing sites and in mining operations. There are more AIM modules installed on equipment in North America than any other competitor's passive system. Tens of thousands of AIM units have been installed on U.S. military equipment, as well as on public and private sector fleets. There are two major reasons organizations select ***FUELMASTER***; it works and our nationwide support network helps the customer keep it working.

The AIM reports the following extended OBD data, but availability varies between light and heavy duty vehicles:

- Odometer
- Engine Run /Idle/PTO Engage Time
- Diagnostic Trouble Codes
- Check Engine Light Status
- Max Vehicle/Engine Speed
- Min/Max Battery Voltage
- Current Fuel/Coolant/Washer Fluid Level
- Current Transmission/Engine Oil Level
- Min Engine Oil Pressure
- Max Engine Oil Temperature
- Min Transmission Oil Pressure
- Max Coolant Temperature

Our patented AIM module takes the driver out of the data collection process.

1. The driver inserts the fuel nozzle and the AIM module reads the RFID tag on the nozzle.
2. The module transmits the tag ID and vehicle data to the Fuel Management Unit (FMU). The FMU activates the dispenser.
3. The FMU receives the data and records the transaction. The transaction ends when the nozzle is removed.

Contact your *FUELMASTER*® representative today to learn more.

SYN-TECH SYSTEMS, INC.
100 Four Points Way, Tallahassee, FL 32305
(800) 888-9136 • marketing@myfuelmaster.com

Made in the USA

Syn-Tech recognized a need for a ruggedized AIM for installation on the heavy equipment found in mining and fracking operations. Frequently AIMs used in these industries will not have the protection provided by a vehicle cab, but will be installed outside in severe weather conditions. Consequently, Syn-Tech's engineers designed the AIM2.4HD™ which comes with weatherproof connectors and cables, as well as a stronger housing. Both the AIM2.4HD and the AIM2.4™ can be purchased with an external antenna to permit RF transmission around obstacles.

All components of AIM2.4HD are submersible up to one meter according to IP67 and NEMA 6. The connectors used on this device actually exceed these requirements per IEC 60529 and DIN 400-50-9. This additional protection makes the AIM2.4HD the perfect equipment for applications in extremely harsh environments such as the agriculture, mining, aggregates and fracking industries.

AIM2.4™ / AIM2.4HD™ Technical Specs

ENVIRONMENTAL	• Temperature Rating: -20°C to 85°C
CERTIFICATIONS	• Certified to SAE J1455 JAN2011 – *Recommended Environmental Practices for Electronic Equipment Design in Heavy-Duty Vehicle Applications* — 4.1.3.1 Temperature Cycling — 4.1.3.2 Thermal Shock — 4.1.3.3 Thermal Stress — 4.10.4.2 Mechanical Vibration — 4.11.3.4 Mechanical Shock • ETL listed to meet: — UL 913 *Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations* — UL 1238 *Control Equipment for Use with Flammable Liquid Dispensing Devices* • FCC ID: TFB-FREESTAR3 • IC: 5969A-FREESTAR3
ELECTRICAL	• Input voltage range: 12-42VDC • Current draw: Max: 150mA, Typical: 100mA, Power save: 25-45mA • Analog chronometer input range: 4-42VDC
WIRELESS SPECIFICATIONS	• 2.4GHz ISM band • Direct Sequence Spread Spectrum (DSSS) • 100 mW max output
OBD STANDARDS SUPPORTED	• Light duty: ISO 15765 (CAN), ISO 9141, J1850, J1979 • Heavy duty: J1939, J1708/J1587
ADDITIONAL FEATURES	• Tracks the odometer via the OBD port or vehicle speed sensor • Reports up to 18 different OBD parameters. Examples include max vehicle speed, current oil level, minimum oil pressure and check engine light status • Captures all engine trouble codes via the OBD port (supports J2012, J1587 and J1939) • Tracks up to three chronometers simultaneously (via OBD or analog inputs) Examples include: — Idle time — Engine run time — PTO time • Supports up to two tanks with a single AIM

FUEL SERV
WHEN QUALITY MATTERS AND EXPERIENCE COUNTS

800-581-3710 *service@fuelservinc.com*

Quotation

Date	Quote No.
9/22/2015	15-3156s

Quoted to:

YUCAIPA VALLEY WATER DISTIRCT
P.O.Box 730
Yucaipa, CA 92399-0730

Location

VALLEY WATER DISTIRCT
12770 Second St.
Yucaipa, CA 92399-0730

Payment Terms	Good Thru	Project
Net 15	10/7/2015	FUEL MASTER INSTALL

Description	Total
SCOPE OF WORK: Install (1) Fuel Master system to include (1) pedestal, Software, (1) encoder, (50) keys and (1) AIM module. New aboveground conduit will be installed as needed to power up FMU and control (2) Unleaded pump and (1) Diesel pump. New pump pulsars will be supplied and installed and wire ran to the FMU as needed. The Customer will be responsible for suppling a WiFi receiver compatible with their existing system, to be installed at the FMU.	
NOTE: The AIM (automotive information modules) units and install are a per unit price with only one unit and one install included in this quote.	
FUEL MASTER PARTS (see attached list)	12,585.15T
FMU SOFTWARE AND PEDESTAL INSTALL	2,500.00
PULSARS, FITTINGS, CONDUIT, WIRE AND LABOR	3,250.00
(1) AIM UNIT INSTALL (minimum 5 per day per tech)	150.00
(1) AIM INSTALLER TRAINING (optional)	2,750.00
San Bernardino County Sales Tax	1,006.81

Sign and Return Quote to Commence Work

Total $22,241.96

Print _____ **Purchase Order** _____

Signature _____ **Date** _____

ORDER #

FUELMASTER
ENGINEERED BY syntech

Estimate Date:	Customer PO #	SELECT BUYING CONTRACT Salesperson:
09/22/2015	ENTER PO #	PLEASE SELECT:

ESTIMATE

FOR MARIE/TIFFANY

Sold To:	ENTER CONTACT NAME:		
STREET ADDRESS1:			
STREET ADDRESS2:			
CITY:	ST:	ZIP:	CO:
PHONE:			
EMAIL (SHIP DATE):			

Installed by:
FUEL SERV

SELECT ACCOUNT TYPE

FOR MARIE/TIFFANY

End User:	John Hull		
YUCAIPA VALLEY WATER DISTRICT			
12770 Second St.			
Yucaipa	Ca	92399	CO:
909-322-3932			

Shipping:	ENTER CONTACT NAME:		
BUSINESS NAME:			
STREET ADDRESS1:			
STREET ADDRESS2:			
CITY:	ST:	ZIP:	CO:
PHONE:			

This ESTIMATE is good for 45 days from 09/22/2015

Item	Qty	Retail Per Unit	Discount	Net Price
FMU3505PlusG: >Prokee 2.4 FMU - Gray	1	$8,238.00	10.0%	$7,414.20
227838A: >FUELMASTER® PLUS WINDOWS SOFTWARE (Both SQL Server & Access)	1	$1,949.00	10.0%	$1,754.10
DBSE_CONV: >DATABASE CONVERSION	1	$1,495.00		$1,495.00
199001: >HOSE CONTROLLER - 50 Amp	1	$110.00	10.0%	$99.00
Generic Nozzle Tag: >NOZZLE TAG KIT	3	$68.00	10.0%	$183.60
Generic Prox Card Reader: >HID PROXIMITY CARD READER	1	$795.00	10.0%	$715.50
941D0120: >Prokee ® Encoder, USB	1	$550.00	10.0%	$495.00
172405: >Prokee®- Black	50	$4.25	10.0%	$191.25
941B0700: >AIM 2.4 Module Assy Kit, Internal Antenna	1	$250.00	5.0%	$237.50

List Price Subtotal	$13,803.50
Less Discount of:	-$1,218.35
Estimated Shipping Charges:	$155.00
Total This Order:	$12,740.15

Please add additonal instructions or notes in this area:

NOZZLE TAG INFO: (2) VST UNLEADED NOZZLES & (1) 941B0250

Please submit order form to:
salesorders@myfuelmaster.com

Capital Improvement Projects

Yucaipa Valley Water District

Yucaipa Valley Water District

Workshop Memorandum 15-190

Date: **September 29, 2015**

Subject: **Status Report on the Construction of a 6.0 Million Gallon Drinking Water Reservoir R-12.4 - Calimesa**

At the regular meeting on July 16, 2014, the Board authorized the solicitation of bids for the construction of a 6.0 Million Gallon R-12.4 Reservoir located on Singleton Road in Calimesa [Director Memorandum No. 14-060]. On November 19, 2014, the Board of Directors awarded the construction contract for the reservoir facility to Gateway Pacific Contractors [Director Memorandum No. 14-091].

The purpose of this agenda item is to provide an update on the progress of the reservoir construction project.


DYK
08/25/2015 08:59


09/03/2015 06:30

Yucaipa Valley Water District

Workshop Memorandum 15-191

Date: **September 29, 2015**

Subject: **Status Report on the Digester Cleaning and Cover Replacement Project at the Wochholz Regional Water Recycling Facility**

The Yucaipa Valley Water District operates and maintains four anaerobic digesters for sludge conditioning, each with a diameter of 45 feet and a side water depth of 22 feet, yielding a working capacity of approximately 262,000 gallons per digester. The digesters treat sludge drawn from both the primary clarifiers and from the dissolved air flotation thickeners. Digested sludge flows by gravity and can be stored temporarily in a sludge holding tank before being conveyed to the belt presses for dewatering. To keep the digesters functioning properly they should be cleaned every 8-10 years in order to remove the accumulated build-up of sand, grit, and other debris.

Projects	Construction Timeline	Summary of Work
Wastewater Treatment Plant	1976-design 1984-constr	• Construction of Digester Nos. 1 and 2 and appurtenant equipment, (e.g. heaters) • Digester No. 1 equipped with a fixed cover and Digester No. 2 equipped with a floating cover
Stage I Expansion Project	1992	• Construction of Digester Nos. 3 and 4 • Both Digester No. 3 and Digester No. 4 equipped with fixed covers
Digester No. 2 Cover Modifications	1994	• Digester No. 2 cover converted from floating to fixed configuration
Digester Cleaning	2004	• Digester Nos. 1-4 Cleaning
Digester Coating	2005	• Digester Nos. 1-4 Coating of Cover
Digester and Sludge Holding Tank Modifications Project	2005	• Digester Nos. 1-4 and Digester Holding Tank Pump Mix System installation

When the digesters were cleaned in 2005, the District staff assessed the condition of the digesters and related equipment. Based on corrosion identified at this time, the District made a decision to replace at least two covers the next time the digesters were scheduled to be cleaned.

In 2015, the District staff worked with RMC to develop a construction bid schedule that included a series of construction alternatives for cleaning and/or replacement of the digester covers. After carefully evaluating the cleaning/construction bids received for this project, the Board of Directors decided to award a construction contract to Pascal & Ludwig for the cleaning and replacement of four digester covers for a sum not to exceed $2,175,000. [DM 15-041]

The purpose of this agenda item is to provide an update on the status of the construction project.

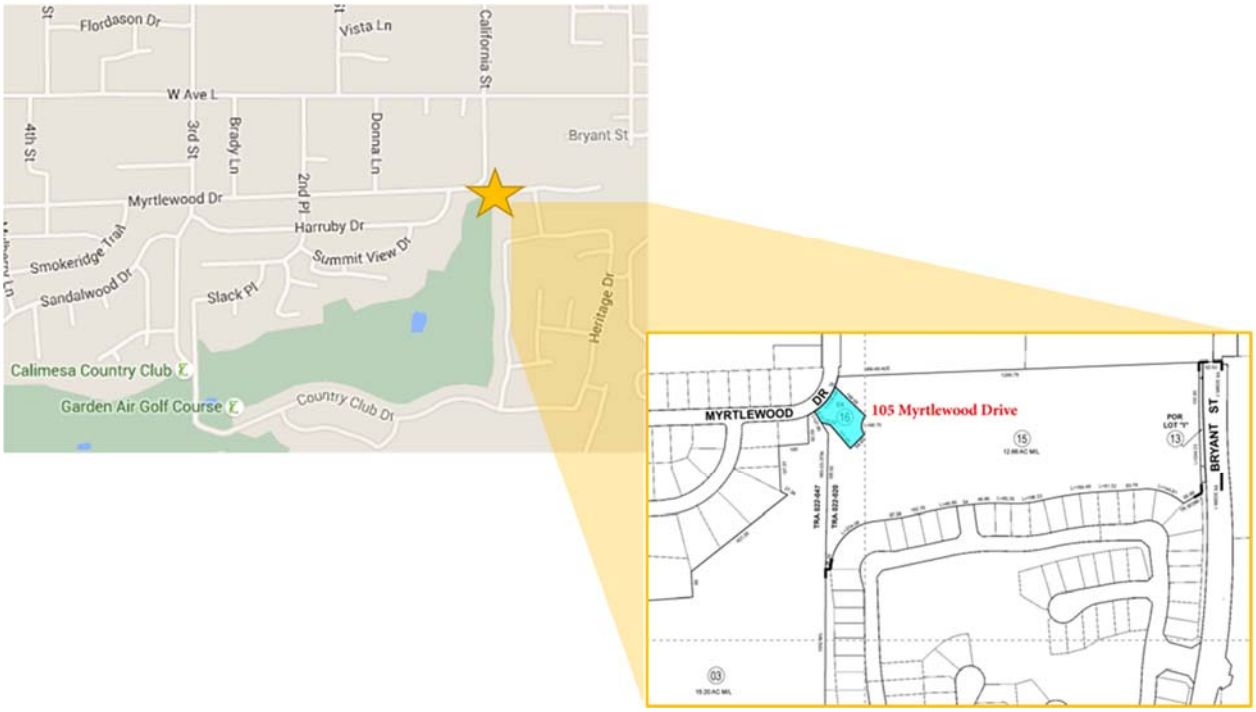
Yucaipa Valley Water District

Workshop Memorandum 15-192

Date: **September 29, 2015**

Subject: **Status Report on the Construction of Interim Recycled Water Booster Station NB-12.2**

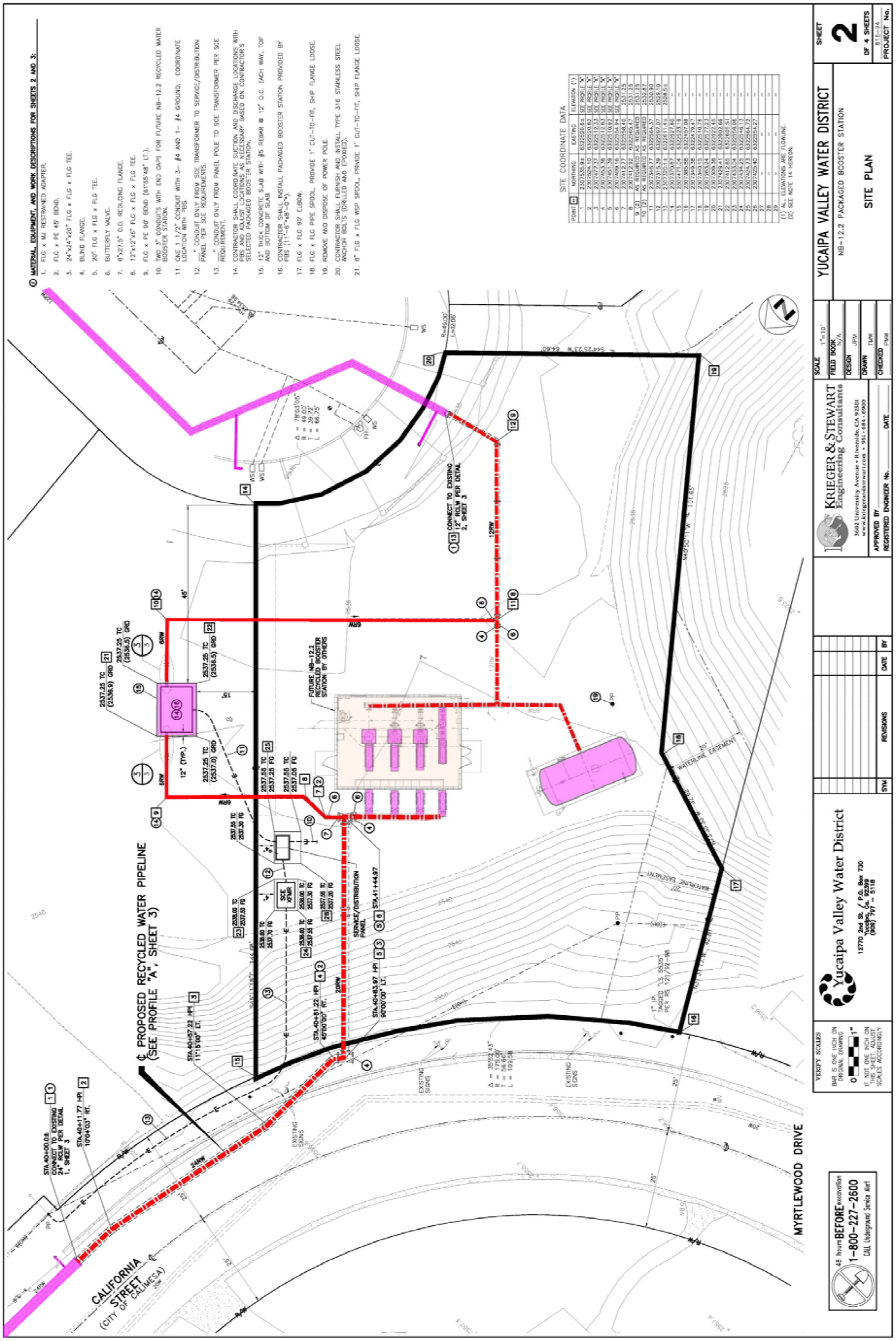
On August 5, 2015, the Board of Directors authorized the District staff to solicit bids for the construction of an interim recycled water booster station at the intersection of Myrtlewood Drive and California Street.



The District provided plans to the City of Calimesa for review prior to making the plans available to contractors.

The project will include the construction of a 300 gallon per minute pre-packaged booster station, approximately 200 linear feet of 24", 20" and 12" piping and electrical work.

The construction bids will be opened on Tuesday, September 29th at 2:00 pm.


YUCAIPA VALLEY WATER DISTRICT
NB-12.2 PACKAGED BOOSTER STATION
SITE PLAN
PRELIMINARY
MYRTLEWOOD DRIVE
CALIFORNIA STREET
(CITY OF CALIMESA)
SITE COORDINATE DATA

Administrative Items

Yucaipa Valley Water District

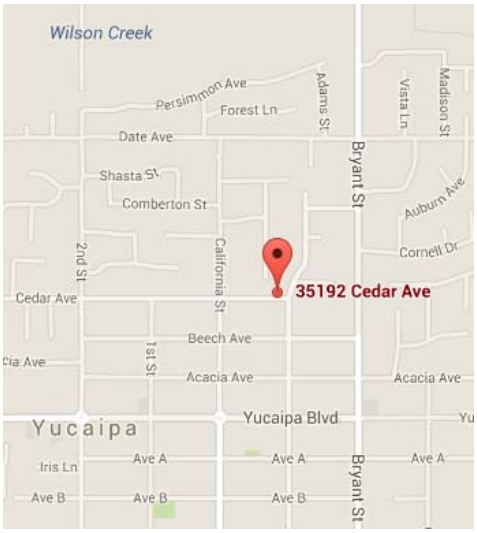
Yucaipa Valley Water District

Workshop Memorandum 15-193

Date: **September 29, 2015**

Subject: **Issuance of a Request for Proposals for the Demolition of the Building, Basement and Foundation at 35192 Cedar Avenue, Yucaipa (Assessor Parcel Number 0303-232-17)**

At the board workshop held on May 27, 2014, the District staff discussed the need to demolish the existing building at 35192 Cedar Avenue. With concurrence from the Board of Directors, the District staff proceeded to move the documents stored and this facility, remove the windows, and physically disconnect all utilities (water, sewer, electrical, phone and gas services). With the building prepared for demolition, the District staff solicited proposals for the demolition work.



The District staff received the following three proposals to demolish the structure:

- J.B. Paving and Engineering - $20,550;
- Larry Jacinto Construction - $21,352; and
- Jeremy Harris Construction - $23,000.

At the board workshop on February 24, 2015, information was provided to the Board of Directors during the public comment portion of the meeting that the building may be useful as a broadcast center for a local radio station.

While the District staff previously received direction to demolish the building, on March 18, 2015, the Board of Directors agreed to delay the demolition to allow sufficient time to fully evaluate the costs associated with utilizing the structure as a local radio station [Director Memorandum No. 15-025].

At the board meeting on June 17, 2015, the Board of Directors authorized District staff to proceed with the demolition of the structure.

The District staff has completed the Request for Proposals (RFP) to demolish the structure on the property. However, prior to reissuing the solicitation for bids, the Board of Directors should provide a recommendation for the final appearance of the property. The current draft of the RFP includes the demolition and removal of the building and pavement as shown below.

The well site located to the north of the building will remain as a monitoring well, to be surrounded by a 6' tubular steel fence. This well site is important to meet our groundwater monitoring and management obligations pursuant to the recently enacted Sustainable Groundwater Management Act (http://groundwater.ca.gov/).

The proposed finished appearance for the property will include a 6" layer of wood chips spread evenly over the entire property to minimize the growth of weeds and the site will be surrounded by a 3 rail cedar split rail fence around the perimeter of the property.

RECYCLED MULCH TYPES

And How to Use Them Successfully

Mulches created from plant materials have the advantage of decomposing and adding organic matter to feed beneficial organisms and improving the soil structure. There are many types of organic mulches that vary in cost, appearance and longevity.

Bark has long been sold commercially and is made from lumber and paper mill byproducts. Bark tends to have a uniform size and appearance, but does not readily supply nutrients It also comes from distant forests and is relatively expensive.

Recycled mulch is becoming more readily available, is locally produced and is less expensive to purchase. It can be produced on site and can sometimes be obtained free from arborists, utility companies or parks. It tends to be less uniform in appearance, but supplies a broader array of nutrients to the soil.

Here are some common recycled mulches and recommendations for using them with success. Consider that sometimes blending two or more products provides you and your clients with the benefits of each.

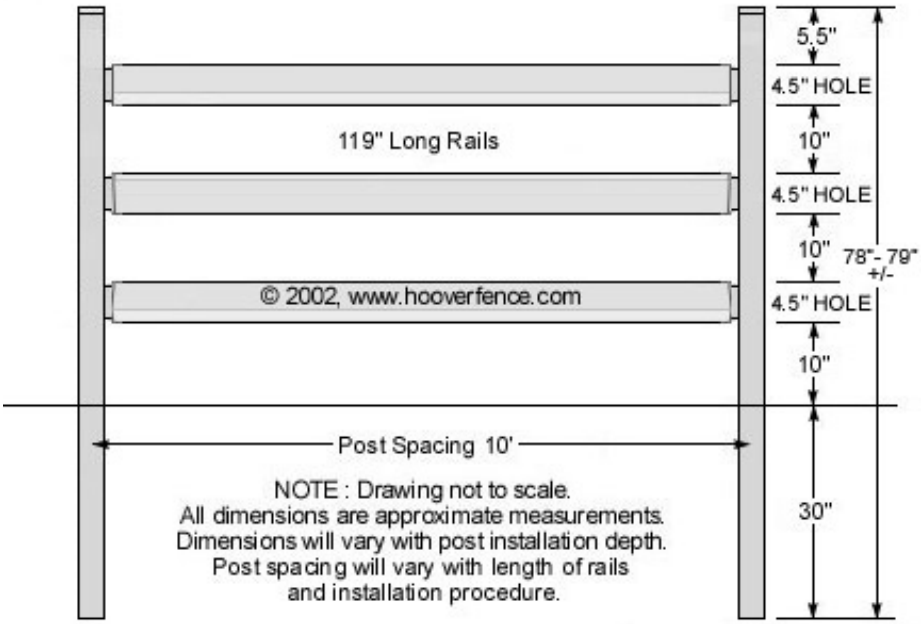
Chipped or Shredded Wood Waste from used pallets or used lumber is an attractive mulch on paths and picnic areas. The nails and other metal are removed and the pieces can be colored to look like pine, hardwood or cypress. Waste wood breaks down very slowly and releases insignificant amounts of nutrients to the soil.

Longevity: Long

Recommendations:

- Use on paths or at construction sites to reduce compaction from heavy foot traffic or heavy equipment.

3 RAIL CEDAR SPLIT RAIL



Yucaipa Valley Water District

Workshop Memorandum 15-194

Date: **September 29, 2015**

Subject: **Participation by the Yucaipa Valley Water District in the 2015 San Bernardino Valley Regional Urban Water Management Plan**

The 2010 San Bernardino Valley Regional Urban Water Management Plan (RUWMP) was the first regional UWMP in the San Bernardino Valley Municipal Water District's service area and represents the cooperation and collaboration of eight (8) different agencies. Per the Water Code, these plans must be updated every 5 years. The next update of the RUWMP is due on July 1, 2016.

San Bernardino Valley Municipal Water District, prepared and released a request for proposal to update the RUWMP. Two proposals were received and are summarized below.

In 2010, the Yucaipa Valley Water District and the City of Redlands each wrote their own chapter of the RUWMP and submitted it to the consultant for peer review and inclusion into the 2010 RUWMP. These two agencies will use the same approach for the 2015 RUWMP. The table below describes the effort required for the preparation of each individual chapter of the participating agencies.

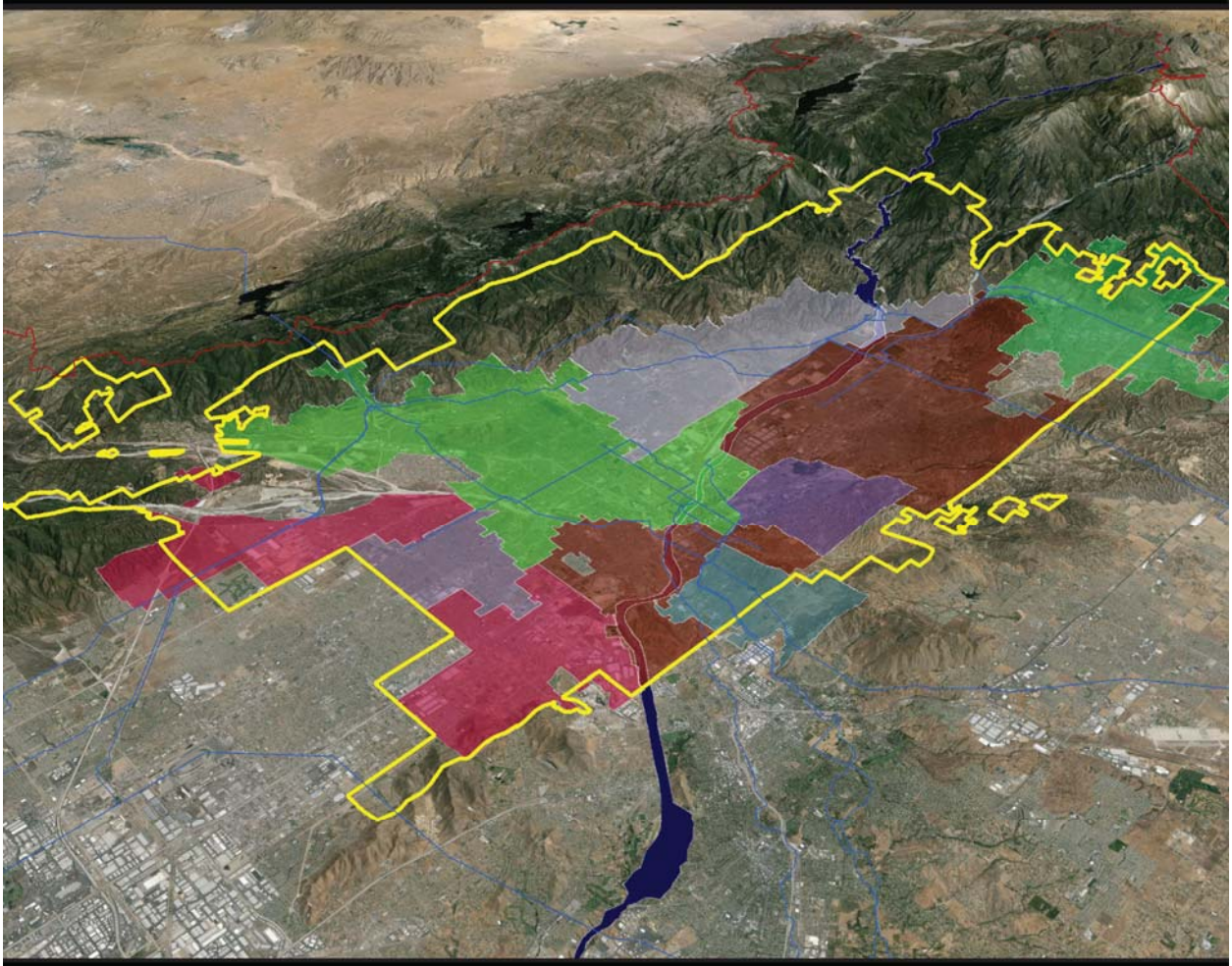
Agency	Regional Sections	Agency Chapter	Total
City of Colton	$ 5,914.11	$18,836	$24,750
City of Loma Linda	$ 5,914.11	$18,836	$24,750
City of Redlands	$ 5,914.11	$3,480	$9,394
City of Rialto	$ 5,914.11	$25,138	$31,052
East Valley Water District	$ 5,914.11	$18,836	$24,750
Riverside Highland Water Company	$ 5,914.11	$18,836	$24,750
San Bernardino Mutual Water Department	$ 5,914.11	$25,138	$31,052
San Bernardino Valley Municipal Water District	$ 53,227.00	$40,896	$94,123
West Valley Water District	$ 5,914.11	$18,836	$24,750
Yucaipa Valley Water District	$ 5,914.11	$3,480	$9,394
TOTAL	**$106,454**	**$192,312**	**$298,765**

Proposal for the

2015 Update for

San Bernardino Valley Regional Urban Water Management Plan

San Bernardino Valley Municipal Water District



• August 31, 2015•

WSC

Water Systems Consulting, Inc.

WSC
WATER SYSTEMS CONSULTING, INC.

August 31, 2015

Bob Tincher
Manager of Engineering and Planning
San Bernardino Valley Municipal Water District
380 Vanderbilt Way
San Bernardino, CA 92408

SUBJECT: PROPOSAL TO PROVIDE PROFESSIONAL SERVICES TO PREPARE THE SAN BERNARDINO VALLEY 2015 REGIONAL URBAN WATER MANAGEMENT PLAN

Dear Bob,

Water Systems Consulting, Inc. (WSC) appreciates this opportunity to present our Proposal to San Bernardino Valley Municipal Water District (Valley District) for the San Bernardino Valley Regional Urban Water Management Plan (RUWMP). Our proposal outlines the key success factors that make WSC the right choice for this project:

- **Experienced and effective Project Manager.** WSC's Project Manager, Jeroen Olthof, is a recognized industry leader in water planning whose hands-on management approach has delivered projects on time and under budget while providing excellent value.
- **Existing working relationships.** Through the Regional Recycled Water Concept Study, our team has just gone through the process of coordinating a regional planning effort with the retail agencies. Our team will use those relationships and build on the lessons learned to successfully deliver this project.
- **Strong UWMP qualifications.** WSC staff have completed numerous UWMPs and Water Supply Assessments (WSAs), and WSC staff are currently serving on the UWMP Guidebook Advisory Committee with California Department of Water Resources (DWR) staff.
- **Innovative approach.** This proposal outlines some of our team's ideas for meeting the minimum requirements and deadlines established by DWR while making the document and the process beneficial for Valley District and the retail agencies.

We are confident that we are the right team for the job, and would greatly appreciate the opportunity to work with you on this important project. If you have any questions or would like to discuss any aspect of our proposal further, please contact Jeff at (805) 457-8833 ext. 101 or Jeroen at (619) 450-4558. You can also email us at jszytel@wsc-inc.com and jolthof@wsc-inc.com. Thank you for considering WSC for this project, and we look forward to your response.

Sincerely,
Water Systems Consulting, Inc.

Jeff Szytel, PE, MS, MBA
Principal in Charge

Jeroen Olthof, PE, MS
Project Manager

964 Fifth Street, Suite 412 | San Diego, CA 92101 | Phone: (619) 450-4558 | Fax: (619) 393-0106
www.wsc-inc.com

Table of Contents

Introduction

Demonstrated Expertise and Proven UWMP Qualifications

Water Systems Consulting, Inc. (WSC) is a civil and environmental engineering firm that specializes in the planning, design, evaluation and optimization of municipal water, wastewater, and recycled water systems. WSC is an industry leader at preparing Urban Water Management Plans (UWMPs) for agencies like San Bernardino Valley Municipal Water District (Valley District) throughout California. WSC completed numerous UWMPs during the 2010 cycle and our team of UWMP experts continued to support several of these agencies in updating their analytical toolsets as new information has become available about changes in supply and demand assumptions. As the California Department of Water Resources (DWR) began preparation of their Guidebook for the 2015 UWMPs, they called on WSC to contribute to key areas such as demand projections and energy intensity calculations as part of their Guidebook Advisory Committee. From our offices in Ontario, San Diego, San Luis Obispo and Carmel Valley, WSC serves special districts, cities, counties, investor owned utilities and regulatory agencies throughout California, and we have a strong understanding of the regulatory and political climate that our clients operate within. WSC works collaboratively with our clients, applying proven approaches, state-of-the-art tools, and expertise-driven innovation to deliver truly outstanding results.

"WSC has demonstrated excellent engineering and project management practices. Every anticipated milestone was completed on time, and the project remained on track financially."

- Kevin Thompson, PE, Public Works Project Engineer
City of Santa Barbara

"WSC has worked seamlessly as an extension of our staff to assist us in many of our projects. Their involvement has improved our ability to stay on scope and on budget while meeting the ever increasing number of stakeholder concerns."

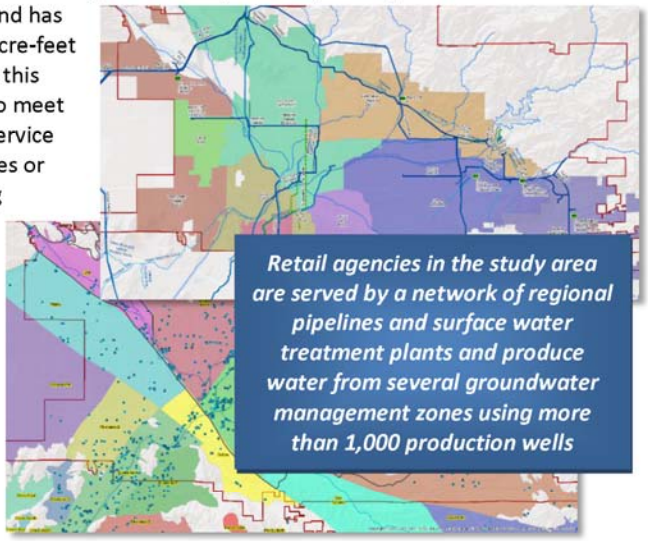
-Richard Svindland, PE, Director of Operations
California American Water

"WSC is very knowledgeable and responsive. They have proven themselves to be fair, understanding and willing to go the extra mile to see a project succeed. I would highly recommend WSC."

–Benjamin Fine, PE, Public Works Director/City Engineer
City of Pismo Beach

Project Understanding and Approach

The San Bernardino Valley Municipal Water District (Valley District) is seeking a consultant to prepare a 2015 Regional Urban Water Management Plan (RUWMP). Valley District is a contractor to the State Water Project (SWP) and has a Table A entitlement to 102,600 acre-feet per year (AFY). Valley District uses this water, along with other supplies, to meet the needs of retail agencies in its service area, either through direct deliveries or through recharge of the underlying groundwater basins. Each of the retail agencies uses its own groundwater production wells, along with imported water and local surface water, to meet the demands of its customers. In recent years, the SWP has been a less reliable source of water due to California's drought and environmental restrictions on pumping through the Delta.



Valley District led the development of a 2010 RUWMP for itself and seven retail agencies. The 2010 RUWMP was organized with a single coordinated set of supply and demand projections for the region, followed by individual chapters for each retail agency to meet all its UWMP reporting requirements. For the 2015 round, the agencies plan to follow a similar process, with two additional retail agencies joining – the City of Rialto and Riverside-Highland Water Company. The retail agencies will require varying services from the consultant; a summary of the requested services for each of the participating agencies is shown below. The Basin Technical Advisory Committee (BTAC), a group of water suppliers that provides technical recommendations on the operation of regional water resources, is also expected to provide oversight and guidance for the 2015 RUWMP process.

Agency	Consultant Services
Valley District	Prepare updated regional chapters
City of Colton	Prepare an updated chapter
City of Loma Linda	Prepare an updated chapter
City of Redlands	Peer review updated chapter prepared by the City
City of Rialto	Prepare a new chapter
City of San Bernardino Municipal Water Department	Prepare an updated chapter
East Valley Water District	Prepare an updated chapter
Riverside-Highland Water Company	Prepare a new chapter
West Valley Water District	Prepare an updated chapter
Yucaipa Valley Water District	Peer review updated chapter prepared by the District

Based on our working history with Valley District and our discussions with several of the retail agencies, WSC has identified four key success factors for this project. These success factors, along with an overview of WSC's approach to this project, are presented below.

Key Success Factor	WSC Approach
Prepare an RUWMP that meets the requirements of the 2015 Guidebook and is deemed complete by DWR	Use experience and insight to start quickly and avoid mis-steps
Meet schedule milestones so that key data can be shared with neighboring agencies and the plan can be circulated for review, discussed at a public hearing, adopted, and finalized before June 30, 2016	A "quick start" will help the team meet key schedule milestones
Complete the work efficiently by leveraging previous and ongoing efforts, including ➢ The 2015 Upper Santa Ana River Watershed Integrated Regional Water Management Plan ➢ The 2013 Santa Ana Watershed Basin Study by the U.S. Bureau of Reclamation ➢ The One Water One Watershed (OWOW) 2.0 planning process by SAWPA ➢ The 2010 Regional Urban Water Management Plan ➢ The on-going Regional Recycled Water Concept Report	Close coordination with regional efforts and realistic estimates of future demands and supply reliability increase confidence in results
Provide a set of tools that facilitate the production of the report and allow Valley District, the BTAC, or the retail agencies to make updates as new information becomes available and perform additional analysis and reporting	Database approach to information storage and reporting saves costs and reduces the chances for error
	Leading-edge approach to optional sections enhances value of RUWMP

The following sections highlight some elements of WSC's plan for achieving these key success factors and making the 2015 RUWMP a model for coordinated regional planning.

Experience & Insight Let WSC Start Quickly & Avoid Mis-Steps

As detailed in the qualifications section of our proposal, WSC completed multiple UWMPs during the 2005 and 2010 cycles. Because of our industry leadership, DWR asked WSC's Spencer Waterman to serve on the 2015 Guidebook Advisory Committee. Spencer has been involved in the year-long process to update the Guidebook for retail and wholesale water providers, and he will use this knowledge to start the team down the right road the first time. There have been some significant changes to the California Water Code (CWC) since the 2010 UWMP that will need to be addressed in the 2015 UWMP as described below. WSC will continue to monitor these changes and bring the most up-to-date knowledge to this project.

New UWMP Requirement	Implications for Valley District and Retail Agencies
UWMP Submittal Date – Revised submittal date to July 1, 2016	Submit 2015 UWMP by deadline.
Demand Management Measures – Minimum requirement for narrative descriptions of six DMMs	Ability to revise DMM section from 2010 UWMP.
Standardized Forms – Must report in forms, tables, or displays created by DWR	Ability to upload to DWR reporting database in-house or include in consultant scope. DWR materials tentatively available in September 2015.
Water Loss – Report distribution system water losses based on AWWA methodology	Ability to complete in-house or include in consultant scope. DWR materials and guidance tentatively available in September 2015.
Voluntary reporting of passive savings	Optional ability to complete in-house or include in consultant scope. DWR materials and guidance tentatively available in September 2015.
Voluntary reporting of energy intensity	Optional ability to complete in-house or include in consultant scope. DWR materials and guidance tentatively available in September 2015.

WSC anticipates using DWR's suggested table of contents to create a unified table of contents for the regional document. The optimal structure for the RUWMP is expected to generally follow the structure used in 2010 (i.e., regional chapters for region-wide issues, followed by individual chapters for retail agencies). Key goals for establishing the document structure are to make report preparation efficient, allow DWR to easily determine how each agency is meeting its requirements, and make the document a valuable reference for future planning.

DWR Draft Table of Contents

1. Introduction and Overview
2. Plan Preparation
3. System Description
4. System Water Use
5. Baselines and Targets
6. System Supplies
7. Water Supply Reliability
8. Water Shortage Contingency Planning
9. Demand Management Measures
10. Plan Adoption, Submittal, and Implementation

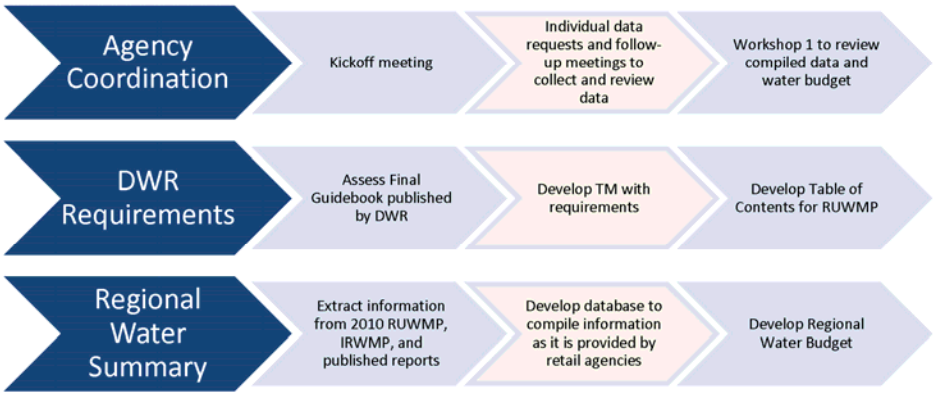
Quick Start Will Help Team Meet Key Schedule Milestones

WSC looks forward to working closely with Valley District and the retail agencies over the approximately nine-month period from Notice to Proceed until the final deliverables. Over the course of this period, there will be a series of iterations and adjustments as new information becomes available. As of the anticipated notice to proceed,

- DWR's on-line submittal tool and final guidance documents may not be complete
- Complete consumption and production data for calendar year 2015 will not be available
- The potential reliability of imported supplies will still be under review

While these precursors may not be available, the team cannot afford to wait. Meeting DWR's deadlines, and allowing adjoining agencies to do the same, requires the team to start immediately. Therefore WSC proposes a quick start to begin moving with the best available information, while structuring processes that are adaptable as new information becomes available.

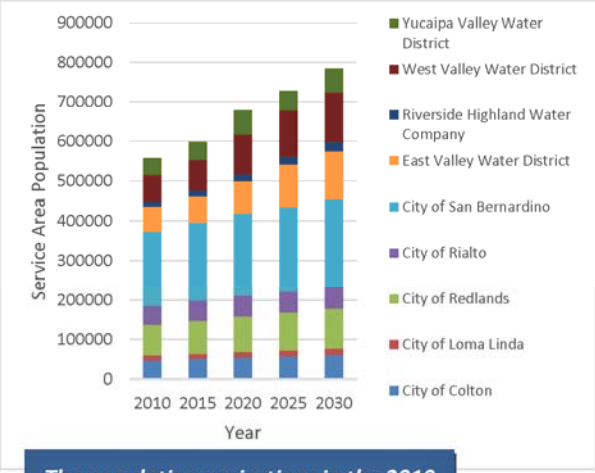
Key elements of the quick start are shown in the graphic below. Because of WSC's depth of resources, these key initiatives can begin in parallel immediately following notice to proceed.



WSC recently completed a similar process for the Regional Recycled Water Concept Study, an effort that involves almost all the same agencies who are involved in the RUWMP. In less than six weeks, WSC was able to conduct a kickoff meeting, distribute data requests to eight agencies, work cooperatively with the agencies to collect more than 5 gigabytes of data, and distill the information to generate exhibits and maps to support the identification and evaluation of regional recycled water opportunities. Laine Carlson is leading that effort for WSC, and the majority of her time will remain focused on the Regional Recycled Water Concept Study. However, we anticipate Laine leading the agency coordination efforts for this project to leverage existing relationships and utilize the information that has already been provided as part of the Recycled Water System Concept Study. This continuity will help minimize any duplication of effort by the retail agencies or Valley District staff.

Close Coordination & Realistic Estimates Increase Confidence In Results

The last five to ten years have been a dynamic period in the California water supply industry. Extended drought in the Colorado River Basin and northern California has reduced the availability of imported supplies, while the economic downturn led to an interruption in the pattern of steady growth that some communities had become accustomed to. New regulations and extensive education efforts have led to reductions in per-capita water consumption in most parts of the state, but it is not clear how behaviors will change if the drought becomes less urgent. These and other factors have made the preparation of a 25-year projection of water demands and supplies a challenging task.



The population projections in the 2010 RUWMP anticipated steady growth in the study area. For the 2015 RUWMP, WSC will work with agencies to update these projections and develop realistic estimates for future water demands

When deciding what assumptions to make for the RUWMP, it is important to recognize how the document will be used. In water infrastructure planning, it is common to over-estimate future demands, so that infrastructure can be built ahead of growth. In financial planning, it is common to underestimate growth, so an agency does not experience actual revenues less than projected. For the UWMP, the report will be most valuable if it has the most realistic assessment possible, given current information. Any major capital investments will be supported by other, more focused studies; the RUWMP is intended to provide policy makers and the public with an accurate appraisal of how supplies compare to demands. To increase confidence in the results, WSC proposes to:

- Work with each retail agency to incorporate their growth projections or develop them using regional estimates prepared by San Bernardino County and the Southern California Association of Governments.
- Use Geographic Information Systems (GIS) to define the populations and demands being served by each agency, both to generate maps for the RUWMP and to help eliminate double counting or omissions.
- Analyze per-capita water use trends and work with the retail agencies to identify a defensible value for future forecasting.
- Incorporate the latest information on regional supply issues, including the IRWM process, the Habitat Conservation Plan for the Santa Ana River, and the on-going Regional Recycled Water Concept Study.

Database Approach To Information Storage & Reporting Saves Costs & Reduces The Chances For Error

Preparing a UWMP for a single agency requires a disciplined approach to data management to track the sources of information, ensure consistency with other reports, and prevent the double-counting of resources. For this project, with a total of ten inter-related agencies, data management will be critical.

For the 2015 cycle, DWR will provide a standard set of Excel data tables to be completed by suppliers. The preliminary version from DWR has separate tabs for each chapter, with the basic structure of the required tables for each chapter on the tab. This format will facilitate uploading the information into the on-line submittal tool, and it provides a visual output that may be helpful for some users. However, for this project, the standard DWR spreadsheet does not provide the best mechanism for storing the information. If separate spreadsheets are prepared for each agency, the team will have to manage ten spreadsheets with potential interconnections and duplication between each one. The same issues will remain:

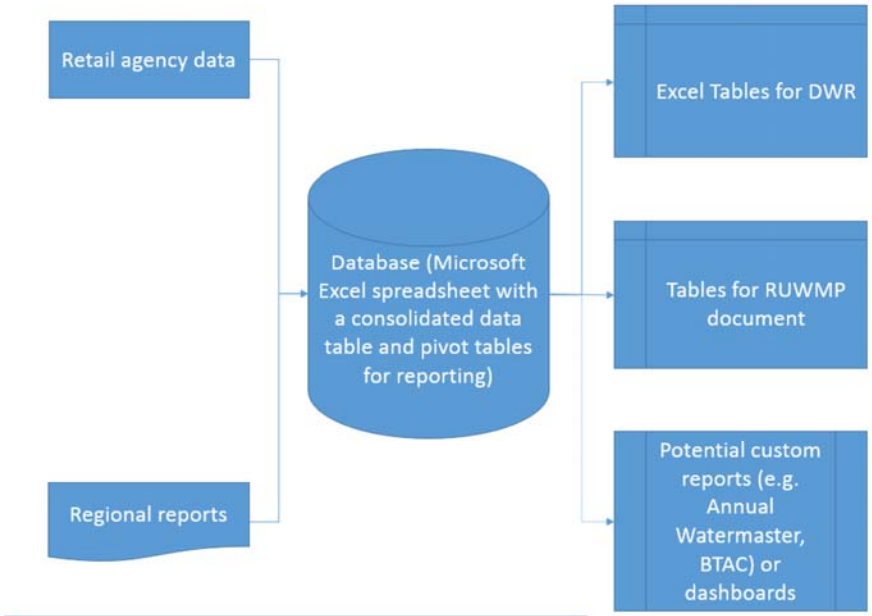
- Potential duplication or exclusion of demands or groundwater production values
- A tedious update process if information is updated during the review cycle
- An inability to easily roll up the data for regional analysis

The RUWMP provides an opportunity to develop a more robust platform for storing regional water supply and demand information. WSC recommends compiling all information into a single database. WSC would build the data table using information provided by the retail agencies, either during the preparation of their chapter or during the peer review. To illustrate the concept, WSC prepared an initial database with values from the 2010 RUWMP.

Each number in the RUWMP becomes a single record in the database. Each record is one row in a table; each record has fields that correspond to the columns in a typical table view. The fields added by WSC are shown below.

Field Name	Contents
Agency	Valley District, or one of the retail agencies
Parameter	Service Area Population, Accounts, Demand, or Supply
Condition	Normal, Single Dry Year, or Multiple Dry Year
Category	For Demands: By Customer Type, By Household Income For Supplies: Groundwater, Surface Water, State Water Project, Recycled Water
Type and Sub-Type	For Demands: Customer type (single-family, multi-family, ...) For Supplies: Groundwater basin, source of recycled water
Value	The number
Units	The units of measurement, typically acre-feet
Year	The relevant timeframe for the value
Source	Where the number came from

Most of these fields are auto-populated, so there is minimal additional effort to populate the data table. Once the information is in this format, it is much easier to generate output in whatever format is needed. For example, WSC would have a version of the DWR Excel tables that referenced this consolidated database, so that the Excel tables could be re-generated whenever new information was entered. The database can also be sorted and queried to make sure that no duplicate or conflicting values are included. If conflicts are found, the sources of data can be noted and used to select the appropriate value and flag the other value for exclusion from analysis. In addition, Valley District and the retail agencies would have easy access to a rolled-up view of demands and supplies in the entire service area or any sub-set of agencies. The database organization is shown conceptually in the figure below.



WSC's proposed approach includes a central database that efficiently consolidates input from various sources, enables more effective data quality control of data, and provides a cohesive set of output reports.

Having information in a database format allows the rapid generation of graphs for one or more agency service areas. Dashboard-type reports could be generated for each agency and customized for their specific needs. The following page shows an example of a dashboard that could be used to communicate with retail agencies and other stakeholders.

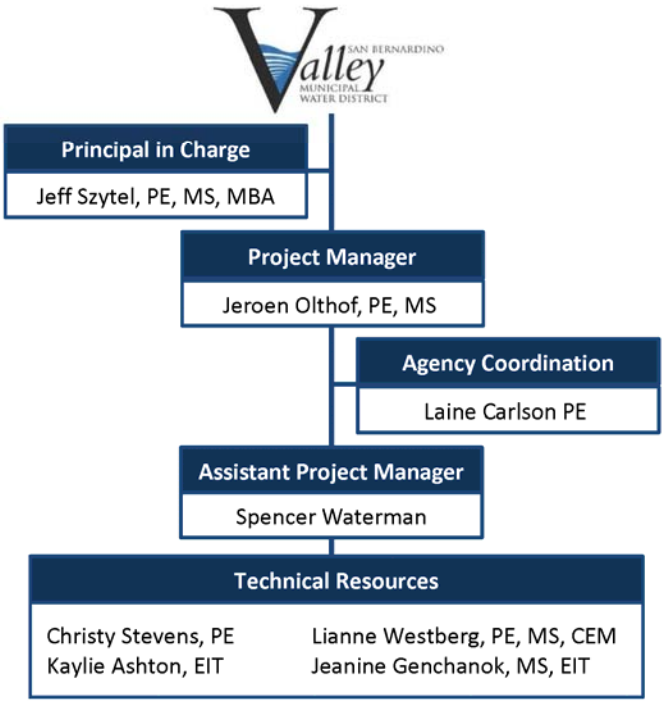
Database Approach Provides A Foundation For Customized Reporting

Organizing regional water supply and demand information in a consolidated data table will facilitate the development of reports and graphs for various uses, such as comparing agencies and identifying trends over time.

Team Organization

WSC's team is functionally organized to take advantage of the strengths of our expert staff, while keeping the structure streamlined to maintain efficiency, quality, and accountability. The project team will be managed by Jeroen Olthof from the San Diego office. Jeroen commonly works from WSC's Ontario office and will be accessible to the District in a timely manner. WSC's relevant staff and project qualifications are located in Appendix A. Contact information for our proposed team is included in our consolidated resumes located in Appendix B.

Jeroen will be leading the development of the RUWMP and has more than 20 years of experience. As an industry leader in water and wastewater planning, Jeroen brings special technical expertise to planning documents – developing personalized, adaptable customer and asset databases, as well as keeping the document thorough, yet concise. Jeroen has completed multiple UWMPs and Water Resources Planning documents and will bring that expertise to Valley District.



Spencer will be supporting Jeroen's efforts by serving as Assistant Project Manager. Currently, Spencer is participating on the 2015 UWMP Guidebook Advisory Committee being led by DWR, and he has a deep understanding of DWR's changes and requirements. He completed seven 2010 UWMPs and six UWMPs during the 2005 cycle.

As Project Manager for the Regional Recycled Water System Concept Study, Laine Carlson will have the ability to leverage her existing relationships with the retail agencies to coordinate the kick-off meeting, distribute and follow up on individual data requests, and utilize the information that has already been provided as part of the Recycled Water System Concept Study. This continuity will help minimize any duplication of effort by the retail agencies or Valley District staff.

WSC's team is rounded out by Christy Stevens, a senior technical resource in our Ontario office; Lianne Westberg, a Certified Energy Manager who has led our efforts in understanding the energy embedded in water supply; and Kaylie Ashton and Jeanine Genchanok, two assistant engineers who can provide efficient analysis and report development.

Our unique structure, in-depth understanding of Valley District's system, and experience in the region make the WSC team the right partner for Valley District.

Fee Schedule

Task No.	Task Description	Principal	Senior Engineer III	Associate Engineer III	Associate Engineer II	Assistant Engineer	Staff Planner	Clerical/ Admin	Total Labor Hours	Total Labor	Expenses	Fee
Billing rates, $/hr		*$278*	*$231*	*$179*	*$168*	*$105*	*$131*	*$84*				
0	**Project Management and Meetings**	**48**	**72**	**60**	**0**	**0**	**70**	**24**	**274**	**$ 51,902**	**$ 3,100**	**$ 55,002**
0.1	Project Administration		20					24	44	$ 6,636	$ 300	$ 6,936
0.2	Kickoff Meeting		4	4			16		24	$ 3,736	$ 600	$ 4,336
0.3	Individual Meetings with Retail Agencies		36	36			36		108	$ 19,476	$ 800	$ 20,276
0.4	Workshops		8	16			16		40	$ 6,808	$ 800	$ 7,608
0.5	Public/Board Presentation (assume one)		4	4			2		10	$ 1,902	$ 100	$ 2,002
0.6	Quality Control Review	48							48	$ 13,344	$ 500	$ 13,844
1	**Legislative Requirements and Report Format**	**0**	**10**	**0**	**0**	**12**	**24**	**0**	**46**	**$ 6,714**	**$ 300**	**$ 7,014**
1.1	Technical Memorandum with Requirements		8			8	16		32	$ 4,784	$ 200	$ 4,984
1.2	RUWMP Table of Contents		2			4	8		14	$ 1,930	$ 100	$ 2,030
2	**Regional Analysis**	**0**	**28**	**0**	**0**	**152**	**128**	**0**	**308**	**$ 39,196**	**$ 1,700**	**$ 40,896**
2.1	Regional Summary of Demands and Supplies		8			40	40		88	$ 11,288	$ 500	$ 11,788
2.2	Regional Supply Scenarios		8			32	32		72	$ 9,400	$ 400	$ 9,800
2.3	Regional Water Budget		8			40	24		72	$ 9,192	$ 400	$ 9,592
2.4	Regional Chapters		4			40	32		76	$ 9,316	$ 400	$ 9,716
3	**Individual Water Agency Requirements**	**0**	**68**	**36**	**176**	**476**	**336**	**0**	**1092**	**$ 145,716**	**$ 5,700**	**$ 151,416**
3.1	Update City of Colton Chapter		8	4	24	60	40		136	$ 18,136	$ 700	$ 18,836
3.2	Update City of Loma Linda Chapter		8	4	24	60	40		136	$ 18,136	$ 700	$ 18,836
3.3	Peer Review of City of Redlands Chapter		2	2	4	8	8		24	$ 3,380	$ 100	$ 3,480
3.4	Prepare City of Rialto Chapter		12	6	24	80	60		182	$ 24,138	$ 1,000	$ 25,138
3.5	Update City of San Bernardino Chapter		8	4	24	60	40		136	$ 18,136	$ 700	$ 18,836
3.6	Update East Valley Water District Chapter		8	4	24	60	40		136	$ 18,136	$ 700	$ 18,836
3.7	Prepare Riverside-Highland Water Company Chapter		12	6	24	80	60		182	$ 24,138	$ 1,000	$ 25,138
3.8	Update West Valley Water District Chapter		8	4	24	60	40		136	$ 18,136	$ 700	$ 18,836
3.9	Peer Review Yucaipa Valley Water District Chapter		2	2	4	8	8		24	$ 3,380	$ 100	$ 3,480
4	**Updated RUWMP**	**0**	**38**	**40**	**0**	**64**	**80**	**0**	**222**	**$ 33,138**	**$ 11,300**	**$ 44,438**
4.1	Assemble Approved Chapters		2	4		16	16		38	$ 4,954	$ 200	$ 5,154
4.2	Facilitate Review and Respond to Comments		16	16		32	32		96	$ 14,112	$ 600	$ 14,712
4.3	Support Public Review and Adoption		16	16			16		48	$ 8,656	$ 300	$ 8,956
4.4	Prepare Final Deliverables		4	4		16	16		40	$ 5,416	$ 10,200	$ 15,616
	Column Totals	**48**	**216**	**136**	**176**	**704**	**638**	**24**	**1942**	**$ 276,666**	**$22,100**	**$298,766**

Appendix A. Qualifications

Staff Qualifications

The following information outlines the qualifications and credentials of the WSC team. It also provides insight into the value each person adds to Valley District. Consolidated resumes are in Appendix B.

Jeff Szytel, PE, MS, MBA – *Principal in Charge*

MBA, UCLA

MS, Civil and Environmental Engineering, UCLA

BS, Civil and Environmental Engineering, UC Davis

Civil Engineer, CA #63004

- Over 16 years of experience in the planning and optimization of water and wastewater systems.
- Authored nearly 50 planning documents in California and Nevada for agencies ranging in size from 5,000 to 500,000 customers, including twelve recent UWMPs and Water Supply Assessments.
- Strong working relationship with DWR staff and deep understanding of the regulatory context and what DWR needs to see in a completed plan.
- Completed UWMPs for the City of Arroyo Grande, Nipomo CSD, and the following California American Water Districts: Sacramento, Monterey, Ventura, Los Angeles, and San Diego.
- Principal in Charge for California American Water's Flair Spectrum Water Supply Assessment, two of the City of Victorville's Water Supply Assessments, Santa Barbara County Water Agency's Long Term Supplemental Water Supply Alternatives Report, and the San Luis Obispo County Flood Control and Water Conservation District's Paso Basin Water Supply Options Study.
- Provided QA/QC for Baldy Mesa Water District's Supply Plan.

Jeroen Olthof, PE, MS – *Project Manager*

MS, Civil Engineering, University of Washington

BS, Civil Engineering, University of Colorado

MBA, USC (in-process)

Civil Engineer, CA #58597

- Nearly 20 years of experience in civil engineering planning, specializing in hydraulic modeling, infrastructure condition assessments, UWMPs, and master planning.
- Lead Author of Otay Water District's 2005 UWMP and the Lead Project Engineer for concurrently completing a UWMP and a Sanitary Sewer and Storm Drainage Master Plan for the City of Reedley.
- Nationally recognized expert in the application, adaptation and use of data management and analysis, GIS and modeling technology to solve problems related to water systems.
- Technical Lead and Task Master for the Hi-Desert Water District's UWMP and the Nipomo CSD's 2010 UWMP where he developed the customer database, demand projections, and provided technical analysis.
- Completed more than 30 water master plans, including assessment of demands and supplies and developed Water Supply Plans/Assessments for several agencies including Baldy Mesa Water District, Calaveras County Water District, Duke Energy, and Walnut Valley Water District.
- Specialist in data management and analysis including financial analysis and statistical evaluations.

Spencer Waterman – *Assistant Project Manager*

- Lead Author and Staff Planner for seven 2010 UWMPs.
- Core team member for the DWR's 2015 UWMP Guidebook Advisory Committee.
- Evaluated supply, supply reliability, demand, supply and demand comparisons, demand management measure, water shortage contingency plan, and recycled water for Nipomo CSD's 2010 UWMP, the City of Arroyo Grande's 2010 UWMP, and California American Water's 2005 & 2010 UWMPs for their Monterey, Sacramento, Ventura, Los Angeles, and San Diego District's.

BS, City and Regional Planning, Cal Poly, SLO

AWWA Water Use Efficiency Practitioner – Grade 1, Cert. #1714

- Staff Planner for California American Water's Flair Spectrum Water Supply Assessment, Santa Barbara County Water Agency's Long Term Supplemental Water Supply Alternatives Report, and San Luis Obispo County Flood Control and Water Conservations District's Paso Basin Supplemental Water Supply Options Study.
- Provides water use efficiency Best Management Practices (BMP) implementation and California Urban Water Conservation Council (CUWCC) support services, including tracking, updating, planning, and reporting compliance for Nipomo CSD's BMP Implementation and CUWCC Support.
- Provided land use planning, demographic, spatially allocated demand, and population projections for water/sewer master plans for the Descanso Community Water District, San Miguelito Mutual Water Company, and the Cities of San Luis Obispo, Paso Robles, Arroyo Grande, and Santa Maria, among others.

Laine Carlson, PE – *Agency Coordination*

- Over 10 years of experience, 7 of which were working for a public utility implementing water, wastewater and recycled water projects.
- Project Manager for Valley District's Regional Recycled Water Concept Study and Grant Application, which includes many of the same retail agencies as this project.
- Project Manager for West Valley Water District's Recycled Water Master Plan, Part 2.

BS, Environmental Engineering, Cal Poly, Pomona

Civil Engineer, CA #72424

SWRCB T2 Drinking Water Operator #34907

SWRCB D2 Drinking Water Operator #41981

- Project Manager for Park Water Company's Compton East Reservoir Study and Apple Valley Ranchos Water Company's North Apple Valley Water System Improvement Plan.
- Project Manager for the City of Pismo Beach's Recycled Water Facilities Planning Study and the implementation of the planning study.
- Project Manager for California American Water's El Monte's Flair Spectrum Water Supply Assessment.
- Project Manager for the City of Victorville's Water Master Plan and As-Needed Water Modeling Services.
- Excellent at collaborating with agency staff to brainstorm and solve problems.
- Highly organized and effective communicator with experience preparing technical documents.

Lianne Westberg, PE, MS – *Technical Resource*

- Mechanical Engineer and Certified Energy Manager.
- Prepared energy evaluations and evaluated climate change mitigation and adaption strategies for California American Water's 2010 UWMPs for their Monterey, Sacramento, Ventura, and Los Angeles Districts.
- Primary Author of California American Water's 2010 UWMP for their San Diego District where she evaluated supply, supply reliability, demand, supply and demand comparisons, demand management measures, and climate change mitigation and adaption strategies.

MS, Civil and Environmental Engineering, Stanford

BS, Mechanical Engineering, Cal Poly, SLO

Mechanical Engineer, CA #35941

Certified Energy Manager, #21981

- Energy and Water Manager and Project Manager for the Energy Watch – Facility Inventory and Database Project for the County of San Luis Obispo and Heritage Ranch CSD's System Energy Plan.
- Conducted Energy Use Studies for California American Water's Monterey and Sacramento Districts where she performed an analysis of operation optimization and energy efficiency opportunities.
- Project Engineer for the City of Santa Maria's 2012 Utility Master Plan Update and the City of San Luis Obispo's Recycled Water System Assessment.
- Project Engineer for Apple Valley Ranchos Water Company's North Apple Valley Water System Improvement Plan.

Christy Stevens, PE – *Water Technical Resource*

- Over 10 years of experience working for a public utility and as a consulting engineering, focusing on water, recycled water, and wastewater systems.
- Providing engineering support for Valley District's Recycled Water Concept Study and Grant Application.
- Project Manager for the City of Victorville's On-Call Modeling services, which includes two Water Supply Assessments.
- Project Engineer for the City of Pismo Beach's Recycled Water Facilities Planning Study.

BS, Civil Engineering, Cal Poly, Pomona

Civil Engineer, CA #80762

Civil Engineer, CA #C73124

- Project Engineer for Apple Valley Ranchos Water Company's North Apple Valley Water System Improvement Plan.
- Project Engineer for Park Water Company's Compton East Reservoir Study.
- Project Manager for the Victorville Water District's Water and Sewer Master Plan.
- Project Manager for the City of Big Bear Lake Department of Water and Power's Water Atlas Map updates.
- Project Manager for Big Bear City Community Services District's On-Call Engineering and Construction Management Services, where she is serving as the District's technical advisor for planning and engineering related issues.

Jeanine Genchanok, MS, EIT – *Technical Resource*

MS, Civil and Environmental Engineering, UC Davis

BS, Civil and Environmental Engineering, University Illinois, Urbana-Champaign

Engineer-in-Training, #153625

- Staff Engineer for the Santa Barbara County Water Agency's Long Term Supplemental Water Supply Assessment and Alternative Report, which included an analysis of available supply and underutilized capacity.
- Staff Engineer for the County of San Luis Obispo's Energy and Water Manager and the Energy Watch – Facility Inventory and Database Project and developed an interim tool for the County for energy and water data management which can provide a unique value to the UWMP process.
- Assistant Engineer for Otay Water District's As-Needed Hydraulic Modeling Services.
- Engineering support for the San Luis Obispo County Flood Control and Water Conservation District's Paso Basin Supply Options Study, where she quantified unutilized capacity based on supply and historical area.

Kaylie Ashton, EIT – *Engineering Support*

BS, Civil Engineering, Cal Poly, Pomona

Engineer-in-Training, #153695

- Experience in hydrology and hydraulic analysis, master planning, and hydraulic modeling of water distribution systems.
- Provides On-Call Water Modeling services for the City of Victorville, where she completed two Water Supply Analyses.
- Provided engineering support for Park Water Company's Compton East Reservoir Study and for the City of Pismo Beach's Recycled Water Facilities Planning Study.
- Assistant Engineer for San Bernardino Valley Municipal Water District's Recycled Water Concept Study and Grant Application.
- Staff Engineer for West Valley Water District's Recycled Water Master Plan – Chapter 8.
- Efficient engineer with strong data analysis skills and understands the importance of schedule maintanence and completing a project on time.
- Practical understanding of how to apply engineering practices to deliver insightful and operator-friendly projects.

Project Qualifications

Since its founding, WSC has consistently grown in its capabilities in the area of water supply planning. During the 2010 cycle, WSC completed seven UWMPs and has continued to support some of these agencies in updating their analytical toolset as new information has become available about changes in supply and demand assumptions. In all, WSC's team of experts have worked together to complete more than 16 UWMPs deemed complete by DWR, as well as provided a robust planning resource resulting in confident management decisions.

"WSC effectively used GIS tools to perform spatial analysis of the raw data. The clear and competent presentation of the customer data allowed District policy makers to understand the information and act upon it."
-Michael LeBrun, General Manager
Nipomo Community Services District

"Whenever working with WSC, I have the confidence of knowing that our best interests are being looked after and that our projects are in the hands of professionals."
-Rick Saldivar, Operations Manager
California American Water

"I have been extremely impressed with their high level of competency and ability to work effectively and interactively with staff. I really enjoy working with staff at WSC, I know I will always get a prompt, insightful and trustworthy response."
-Teresa McClish, Director of Community Development
City of Arroyo Grande

2005 & 2010 Urban Water Management Plans

City of Arroyo Grande, CA

Relevance to Valley District:

- Developed in conjunction with the City's Water and Sewer Master Plan Updates.
- Key document for defining the City's future demand, supply and conservation strategies.
- Thorough understanding of the City's water supply and demand management strategies.
- Coordinated with local stakeholders, including the County, NCMA, and NMMA.
- Consulted with the City to develop coordinated land use planning and growth projections.

Reference:

Ms. Teresa McClish

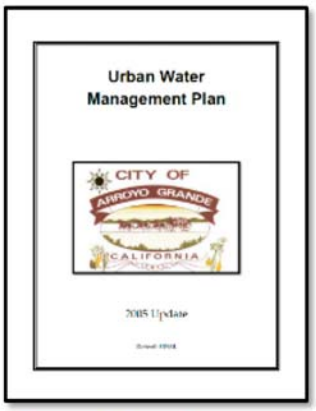
Director of Community Development

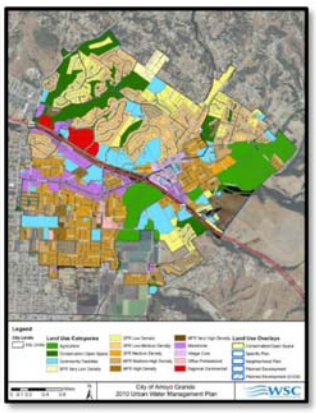
City of Arroyo Grande

300 E Branch Street

Arroyo Grande, CA 93421

(805) 473-5420





Program Overview

WSC prepared the 2005 UWMP Update and the 2010 UWMP for the City of Arroyo Grande.

Arroyo Grande serves an area of about 5.87 square miles and 17,252 people. WSC's scope included a comprehensive evaluation and update of the City's UWMP to comply with the UWMP Act including SB7.

WSC's scope included a comprehensive evaluation and recommendations for the District's water conservation programs to comply with the UWMP Act, including SB7. Evaluated supply, supply reliability, demand, supply and demand comparisons, demand management measures, recycled water plan, and climate change impacts.

2010 Urban Water Management Plan

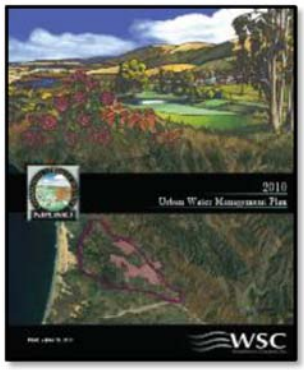
Nipomo Community Services District, CA

Relevance to Valley District:

- High visibility plan with significant public involvement.
- Key document for defining NCSD's future demand, supply and conservation strategies.
- Developed spatially allocated demand projections based on customer records, land use data from the County and development projections.
- Consulted with SLO County to develop coordinated land use planning and growth projections.
- Collection system in the downtown area consists of older, smaller pipelines.

Reference:

Mr. Peter Sevcik, PE
District Engineer
Nipomo CSD
148 South Wilson Street
Nipomo, CA 93444
(805) 929-1133



Program Overview

WSC prepared the 2010 UWMP for the Nipomo Community Services District and is providing ongoing water conservation consulting services for the District.

WSC prepared the 2010 UWMP for the Nipomo Community Services District (NCSD) in southern San Luis Obispo County. The service area encompasses approximately 3,917 acres and serves a population of 10,815.

WSC's scope included a comprehensive evaluation and recommendations for the District's water conservation programs to comply with the UWMP Act, including SB7. Evaluated supply, supply reliability, demand, supply and demand comparisons, demand management measures, recycled water plan, and climate change impacts.

2005 & 2010 Urban Water Management Plans

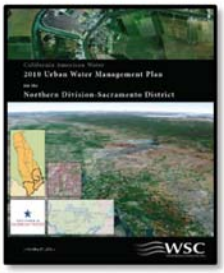
California American Water – Various Districts, CA

Relevance to Valley District:

- Evaluated supply, supply reliability, demand, supply and demand comparisons, recycled water plan, and climate change impacts.
- Calculated demand projections in compliance with SB7.
- Evaluated progress towards demand management measures/best management practices.
- Modeled 2020 energy usage incorporating water conservation, energy efficiency improvements and renewable energy generation by District.
- Coordinated with DWR staff to ensure each UWMP was deemed complete.

Reference:

Mr. Mark Reifer, PE
Operations Manager
California American Water
8657 Grand Ave
Rosemead, CA 91770
(626) 614-2517



Program Overview

WSC prepared the 2005 UWMP Updates and the 2010 UWMPs for the Sacramento, Monterey, Ventura, San Diego and Los Angeles Districts.

For each District, WSC developed 20-year per capita water use projections. WSC developed service area population data in GIS by intersecting block level Census population data within the CAW service areas in accordance with California Senate Bill X 7-7 (SB X 7-7). Using the service area population, WSC calculated per capita water usage for each service area from 1990 to 2010. This was used to determine the baseline per capita water usage mandated by SB X 7-7 for a 20% reduction by 2020. WSC examined local water supplies to evaluate water needs for the next 20 years. WSC evaluated water supply reliability by reviewing historical water supply and demand during multiple dry year periods.

Recycled Water Concept Study & Grant Application

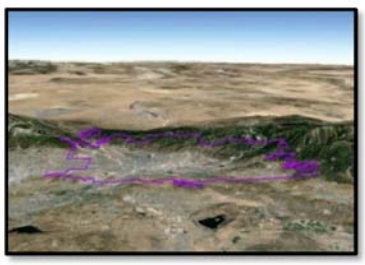
San Bernardino Valley Municipal Water District

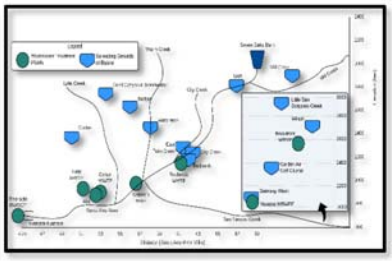
Relevance to Valley District:

- Utilize existing data and relationships to decrease time and money.
- Identifying current and future water demands.
- Providing recommendations to meet future water goals.
- Quantifying resources and ranking them based on reliability, cost, and risk.
- Conducting a triple bottom line analysis to evaluate and rank alternatives.

Reference:

Mr. Bob Tincher, PE
Manager of Engineering and Planning
San Bernardino Valley Municipal Water District
380 Vanderbilt Way
San Bernardino, CA 92408
(909) 387-9215





Program Overview

WSC is working with Valley District and multiple local agencies to identify regional recycled water projects that maximize regional benefits to water supply reliability, water quality, and habitat sustainability.

California's extreme drought has magnified the needs to the San Bernardino Valley agencies to develop a portion of this discharge into new local water supply sources in the near term. A key challenge for the region is balancing their water supply needs with the need to conserve and maintain the natural rivers and streams that provide habitat for a diversity of unique and rare species in the watershed.

As part of the study's scope, WSC is collaborating with the Valley District and their local agency partners to identify existing recycled water projects, planned projects, and work with the project team to develop new recycled water concepts. Recycled water alternatives will be evaluated using a triple bottom line scoring criteria, including environmental, economic, and social criteria.

In parallel, WCS is preparing and submitting grant application(s) to fund the selected projects.

Recycled Water Facilities Master Plan

West Valley Water District

Relevance to Valley District:

- Investigated recycled water supply options for a water agency in Valley District's service area and gained familiarity with regional issues.
- Identified potential recycled water supplies from local wastewater agencies.
- Compiled customer and planning data in GIS to spatially allocate potential current and future recycled water demands.
- Facilitated stakeholder meetings to brainstorm and evaluate opportunities to implement cooperative recycled water projects.
- Performed a cost benefit analysis for conceptual RW programs.

Reference:

Mr. Thomas Crowley
Asst. General Manager
West Valley Water District
855 W. Base Line
Rialto, CA 92377
(909) 875-1804, ext. 702

Program Overview

WSC prepared Part 1 and 2 of a Recycled Water Master Plan (RWMP) for West Valley Water District. The District supplies potable water to over 60,000 people within the Cities of Rialto, Fontana and Colton, and the Counties of San Bernardino and Riverside and is investigating recycled water as a supplemental source. The District faces challenges to implementing a recycled water program because they serve a jurisdictionally complex area and do not have rights to wastewater.

Part 1 of the RWMP includes recycled water system goals and objectives, recycled water demand analysis, jurisdictional considerations and regulatory context, and funding and financing options. Throughout this effort, WSC identified and evaluated regulatory and jurisdictional constraints within the San Bernardino Valley related to water supply and recycled water.

To understand the potential demand for recycled water in the District, WSC compiled customer consumption records and planning information into GIS and spatially allocated potential recycled water customers and recycled water sources to enable visualization of optimized recycled water alternatives.

Part 2 included a recycled water source analysis to identify local wastewater sources and agencies the District may be able to partner with to implement a recycled water program. WSC facilitated workshops with these outside stakeholders to explore potential partnerships and brainstorm conceptual recycled water programs.

WSC performed a cost/benefit analysis for a conceptual recycled water program, which included an environmental constraints analysis and a conceptual business model.

2005 Urban Water Management Plan

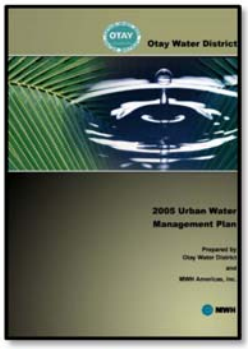
Otay Water District, CA

Relevance to Valley District:

- Adapted the draft UWMP to maintain consistency with updated projections of supply and demand from SDCWA and MWDSC.
- WSC's familiarity with local issues including growth pressures and new supply projects under development mean there will be no learning curve for the team to get up to speed.

Reference:

Mr. Stephen Beppler, PE
Senior Civil Engineer
Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, CA 91978
(619) 670-2209



Program Overview

Proposed Project Manager, Jeroen Olthof prepared the 2005 UWMP Update for the Otay Water District.

While with a previous firm, Jeroen worked with District staff to prepare the 2005 UWMP Update to conform to the UWMP Act. Jeroen developed 25 year population and demand projections by customer sector, evaluated supply reliability, and prepared a recycled water plan. The District serves more than 217,000 people in portions of the cities of Spring Valley, La Presa, Rancho San Diego, Jamul, eastern Chula Vista and eastern Otay Mess. The District meets its customer demands primarily with local groundwater and imported water purchased from the San Diego County Water Authority, the Metropolitan Water District of Southern California, and the Helix Water District. The District has studied and is evaluating additional supply projects, including groundwater development and seawater desalination.

2010 Urban Water Management Plan

City of Reedley, CA

Relevance to Valley District:

- Project required coordination with an on-going update of the City's water master plan and wastewater master plan.
- Growth projections needed to be coordinated with regional agencies, and projected demands needed to be consistent with projected wastewater flows for a potential recycled water project.
- Leveraged previously prepared documents and analysis to cost-effectively prepare an update that met all DWR requirements.

Reference:

Mr. Mike Pardo

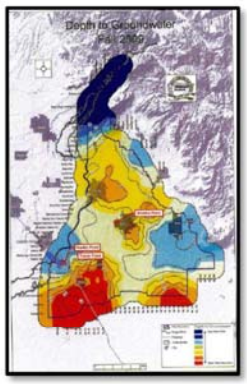
Lead Senior Engineer Assistant

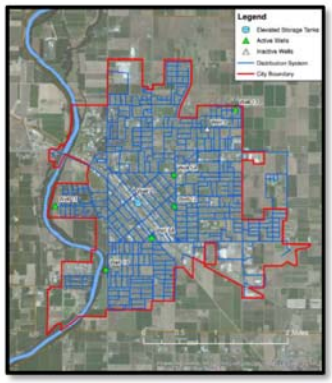
City of Reedley – Water Systems Division

1733 Ninth St

Reedley, CA 93654

(559) 637-4200, ext. 223





Program Overview

Jeroen Olthof provided QA/QC and Technical Support for the 2010 UWMP for the City of Reedley.

While with a previous firm, Jeroen participated in the District's 2010 UWMP to address comments provided by DWR. Jeroen worked with the team to update the chapters related to water demands, water supply, water shortage contingency plan, recycled water, supply and demand comparisons, and demand management. The City serves municipal water to over 24,100 people. The City services an area of approximately 5 square miles through over 6,000 active service connections.

2005 Urban Water Management Plan

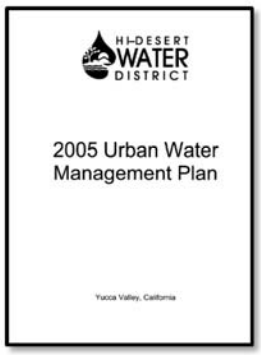
Hi-Desert Water District, CA

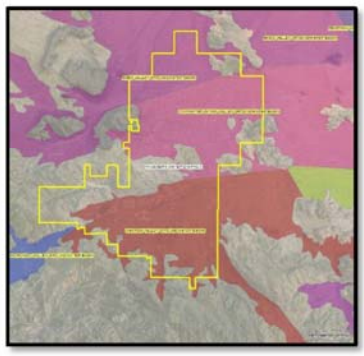
Relevance to Valley District:

- Cost-effectively compiled on-going work by other consultants and prepared a document that met all DWR requirements.
- Coordinated with wholesale agencies who provided a significant portion of the District's total supply.
- Fully documented the District's water conservation efforts, including reporting of Demand Management Measures.
- Deeply familiar with the DWR's requirements and what it takes to have a completed document.

Reference:

Mr. Ed Muzik
General Manager
Hi-Desert Water District
55439 29 Palms Hwy
Yucca Valley, CA 92284
(760) 228-6269





Program Overview

Jeroen Olthof prepared an updated 2005 UWMP for the Hi-Desert Water District.

While with a previous firm, Jeroen worked with District staff to prepare an updated 2005 UWMP. Another team had prepared an initial UWMP, and DWR had determined the document to be incomplete during its review process. Jeroen updated key chapters including water demands, water supply, water shortage contingency plan, recycled water, supply and demand comparisons, and demand management measures. The updated 2005 UWMP allowed the District to move forward with funding applications for major projects.

Director Comments

Yucaipa Valley Water District

Yucaipa Valley Water District

FACTS ABOUT THE YUCAIPA VALLEY WATER DISTRICT

Service Area Size: 40 square miles (sphere of influence is 68 square miles)

Elevation Change: 3,140 foot elevation change (from 2,044 to 5,184 feet)

Number of Employees:
5 elected board members
57 full time employees

Operating Budget:
Water Division - $13,072,750
Sewer Division - $11,689,000
Recycled Water Division - $433,500
Total Annual Budget - $25,195,250

Number of Services:
12,206 water connections serving 16,843 units
13,492 sewer connections serving 20,312 units
62 recycled water connections

Water System:
215 miles of drinking water pipelines
27 reservoirs - 34 million gallons of storage capacity
18 pressure zones
12,000 ac-ft annual water demand (3.9 billion gallons)
Two water filtration facilities:
- 1 mgd at Oak Glen Surface Water Filtration Facility
- 12 mgd at Yucaipa Valley Regional Water Filtration Facility

Sewer System:
8.0 million gallon treatment capacity - current flow at 4.0 mgd
205 miles of sewer mainlines
5 sewer lift stations
4,500 ac-ft annual recycled water prod. (1.46 billion gallons)

Recycled Water:
22 miles of recycled water pipelines
5 reservoirs - 12 million gallons of storage
1,200 ac-ft annual recycled demand (0.4 billion gallons)

Brine Disposal:
2.2 million gallon desalination facility at sewer treatment plant
1.108 million gallons of Inland Empire Brine Line capacity
0.295 million gallons of treatment capacity in Orange County

Yucaipa Valley Water District

THE MEASUREMENT OF WATER PURITY

One part per hundred is generally represented by the percent (%).
This is equivalent to about fifteen minutes out of one day.

One part per thousand denotes one part per 1000 parts.
This is equivalent to about one and a half minutes out of one day.

One part per million (**ppm**) denotes one part per 1,000,000 parts.
This is equivalent to about 32 seconds out of a year.

One part per billion (**ppb**) denotes one part per 1,000,000,000 parts.
This is equivalent to about three seconds out of a century.

One part per trillion (**ppt**) denotes one part per 1,000,000,000,000 parts.
This is equivalent to about three seconds out of every hundred thousand years.

One part per quadrillion (**ppq**) denotes one part per 1,000,000,000,000,000 parts.
This is equivalent to about two and a half minutes out of the age of the Earth (4.5 billion years).

Yucaipa Valley Water District

GLOSSARY OF COMMONLY USED TERMS

Every profession has specialized terms which generally evolve to facilitate communication between individuals. The routine use of these terms tends to exclude those who are unfamiliar with the particular specialized language of the group. Sometimes jargon can create communication cause difficulties where professionals in related fields use different terms for the same phenomena.

Below are commonly used water terms and abbreviations with commonly used definitions. If there is any discrepancy in definitions, the District's Regulations Governing Water Service is the final and binding definition.

Acre Foot of Water - The volume of water (325,850 gallons, or 43,560 cubic feet) that would cover an area of one acre to a depth of 1 foot.

Activated Sludge Process – A secondary biological sewer treatment process where bacteria reproduce at a high rate with the introduction of excess air or oxygen, and consume dissolved nutrients in the wastewater.

Annual Water Quality Report - The document is prepared annually and provides information on water quality, constituents in the water, compliance with drinking water standards and educational material on tap water. It is also referred to as a Consumer Confidence Report (CCR).

Aquifer - The natural underground area with layers of porous, water-bearing materials (sand, gravel) capable of yielding a supply of water; see Groundwater basin.

Backflow - The reversal of water's normal direction of flow. When water passes through a water meter into a home or business it should not reverse flow back into the water mainline.

Best Management Practices (BMPs) - Methods or techniques found to be the most effective and practical means in achieving an objective. Often used in the context of water conservation.

Biochemical Oxygen Demand (BOD) – The amount of oxygen used when organic matter undergoes decomposition by microorganisms. Testing for BOD is done to assess the amount of organic matter in water.

Biosolids – Biosolids are nutrient rich organic and highly treated solid materials produced by the sewer treatment process. This high-quality product can be used as a soil amendment on farm land or further processed as an earth-like product for commercial and home gardens to improve and maintain fertile soil and stimulate plant growth.

Catch Basin – A chamber usually built at the curb line of a street, which conveys surface water for discharge into a storm sewer.

Capital Improvement Program (CIP) – Projects for repair, rehabilitation, and replacement of assets. Also includes treatment improvements, additional capacity, and projects for the support facilities.

Collector Sewer – The first element of a wastewater collection system used to collect and carry wastewater from one or more building sewer laterals to a main sewer.

Coliform Bacteria – A group of bacteria found in the intestines of humans and other animals, but also occasionally found elsewhere and is generally used as an indicator of sewage pollution.

Combined Sewer Overflow – The portion of flow from a combined sewer system, which discharges into a water body from an outfall located upstream of a wastewater treatment plant, usually during wet weather conditions.

Combined Sewer System– Generally older sewer systems designed to convey both sewage and storm water into one pipe to a wastewater treatment plant.

Conjunctive Use - The coordinated management of surface water and groundwater supplies to maximize the yield of the overall water resource. Active conjunctive use uses artificial recharge, where surface water is intentionally percolated or injected into aquifers for later use. Passive conjunctive use is to simply rely on surface water in wet years and use groundwater in dry years.

Consumer Confidence Report (CCR) - see Annual Water Quality Report.

Cross-Connection - The actual or potential connection between a potable water supply and a non-potable source, where it is possible for a contaminant to enter the drinking water supply.

Disinfection By-Products (DBPs) - The category of compounds formed when disinfectants in water systems react with natural organic matter present in the source water supplies. Different disinfectants produce different types or amounts of disinfection byproducts. Disinfection byproducts for which regulations have been established have been identified in drinking water, including trihalomethanes, haloacetic acids, bromate, and chlorite

Drought - a period of below average rainfall causing water supply shortages.

Dry Weather Flow – Flow in a sanitary sewer during periods of dry weather in which the sanitary sewer is under minimum influence of inflow and infiltration.

Fire Flow - The ability to have a sufficient quantity of water available to the distribution system to be delivered through fire hydrants or private fire sprinkler systems.

Gallons per Capita per Day (GPCD) - A measurement of the average number of gallons of water use by the number of people served each day in a water system. The calculation is made by dividing the total gallons of water used each day by the total number of people using the water system.

Groundwater Basin - An underground body of water or aquifer defined by physical boundaries.

Groundwater Recharge - The process of placing water in an aquifer. Can be a naturally occurring process or artificially enhanced.

Hard Water - Water having a high concentration of minerals, typically calcium and magnesium ions.

Hydrologic Cycle - The process of evaporation of water into the air and its return to earth in the form of precipitation (rain or snow). This process also includes transpiration from plants, percolation into the ground, groundwater movement, and runoff into rivers, streams and the ocean; see Water cycle.

Infiltration – Water other than sewage that enters a sewer system and/or building laterals from the ground through defective pipes, pipe joints, connections, or manholes. Infiltration does not include inflow. See *Inflow.*

Inflow - Water other than sewage that enters a sewer system and building sewer from sources such as roof vents, yard drains, area drains, foundation drains, drains from springs and swampy areas, manhole covers, cross connections between storm drains and sanitary sewers, catch basins, cooling towers, storm waters, surface runoff, street wash waters, or drainage. Inflow does not include infiltration. See *Infiltration*.

Inflow / Infiltration (I/I) – The total quantity of water from both inflow and infiltration.

Mains, Distribution - A network of pipelines that delivers water (drinking water or recycled water) from transmission mains to residential and commercial properties, usually pipe diameters of 4" to 16".

Mains, Transmission - A system of pipelines that deliver water (drinking water or recycled water) from a source of supply the distribution mains, usually pipe diameters of greater than 16".

Meter - A device capable of measuring, in either gallons or cubic feet, a quantity of water delivered by the District to a service connection.

Overdraft - The pumping of water from a groundwater basin or aquifer in excess of the supply flowing into the basin. This pumping results in a depletion of the groundwater in the basin which has a net effect of lowering the levels of water in the aquifer.

Peak Flow – The maximum flow that occurs over a specific length of time (e.g., daily, hourly, instantaneously).

Pipeline - Connected piping that carries water, oil or other liquids. See Mains, Distribution and Mains, Transmission.

Point of Responsibility, Metered Service - The connection point at the outlet side of a water meter where a landowner's responsibility for all conditions, maintenance, repairs, use and replacement of water service facilities begins, and the District's responsibility ends.

Potable Water - Water that is used for human consumption and regulated by the California Department of Public Health.

Pressure Reducing Valve - A device used to reduce the pressure in a domestic water system when the water pressure exceeds desirable levels.

Pump Station - A drinking water or recycled water facility where pumps are used to push water up to a higher elevation or different location.

Reservoir - A water storage facility where water is stored to be used at a later time for peak demands or emergencies such as fire suppression. Drinking water and recycled water systems will typically use concrete or steel reservoirs. The State Water Project system considers lakes, such as Shasta Lake and Folsom Lake to be water storage reservoirs.

Runoff - Water that travels downward over the earth's surface due to the force of gravity. It includes water running in streams as well as over land.

Sanitary Sewer System - Sewer collection system designed to carry sewage, consisting of domestic, commercial, and industrial wastewater. This type of system is not designed nor intended to carry water from rainfall, snowmelt, or groundwater sources. See *Combined Sewer System*.

Sanitary Sewer Overflow – Overflow from a sanitary sewer system caused when total wastewater flow exceeds the capacity of the system. See *Combined Sewer Overflow*.

Santa Ana River Interceptor (SARI) Line – A regional brine line designed to convey 30 million gallons per day of non-reclaimable wastewater from the upper Santa Ana River basin to the sewer treatment plant operated by Orange County Sanitation District.

Secondary Treatment – Biological sewer treatment, particularly the activated-sludge process, where bacteria and other microorganisms consume dissolved nutrients in wastewater.

Supervisory Control and Data Acquisition (SCADA) - A computerized system which provides the ability to remotely monitor and control water system facilities such as reservoirs, pumps and other elements of water delivery.

Service Connection - The water piping system connecting a customer's system with a District water main beginning at the outlet side of the point of responsibility, including all plumbing and equipment located on a parcel required for the District's provision of water service to that parcel.

Sludge – Untreated solid material created by the treatment of sewage.

Smart Irrigation Controller - A device that automatically adjusts the time and frequency which water is applied to landscaping based on real-time weather such as rainfall, wind, temperature and humidity.

Special District - A political subdivision of a state established to provide a public services, such as water supply or sanitation, within a specific geographic area.

Surface Water - Water found in lakes, streams, rivers, oceans or reservoirs behind dams.

Total Suspended Solids (TSS) – The amount of solids floating and in suspension in water or sewage.

Transpiration - The process by which water vapor is released into the atmosphere by living plants.

Trickling Filter – A biological secondary treatment process in which bacteria and other microorganisms, growing as slime on the surface of rocks or plastic media, consume nutrients in primary treated sewage as it trickles over them.

Underground Service Alert (USA) - A free service that notifies utilities such as water, telephone, cable and sewer companies of pending excavations within the area (dial 8-1-1 at least 2 working days before you dig).

Urban Runoff - Water from city streets and domestic properties that typically carries pollutants into the storm drains, rivers, lakes, and oceans.

Valve - A device that regulates, directs or controls the flow of water by opening, closing or partially obstructing various passageways.

Wastewater – Any water that enters the sanitary sewer.

Water Banking - The practice of actively storing or exchanging in-lieu surface water supplies in available groundwater basin storage space for later extraction and use by the storing party or for sale or exchange to a third party. Water may be banked as an independent operation or as part of a conjunctive use program.

Water cycle - The continuous movement water from the earth's surface to the atmosphere and back again; see Hydrologic cycle.

Water Pressure - Pressure created by the weight and elevation of water and/or generated by pumps that deliver water to the tap.

Water Service Line - The pipeline that delivers potable water to a residence or business from the District's water system. Typically the water service line is a 1" to 1½" diameter pipe for residential properties.

Watershed - A region or land area that contributes to the drainage or catchment area above a specific point on a stream or river.

Water Table - The upper surface of the zone of saturation of groundwater in an unconfined aquifer.

Water Transfer - A transaction, in which a holder of a water right or entitlement voluntarily sells/exchanges to a willing buyer the right to use all or a portion of the water under that water right or entitlement.

Water Well - A hole drilled into the ground to tap an underground water aquifer.

Wetlands - Lands which are fully saturated or under water at least part of the year, like seasonal vernal pools or swamps.

Wet Weather Flow – Dry weather flow combined with stormwater introduced into a combined sewer system, and dry weather flow combined with infiltration/inflow into a separate sewer system.

Yucaipa Valley Water District

COMMONLY USED ABBREVIATIONS

AQMD	Air Quality Management District
BOD	Biochemical Oxygen Demand
CARB	California Air Resources Board
CCTV	Closed Circuit Television
CWA	Clean Water Act
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
FOG	Fats, Oils, and Grease
GPD	Gallons per day
MGD	Million gallons per day
O & M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
POTW	Publicly Owned Treatment Works
PPM	Parts per million
RWQCB	Regional Water Quality Control Board
SARI	Santa Ana River Inceptor
SAWPA	Santa Ana Watershed Project Authority
SBVMWD	San Bernardino Valley Municipal Water District
SCADA	Supervisory Control and Data Acquisition system
SSMP	Sanitary Sewer Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
WDR	Waste Discharge Requirements
YVWD	Yucaipa Valley Water District