



WOODLAND-DAVIS  
Clean Water Agency

# WATER SUPPLY PROJECT

COMMUNITY UPDATE | SUMMER 2010

[www.wdcwa.com](http://www.wdcwa.com)

## INTRODUCTION:

This Update describes the Water Supply Project (Project), which will divert, treat and deliver water from the Sacramento River to supplement and reduce the use of groundwater supplies for Woodland, Davis, and UC Davis. The Project is critical to ensuring that our water users have an affordable and reliable supply of high-quality water now and in the future. This report provides an update on various Project implementation actions, including water rights, water rates, and the formation of a joint powers authority to oversee project implementation: the Woodland-Davis Clean Water Agency.

# A MESSAGE FROM THE WOODLAND-DAVIS CLEAN WATER AGENCY

Dear Woodland and Davis Water Users:

## How do you think about water?

Have you ever wondered where your water comes from? Do you worry about whether or not your water supply will last through the next 10 or 20 years? Are you concerned about the way your water tastes, how it affects your plants and water-using appliances, or what happens once it goes down the drain?

## Something to think about...

In the Cities of Woodland and Davis, we've always relied on groundwater for 100 percent of our water supply. Our water supply systems were developed in the 1950s, when groundwater sources easily kept pace with increasing community demands.

Today, the quality of our groundwater is declining. Drinking water regulations are becoming increasingly difficult to meet. A number of wells in Woodland and Davis have been shut down and destroyed due to serious and growing water quality problems and threats to public health.

The quality of our groundwater also directly impacts our wastewater discharges, the water that leaves our homes and businesses through drains and toilets. High concentrations of salt in our groundwater and added salts from water softening systems result in high concentrations of salt in our wastewater. Ultimately, those salts end up in our rivers and waterways, negatively impacting our environment.

As a result, the Cities cannot meet current or future state water quality regulations without significant and costly modifications.

## What are our options?

The Cities have two possible solutions for complying with regulations from the Central Valley Regional Water Quality Control Board – the state agency responsible for setting regulations for wastewater discharge:

- Develop a new, higher-quality water supply;
- or install very expensive wastewater treatment processes at nearly double the cost of developing a new water supply.

“Do nothing” or “do it later” simply are not options. If no action is taken, we expect that the Regional Board will impose fines and direct the Cities to implement one of these two solutions.

## What’s the best option?

An exhaustive review of the alternatives determined that the least-costly and most environmentally favorable solution is a regional surface water supply project to supplement and largely replace groundwater supplies. Using new pumps, pipelines and treatment facilities, the Project will deliver high-quality surface water from the Sacramento River to Woodland, Davis and UC Davis.

The Woodland-Davis Clean Water Agency, a joint powers authority of the Cities of Woodland and Davis, was formed to manage the planning and implementation of this project.

## How can we afford this project, especially now?

Given the cost of other options, the Cities’ ratepayers cannot afford the alternatives. Independent professional studies commissioned by the Davis City Council repeatedly confirmed this project as our least cost option for meeting drinking water and wastewater quality regulations, and ensuring the long-term reliability of water supplies.

## What else can we do?

Water conservation is and will always be essential to managing our water supplies as efficiently as possible. As a part of project implementation, the Cities plan to conserve even more water in the future than we do today. But, because conservation cannot improve the quality of our water, it alone cannot solve our problems.

We encourage you to learn more. Please review this report, examine the issues and costs, and consider the long-term benefits. You also can visit our project website at [www.wdcwa.com](http://www.wdcwa.com), read project documents, attend our meetings, ask questions, and provide comments and feedback. Your involvement is critical to securing a safe, reliable water supply for today, tomorrow, and beyond.

In partnership,

Dr. Bill Marble  
WDCWA Board Chair  
Member, Woodland City Council

Stephen Souza  
WDCWA Board Vice-Chair  
Member, Davis City Council

Don Saylor  
WDCWA Member  
Mayor Pro Tempore, Davis City Council

Martie Dote  
WDCWA Member  
Member, Woodland City Council

*This report is the first in a series of updates on the Water Supply Project. As the project moves forward, we will prepare additional updates and information materials. Please visit our website ([www.wdcwa.com](http://www.wdcwa.com)) for the most up-to-date information, including meeting agendas and outcomes, fact sheets, project documents and frequently asked questions.*





## WHY SURFACE WATER, WHY NOW?

The Project concept results from more than 20 years of planning prompted by serious concerns about long-term water supply reliability for our region. Many options were analyzed throughout the planning process, with the surface water project emerging as the best, most feasible among them.

Today, the primary driver for the surface water project is water quality regulations, for both our drinking water and treated wastewater. Under state regulations for the Central Valley, our water supply source – local groundwater – has a salt content that will be too high to discharge into the Sacramento River system after the next few years.

Water from our municipal water wells also has increasing concentrations of unhealthy chemicals – nitrates, selenium and arsenic – that are expensive to treat and can negatively impact public health. These constituents pose long-term threats to drinking water quality and the quality of our treated wastewater as it is returned to the environment.

Finally, there are concerns about the sustainability of the quantity of our groundwater supplies.

For similar reasons, many other Central Valley communities, including West Sacramento, Modesto, Tracy, Manteca and Fresno, have already shifted from groundwater-centered water systems to treated surface water systems.

Both Woodland and Davis have long histories of delivering affordable and reliable drinking water to their customers, thanks in part to financial and infrastructure investments by prior generations. New investments are needed now to meet tightening public health and environmental regulations and to ensure that we can continue to deliver safe water to customers and clean water back to the environment.

Timing is now ideal for initiating the use of surface water, as the Agency expects to acquire new water rights to the Sacramento River this year.



## What About the Quality of Surface Water

*Surface water quality will provide much better protection of public health and the environment than our current water systems that rely solely on groundwater.*

*In recent years there has been growing evidence of various chemicals in very small concentrations that are currently not regulated in drinking water: personal care products (i.e. soaps, shampoos, lotions, etc.) and pharmaceuticals. Will bringing in treated surface water solve one public health problem and create another? No.*

*Just like caffeine and aspirin, many chemicals are found broadly throughout our environment in minute concentrations. Fortunately, modern water treatment facilities remove most of these chemicals to nondetectable levels. We are also fortunate in having access to high quality water from the Sacramento River, a better surface water source than is available to most of the population in the western United States. Even so, the Agency is tracking research in this area and will keep our customers informed.*

## Project Needs and Objectives

The primary objectives of the Project are to:

1. Provide a new water supply to help meet existing and future needs
2. Improve drinking water quality
3. Improve the quality of treated wastewater

These objectives were developed in response to challenges posed by aging water systems, more stringent drinking water regulations, increasingly strict wastewater treatment requirements, and greater water demand consistent with adopted land-use plans.

In addition, the Project will diversify the Partners' water supply portfolio, improving both quality and overall supply reliability. Project costs and environmental impacts will be reduced through the construction and operations of shared regional facilities.

## Concerns with Existing Groundwater Supplies

The typical useful life of a well is 30 to 50 years, with higher levels of maintenance occurring after 30 years. Woodland has 20 wells, 14 of which are 30 years old or older; Davis has 23 wells, 12 of which are 30 years old or older. Similarly, four of the six UC Davis domestic wells are more than 30 years old. These wells will require major investments to continue safe operations, and there will be concerns related to the quality of the water they produce.

## Problem Wells

City of Davis			
Well Number	Years in Service	Status	Reason
10	28	Destroyed	High TDS and low production
16	33	Destroyed	High nitrates
17	34	Destroyed	High TDS and low production
18	31	Destroyed	High nitrates
13	40	Destroyed	High selenium
12	45	Destroyed	High chromium and low production
EM2	36	Offline	High nitrates, TDS, iron, manganese
City of Woodland			
1	48	Reduced Production	Age
4	55	Reduced Production	Age
5	55	Online	Age
6	33	Online	Age/Elevated nitrate levels
9	49	Abandoned	Age/Elevated nitrate levels
10	49	Offline	Age/Elevated nitrate levels
11	38	Reduced Production	Age/Elevated nitrate levels
12	37	Reduced Production	Age
13	36	Online	Age/Elevated nitrate levels
14	34	Reduced Production	Age
15	33	Abandoned	Age
17	33	Reduced Production	Elevated nitrate levels
18	32	Reduced Production	Age
20	29	Reduced Production	Elevated nitrate levels
21	29	Reduced Production	Elevated nitrate levels
22	15	Offline/Reduced Production	Elevated nitrate levels & excessive sand production



## A Word About Water Quality

Water quality describes the suitability of water for a particular use based on a variety of physical, chemical, and biological characteristics. Regarding the water supply project, water quality refers to: 1) the suitability of groundwater and surface water for drinking; as well as 2) the suitability of treated wastewater for disposal to the environment. The California Department of Public Health has water quality standards and guidelines established for drinking water, while the State's Central Valley Regional Water Quality Control Board has wastewater quality standards to protect our waterways for many uses including recreation and protection and maintenance of aquatic life.

Human activities often affect water quality. For example, nitrogen fertilizers are regularly applied to crops and lawns.

If the nitrogen is not used by the plant, this plant nutrient can dissolve and seep into the groundwater – causing nitrate contamination to the communities' drinking water source.

Water quality is measured by analyzing characteristics of the water such as temperature, dissolved mineral content, and number of bacteria. Many common constituents such as calcium and sodium are not considered harmful to human health, although can affect the taste, smell, or clarity of water. The drinking water quality constituents of concern in the Woodland/Davis groundwater are arsenic, nitrate, selenium, iron, and manganese. Arsenic, nitrate, and selenium are of primary concern because exceeding standards for these elements threatens human health; whereas iron and manganese primarily affect drinking water aesthetics. The constituents of concern at the Woodland and Davis wastewater treatment facilities are boron, total salt content, and selenium. Changing the communities' source of drinking water to high quality surface water should alleviate the concerns about these constituents.

## Water Quality

Compound ppm/ppb*	Groundwater	Sacramento River**
Total dissolved solids, ppm	400-710	73-127
Arsenic, ppb	0-7	<0.002
Nitrates, ppm	4-56	0.35
Selenium, ppb	0-15	<0.005
Iron, ppb	0-1,800	0.32
Manganese, ppb	36-66	0.03
Boron, ppb	1,700-2,220	0

\* Parts per million/parts per billion

\*\* Raw water intake from Sacramento River Plant. City of Sacramento Department of Utilities Operational Statistics, Fiscal Year 2004/2005

Many of our existing wells extract water from shallow and intermediate aquifers – groundwater reservoirs – which contain poorer quality water than deeper aquifers in parts of the region. Deeper aquifers generally produce water with fewer dissolved salts than shallower aquifers, but the sustainability of this source is questionable and, in some areas, the water from deeper aquifers contains levels of nitrates, arsenic, iron, boron and manganese that make it poorly suited for consumer use. Nitrates in particular are a well-known, documented threat to public health. Both cities have taken actions over the years to keep nitrate concentrations below public health threat levels, but this is becoming increasingly difficult. In fact, some recently installed wells have become unusable or their use restricted due to increasing nitrate levels.

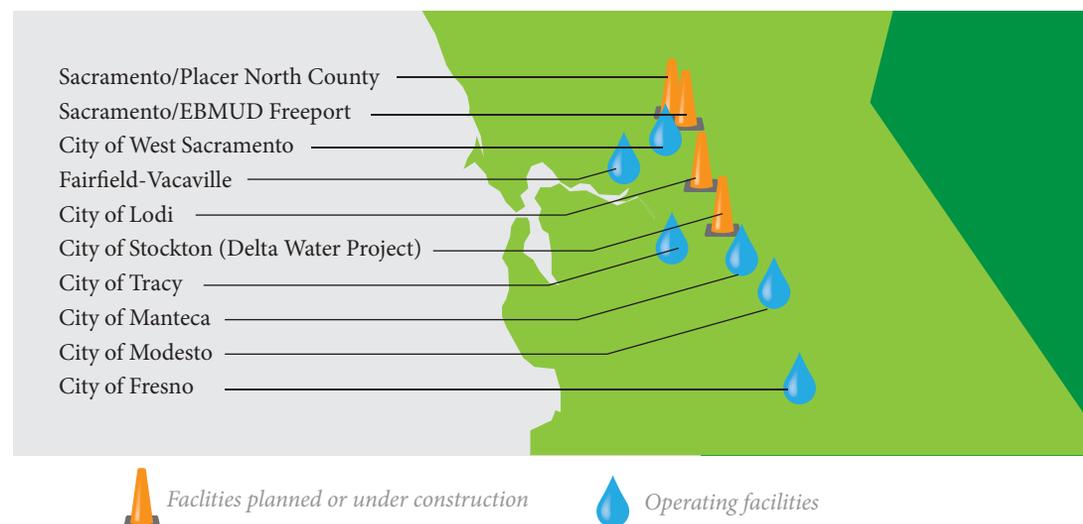
In addition, subsidence (compaction of the groundwater reservoir – often irreversible) may lead to decreased aquifer storage capacity, deterioration in the water quality of the aquifers, or damage to well casings. Both Woodland and Davis have experienced about three inches of subsidence between 1999 and 2005, and the southern Sacramento Valley has experienced more than five feet of subsidence over the past few decades. Subsidence is expected to continue in the future unless regional groundwater use is reduced.

### Regional Water Supply

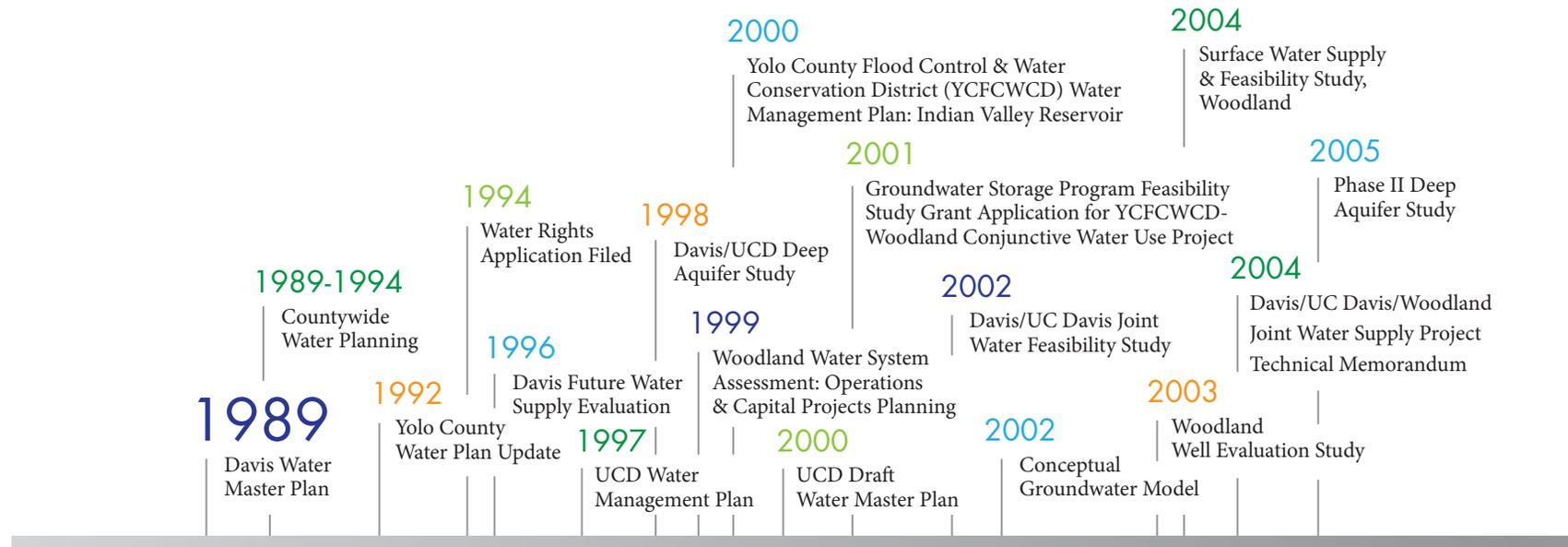
Percent of Surface Water Used for Municipal Services

Sacramento Suburban Water District	35%
Bay Area	85%
City of Sacramento	85%
El Dorado Irrigation District Folsom Orangevale Water Co. San Juan Water District	100%

### Trends in Surface Water Supply and Conjunctive Use



It is an ongoing challenge to meet current water quality regulations using the existing groundwater supply. This challenge is expected to become more difficult as older wells are taken out of service. We are not the only communities facing this concern. While a majority of Californians are already drinking treated surface water as part or all of their water supplies, many communities in the Central Valley have historically relied on groundwater. Numerous Central Valley communities are in situations similar to that of the Woodland/Davis area and are turning to surface water to meet new drinking water and wastewater regulations, or to expand their existing supplies to meet future needs.

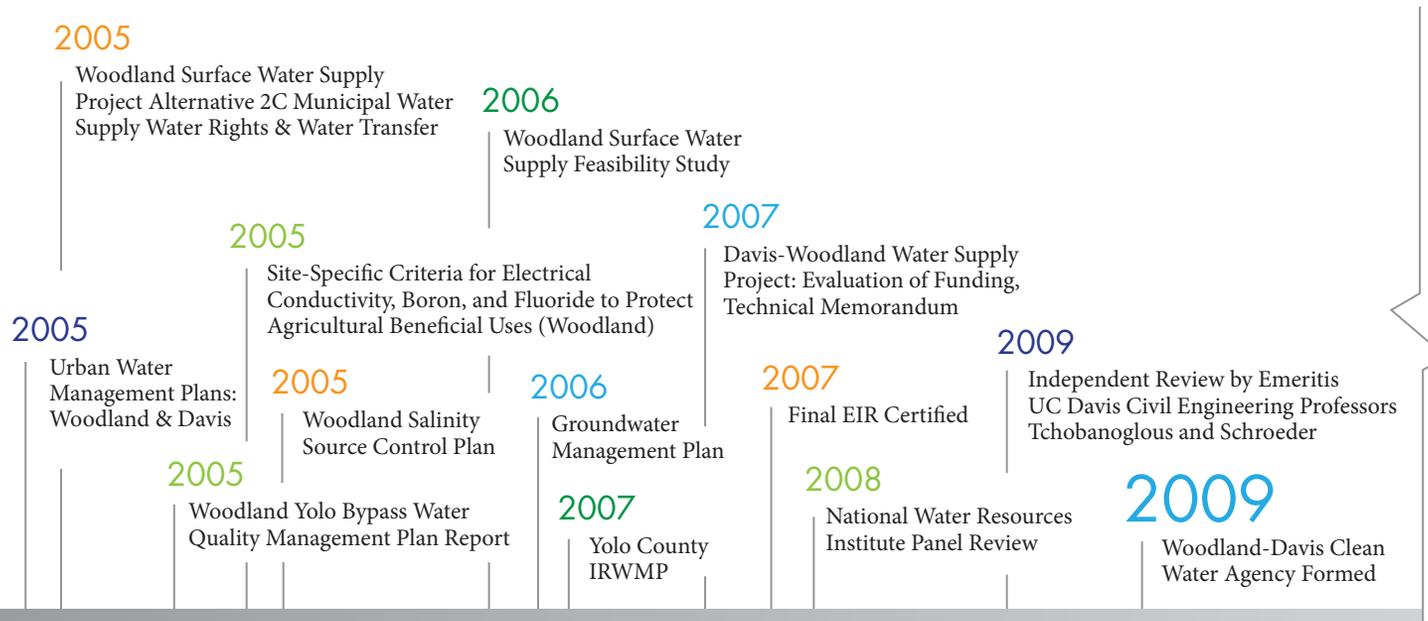


Timeline of Studies and Related

## Historic Water Planning for the Region

Studies leading to development of the Project began in 1989 and for many years focused on improving the reliability of our groundwater supplies through temporary and intermediate solutions (see timeline for history of water supply studies). Both cities have invested in interim actions to maintain aging water systems at the lowest expense possible, and such interim actions will continue to be needed.

Of particular significance is the 2006 Yolo Bypass Water Quality Management Plan, which highlighted the need to reduce salinity of water in the Bypass for environmental reasons and pointed to a need to shift water supplies to higher quality surface water for Woodland and Davis. Many other Central Valley communities, including West Sacramento, Modesto, Tracy, Manteca and Fresno, have already shifted from groundwater-



## Actions Leading Up to the Project

centered water systems to combined groundwater and treated surface water systems. The City of Lodi, the City of Stockton, and Sacramento County are in the process of implementing similar projects.

Leaders in our region had the foresight in 1993 to form the Water Resources Association of Yolo County (WRA) to better coordinate our region’s water management activities and policies. Woodland, Davis, and UC Davis are members of the WRA. The WRA developed the County’s Integrated Regional Water Management Plan (IRWMP) to examine existing local water supplies in terms of quantity, quality, and environmental needs. Included in the IRWMP are comprehensive water management strategies in the following areas: groundwater management; water quality protection; water recycling; conjunctive use of ground and surface water; water conservation; stormwater capture and management; flood management; recreation and public access; ecosystem restoration, wetlands enhancement and creation; and environmental and habitat protection and improvement. The Project is a major feature of the Yolo County IRWMP (approved by the WRA and each of its nine member agencies in July 2007), because it will advance key goals in the areas of improved water quality, protection of public health, water supply reliability, and regulatory compliance.

### Wastewater: Davis & Woodland Constituents of Major Concern

Constituent	Anticipated Discharge Limit	Current Levels		Future with Surface Water*
		Davis	Woodland	
Salinity, EC umhos/cm	700-1,400	1,870-1,990	1,350-1,650	400-700
Boron ug/l	700-1,500	1,300-1,800	2,100-3,000	non-detect
Selenium ug/l	4.4	5.0	4.2	0.06

\* Average Monthly

Development and implementation of an IRWMP is the modern focus for addressing a region’s water quality and supply challenges. The Project is the best approach to meeting our region’s challenges, and is also consistent with the U.S. Environmental Protection Agency’s policies regarding long-term sustainability.

## Salinity

### The Wastewater/ Groundwater Connection

Our groundwater supplies will not provide a long-term solution to meeting increasingly stringent wastewater discharge regulations, nor will they meet all drinking water standards in the long-term. The salt content of our current groundwater is at concentrations higher than what will eventually be allowed in our treated wastewater.

The table to the left shows the range of State wastewater discharge standards, the current quality of discharges from Woodland and Davis, and what the quality of both discharges is expected to be with the development of the surface water supply.

The quality of our groundwater creates serious issues – not just for the environment, but for our own water systems. Salt content is high, causing costly damage to homeowners' water fixtures, water-using appliances, and household pipes and equipment. These are continual, and sometimes forgotten, costs to system users. Water quality in the Sacramento River is very good, with low salinity and low hardness. The Project will include a modern, state-of-the-art water treatment facility that will be designed to meet current and future drinking water requirements.

*Salinity impacts are generally long-term and have detrimental effects on the environment and agricultural productivity. As total salinity increases, surface and groundwater quality degrades, soil salinity increases, and crop productivity begins to decline until farming becomes infeasible. Increased salinity is also a direct barrier to water recycling and reuse. A year-round water supply with reduced salinity from the Project will address salinity concerns in the Yolo Bypass.*

*Salinity has built up over time in our region due to the combination of water consumption and direct addition of salt to the water system. Consumption contributes to salinity buildup because the use of water concentrates salts. Salinity increases every time a field is irrigated, a managed wetland is flooded, water is used in an industrial process, and a shower is taken – the water we release has a higher salinity concentration than the water with which we started. Although the salinity contribution through consumption is often unavoidable, salt is sometimes added directly to the water system through the use of detergents, plant fertilizers, and water softeners. Due to the hardness (high mineral content) of the current water supply, Woodland and Davis residents need to use more soaps and detergents to be effective. The use of home water softeners in Woodland and Davis is expected to sharply decline when softer surface water becomes available from the Project. The Project will significantly reduce both salinity and water hardness. We expect this water quality improvement will ultimately save water, energy, and homeowner investments by reducing the use of water softeners, soaps, and detergents.*



Some people have questioned whether or not the State regulations related to salt content can be contested, because these regulations are a major factor behind the need for the Project. The State, through its Central Valley Regional Water Quality Control Board, is taking a hard stance with all communities in the Central Valley that discharge treated wastewater into the Delta. Each community is being required to reduce the salt content of its discharges, in part due to long-term concerns over protection of all beneficial uses of water, including the environment. This new salt reduction requirement is in addition to longstanding programs – some older than 30 years – to reduce salt content in discharges from large agricultural areas in the San Joaquin Valley. Over time, these programs have required major costly changes in the sources of water and removing land from irrigation, among other things. The State’s regulatory programs to reduce salts flowing into both the Sacramento and San Joaquin Rivers are not likely to become less restrictive. A number of cities, including Stockton and Tracy, have shifted or are shifting to surface water because of problems similar to those in our region. Information on the Valley-wide salinity management program can be found on the web site of a non-profit organization, Central Valley Salinity Coalition (<http://www.cvsalinity.org>), formed to act as a clearinghouse for information on this topic.

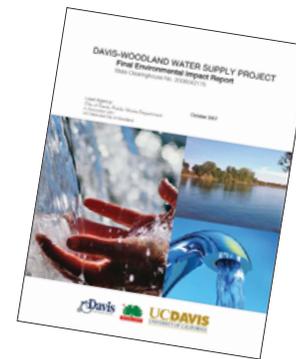
## Water Rights

What priority will Project water rights have, compared to the priorities of existing water rights for other projects that divert water from the Sacramento River? For water right priorities, an important distinction is that Sacramento River water used south of the Delta is “exported” from Northern California, whereas the Project is north of the Delta in the “area of origin” under California water rights law. Although these water law provisions are complex, they basically provide that any new water rights obtained by users in the watershed of the Sacramento Valley will have priority over existing export water rights. Like real estate, location is critical, and the Project is well situated.

While the Project’s water rights will have priority over export water rights, the Agency’s water rights will be junior in priority to the rights of most existing water users in the Sacramento Valley. The priorities of most Sacramento Valley water rights depend on the timing of when the application for each water rights permit was filed. The principle of “first in time, first in right” means that a permit based on an earlier application has priority over a permit based on a later application when there is not enough water to meet all demands. Our water rights application was originally filed in 1994, and permits based on this application therefore will have priority over permits based on applications filed after that date.

Due to the limited supplies, surface water that may be diverted under a new water rights permit will not be available year-round in most years. During dry times of most years (mainly summer months), the majority of the water in the Sacramento River comes from water that was stored in upstream reservoirs during the winter and spring and that, under California law, is not available for diversion by the Project. During these times, the remaining water in the river, which comes from natural sources, is used to satisfy senior water rights. The only surface water potentially available for the Project during these times therefore is water that will be purchased from Sacramento Valley agricultural water users with senior water rights.

The Project's 2007 Environmental Impact Report (EIR) evaluated potential sales of water to the project from a number of water sellers who agreed to be considered for this purpose. There are special provisions of California water law that allow such "water transfers," and the Agency and the sellers intend to transfer water in a manner that will maintain adequate water supplies for agriculture. These provisions will require the sellers to implement water conservation programs or to use more groundwater supplies in their areas.



## Project Alternatives

### Previously Considered Project Alternatives

The 2007 EIR evaluated a wide range of options. Alternatives identified in the environmental analysis but that were rejected as infeasible, not able to meet the Project's objectives, or not environmentally superior to the proposed Project were:

- Tehama-Colusa Canal Extension as an alternative surface water intake
- Treatment of Groundwater Supplies
- Reverse Osmosis Treatment of Wastewater
- Conservation Only



The extension of the Tehama-Colusa Canal was considered as an option to convey water from the Sacramento River to the Project. It was rejected for both environmental and cost reasons. A recent re-evaluation indicated that the costs of this alternative would be more than double the cost of a new intake facility on the Sacramento River closer to other Project facilities, and that this alternative would have significant technical and institutional challenges.

Treatment of groundwater supplies was rejected because the required removal of salts would be too costly. The process of removing salts results in high energy costs and a correspondingly large “carbon footprint.” It also requires the acquisition of land adjacent to each well, and adds high costs for salt disposal once it has been removed. For the same reasons, reverse osmosis treatment of wastewater was also rejected.

While aggressive water conservation would reduce water demands even further than what was assumed in the EIR, aggressive water conservation would not address the underlying water quality purposes of the Project. Salt content would still be too high to meet wastewater standards, and aggressive water conservation would not address concerns about other water quality compounds such as nitrates, boron, selenium and arsenic.

### Selected Project Alternatives

The EIR evaluated several water supply alternatives that would involve different combinations of surface water diverted under new water rights permits, surface water transfers from existing water rights holders, and continued groundwater pumping. In addition to the proposed Project and a “No Project Alternative,” five other water supply alternatives were evaluated in the EIR. Under each of the five alternatives, surface water supplies would be augmented by pumping existing and new groundwater wells in an overall “conjunctive use” program. The water supply alternatives included three different potential diversion points on the Sacramento River and associated pipelines.



## Recap: Why Surface Water, Why Now?

In addition, following the adoption of the Final EIR, the Davis City Council asked for two independent reviews of both the Project and the City's plans for a new wastewater treatment facility. The two reviews were: (1) an independent experts panel from the National Water Resources Institute, and (2) a subsequent independent review by retired UC Davis civil engineering professors George Tchobanoglous and Ed Schroeder. Both reviews concluded that the Project as outlined in the EIR was the preferred alternative and was needed to meet both regulatory and water supply reliability needs of the cities.

*Surface water is needed to achieve our regulatory requirements regarding water and wastewater quality standards and goals for long-term municipal water supply reliability. As in many other Central Valley communities, surface water is needed in Woodland and Davis in the near future to meet regulatory requirements including those to protect public health and those to protect the environment. It is also needed to avoid even more costly improvements that might otherwise be needed in a groundwater-only water system. The Agency is diligently working to obtain new water rights for diversion and use of water from the Sacramento River. As addressed later in this Update, the Agency is looking at ways to reduce both the costs of the Project and impacts to water rates.*







## PROJECT DESCRIPTION

A number of potential options, each targeted to meet Project objectives, were developed and evaluated in technical studies as part of environmental evaluation and review. The most feasible options identified in the EIR involve acquisition of water rights to divert water from the Sacramento River, and water treatment and distribution through a conjunctive use program that would integrate this new source of supply with existing groundwater supplies.

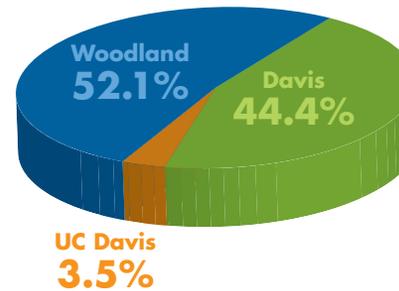
### Project Components

The Project will have four main components:

- A diversion/intake facility on the Sacramento River
- Pipelines from the intake facility to a new regional water treatment facility
- A new regional water treatment facility
- Distribution pipelines from the regional water treatment facility to Woodland and Davis, and other local system improvements throughout the Project's distribution system service areas

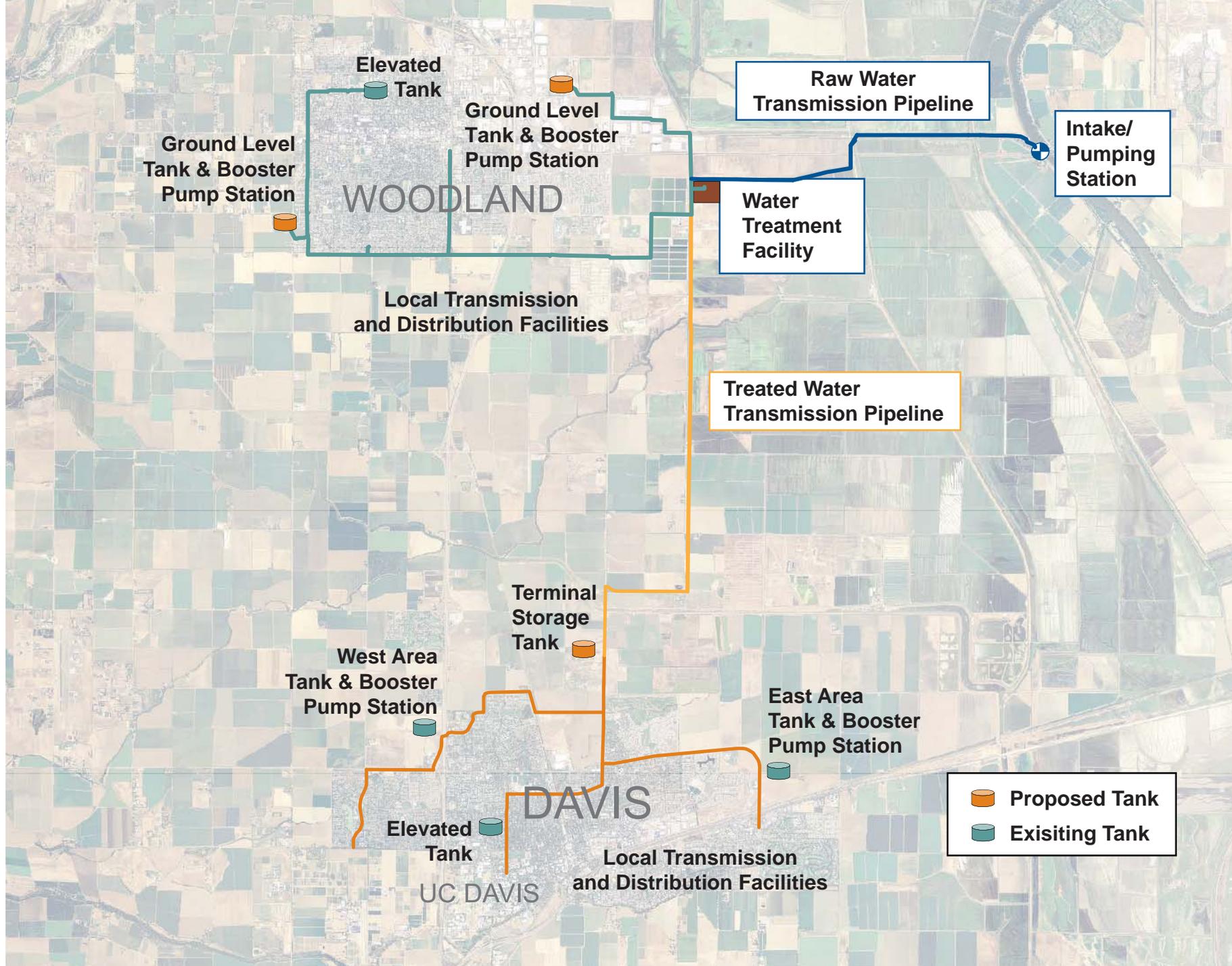
### Project Participants

*The project is being developed as a joint partnership among the Cities of Davis and Woodland and UC Davis. Each participant's share of the cost of regional facilities will be proportional to the participant's share of the planned total capacity of these facilities.*



Sizing of Project facilities and the amounts of surface water to be acquired are based on a more aggressive level of urban water conservation than presently is occurring. Water meters have been installed for all Davis customers, and water meters soon will be installed for all Woodland customers. Both cities have adopted rate structures that will encourage water conservation (bills based predominately on amount of water used). Other conservation-based programs will continue or be expanded consistent with provisions of State law, including the new provisions for reducing per person urban water use by 20 percent by 2020.





Elevated Tank

Ground Level Tank & Booster Pump Station

Raw Water Transmission Pipeline

Intake/Pumping Station

Ground Level Tank & Booster Pump Station

WOODLAND

Water Treatment Facility

Local Transmission and Distribution Facilities

Treated Water Transmission Pipeline

Terminal Storage Tank

West Area Tank & Booster Pump Station

East Area Tank & Booster Pump Station

Elevated Tank

DAVIS

Local Transmission and Distribution Facilities

UC DAVIS

Proposed Tank  
Existing Tank

## Modern Water Treatment: Future Flexibility

### Advanced Water Treatment: Future Flexibility

## Project Sizing

The Project will divert up to 46,100 acre-feet of water per year from the Sacramento River to partially meet the projected 2040 total water demand of 55,600 acre-feet for Woodland and Davis. The Project's water right permits will prohibit diversions during most summer months and some other months during dry years, when unappropriated water is not available. During these times, the Project will divert water under long-term transfer agreements with upstream agricultural water users with senior water rights. Water transferred to the Agency under these agreements will be made available through two possible arrangements. The first will be for the agricultural water users to transfer their surface water to the Project and to pump more groundwater in their service areas to replace the transferred water supplies. The second option will be to implement water conservation programs in their service areas to reduce their water demands and to transfer the amount of conserved water. The Agency will divert water under these agreements when the Agency may not divert water under its own water rights. Groundwater will continue to be used by Woodland and Davis to help meet peak demands during the summer months, when demands cannot be met with surface water supplies alone.

## Project Costs

Major costs for this Project will include the costs of permitting, design and construction of Project facilities, project funding, and program management. Significant environmental and legal expenses also will be incurred. The estimated costs for the major Project facilities, in mid-2009 dollars, include \$35 million for the Sacramento River intake, \$33 million for the raw water pipelines, \$156 million for the water treatment facility, \$30 million for the Davis/UC Davis treated water transmission pipeline, \$75 million for

*Water treatment has come a long way in the past 100 years. Today, water treatment is considered one of three critical means of protecting drinking water. The U.S. Environmental Protection Agency's "multi-barrier approach" starts with a high quality source supply, followed by treatment facilities to further improve quality and provide disinfection, and ends with a modern water distribution system to ensure that supplies maintain their high-quality and disinfection levels needed to protect public health. Modern treatment can remove even very small concentrations of water quality constituents of concern.*

*Modern water treatment facilities are designed to meet current and potential future regulations and include provisions for adding new treatment technology in the future as it is developed. Remarkable advances have been made in treatment technology, resulting in better, more cost-effective means of protecting public health. Centralized treatment makes it possible to respond in a timely, cost-effective manner to more stringent drinking water regulations. This flexibility is not possible with decentralized water systems relying on groundwater wells, such as those in the Cities of Davis and Woodland and on the UC Davis campus.*

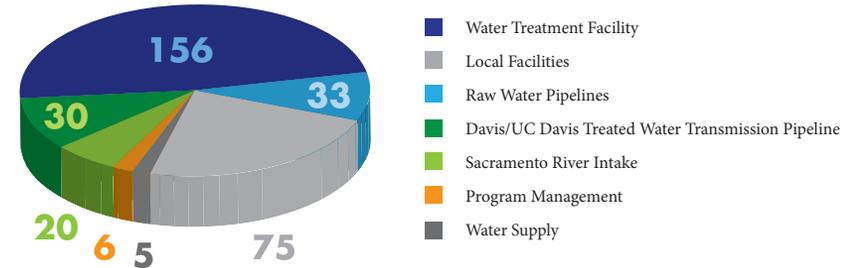


## Enhancing the Future of Your Water Supply

*The Davis-Woodland Water Supply Project is a regional effort that was started in 1989 to improve the water supply in Yolo County and meet anticipated future water needs of the Project Partners. The Project will enhance water service by:*

- *Significantly improving drinking water quality*
- *Improving water supply reliability and substantially reducing salt content in wastewater effluent*
- *Augmenting well capacity with a high-quality water supply*
- *Reducing the hidden costs to consumers for “in-home treatment” of drinking water, and eliminating the need to purchase and maintain water softeners and other devices*

Project Costs in \$ Millions



local facilities and \$11 million for other Project facilities and activities. The Project is expected to cost roughly \$325 million (in mid-2009 dollars). These estimated total Project expenses include all Project costs through start-up of the water treatment facility. These cost estimates are based on the best available data, and will become more definite when the project is fully permitted and under contract for construction.

The Agency is actively looking for ways to reduce Project cost impacts to customers through grant funding from the State and Federal governments. It is also evaluating various financing alternatives to help control the overall financial impact of the Project. Costs may be reduced by using alternative contract delivery procurement methods that could combine Project design, construction and future operations.

### con-junc-tive use [kuh n-juhngk-tiv yoos]

*Conjunctive use is the coordination, planning and management of surface and groundwater resources to optimize long-term water supply reliability. In wet years and seasons when there are plentiful surface water supplies, the Agency will maximize the use of surface water supplies while minimizing the use of water from the groundwater basin. In the summer and in dry years, the Agency will use groundwater to augment surface water to help meet peak summer demands.*



## IMPLEMENTING THE PROJECT

### What Have We Done So Far?

To date, more than 20 years of planning, a thorough analysis of alternatives, a Final EIR, and a substantial amount of technical work have been completed. Much of this material can be found on the Project web site at [www.wdcwa.com](http://www.wdcwa.com). A summary of environmental analysis and compliance is provided below, followed by a status report on Project implementation.

### Environmental Analysis and Compliance

The City of Davis was the lead agency for the California Environmental Quality Act (CEQA) of 1970 (as amended, Public Resources Code sections 21000 et seq.), and the CEQA Guidelines for Implementing the California Environmental Quality Act (California Code of Regulations, Title 14). The EIR provided the public and the responsible and trustee agencies with information about the potential environmental effects of the proposed Project and alternatives.

The City of Davis prepared and published the EIR Notice of Preparation (NOP) in April 2006. The NOP was circulated to the public, local, state, and federal agencies and other interested parties to solicit comments on the proposed Project. Concerns that were raised in response to the NOP and oral comments received at the public scoping sessions were considered during preparation of the Draft EIR. Comments on the Draft EIR were addressed in the Final EIR, which was certified by the Davis City Council on October 16, 2007, and approved by the Woodland City Council on November 6, 2007. This EIR is available on the Project web site ([www.wdcwa.com](http://www.wdcwa.com)). The EIR addressed potential environmental impacts of the proposed Project, including facility options and alternatives. The EIR also identified mitigation measures, where feasible, to reduce or avoid the identified environmental impacts.

In identifying Project alternatives, the EIR considered these basic objectives:

- Improve Drinking Water Quality
- Improve Water Supply Reliability
- Improve Quality of Wastewater Discharges



## The Project has the Lowest Carbon Footprint

“ An energy analysis was performed which determined that total energy use would be reduced as a result of implementing the Project. Based upon this energy analysis, greenhouse gas emissions would be reduced proportionally. ”

– Final EIR

The proposed Project, along with all surface water alternatives to the proposed Project, involves the purchase of supplemental surface water from existing Sacramento Valley agricultural water users during dry periods, when diversions of Sacramento River water under the Project's own water rights will not be available. Consequently, a further objective was the protection of agricultural water uses so that Project water transfers will not cause any permanent fallowing of agricultural lands. To address this objective, water sellers will shift to groundwater supplies or increase their water conservation efforts to make the surface water available to the Project.

The environmentally superior alternative described in the EIR includes the following components:

1. Water rights permits to divert up to 46,100 acre-feet per year from the Sacramento River
2. Purchase of supplemental surface water (up to 30,000 acre-feet in dry years) from upstream senior water rights holders
3. Continued use of groundwater in conjunction with new surface water supplies, blended to meet water quality requirements and used conjunctively to meet peak summer water demands
4. Construction of a new, shared Reclamation District 2035 water intake on the Sacramento River, with appropriate cost sharing
5. New pipelines from the water intake to a new water treatment facility, and from the facility to Woodland, Davis, and UC Davis
6. Distribution system improvements within each agency's service area

The map on page 14 shows the conceptual physical configuration of Project facilities.

## Formation of Operating Entity

The Project plans to serve three areas: Woodland, Davis, and UC Davis. The Woodland-Davis Clean Water Agency (Agency) was formed in September 2009 as a joint powers authority of Woodland and Davis to implement the Project. UC Davis will contract with the Agency for water service.

## Required Permits and Approvals

Approvals are needed for both the location and design of the Project's fish screens and other diversion facility components. Various environmental permits and approvals are also needed to address the "footprint" impacts of the Project that will be caused by construction of pipelines and of the new regional water treatment facility. Permitting agencies will potentially include U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Bureau of Reclamation, U.S. Coast Guard, State Water Resources Control Board, California Department of Fish & Game, Caltrans, Central Valley Regional Water Quality Control Board, Central Valley Flood Protection Board, State Historic Preservation Office, State Department of Public Health, and Yolo/Solano Air Quality Management District.

## Action Plan and Project Schedule

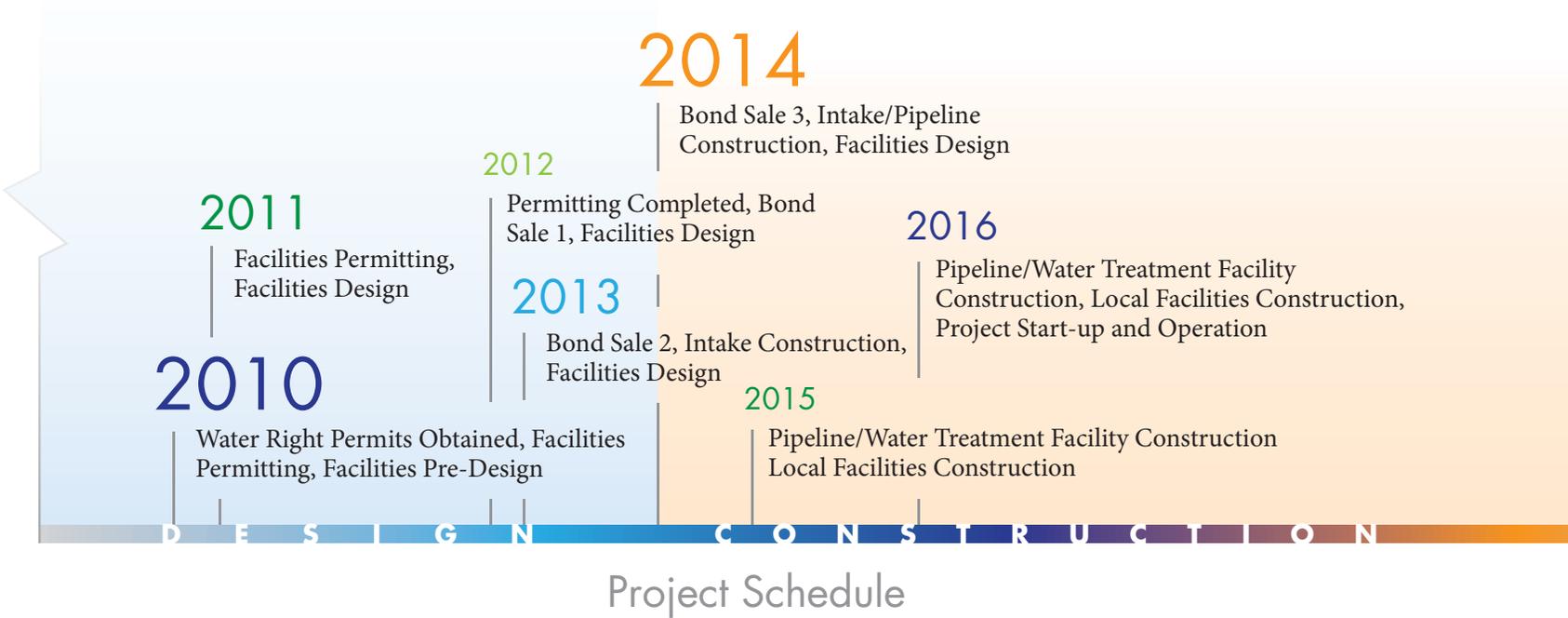
The graphic on the following page shows the anticipated timing of Project implementation. Important foundational work has already been done, including: 1) development of an integrated regional water management plan (IRWMP); 2) applications for water right permits; 3) completion of substantial technical studies pertaining to Project development including identification of near-term actions; 4) completion of a final EIR; and 5) formation of a joint powers authority to oversee project implementation. Future activities will carry these actions forward to Project design and construction.

The Project will include both regional and local facilities. The regional facilities will include a Sacramento River intake facility, raw water transmission pipelines, a new regional water treatment facility, a finished water booster pump station, and finished water transmission pipelines. Local facilities will vary for Woodland and Davis and will include facilities such as distribution pipelines, storage tanks and booster pump stations. The design and construction of these local facilities will be phased to ensure start-up by 2016.



The regional facilities are scheduled for design between now and 2012, for construction between 2013 and 2015, and for operation in 2016. In the near term the Agency will be considering a variety of options for Project implementation, including the potential for contracting for a combination of design, construction, and initial operation in a single contract (referred to as “DBO” – design, build, operate). Typically, a DBO approach can save both money and time. The Agency is evaluating all options for project delivery that will reduce costs and still meet Project objectives.

The Agency makes decisions on Project implementation. The Agency’s Board of Directors is comprised of designated members of the Woodland and Davis City Councils, and Directors report back to their respective councils. The Agency holds meetings every month or every other month, depending on Project activities, and meetings are noticed in advance on the website, in local newspapers, and through postings in both cities. Meeting agendas and supplemental materials are posted on the Agency’s website.





## WATER RATES & FINANCING

### Introduction

The Agency is taking steps to control costs and impacts to water rates as outlined in the earlier Project Costs section. The following section discusses water rates and financing.

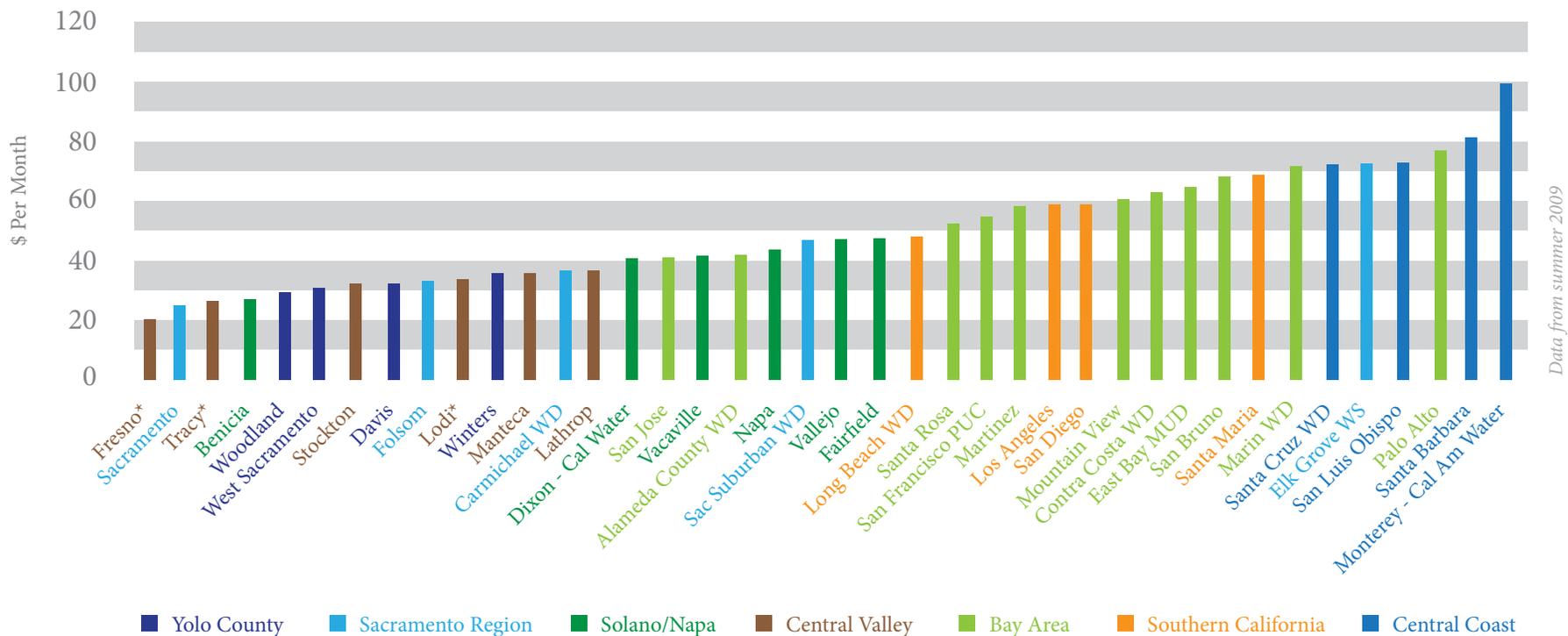
### Water Rates

Water rates are increasing nationwide due to a variety of factors, including more stringent drinking water quality standards and the need to replace aging infrastructure. The City of Woodland recently adopted new water rates through 2012. Rates elsewhere in the region, and throughout California, are generally much higher. The long-term trend is for all these rates to increase over time due to a significant backlog of infrastructure investments that are now needed to address the factors mentioned above and to ensure water supply reliability. Raising fees for water service to recover costs of building, operating, and maintaining a system is consistent with the EPA's Sustainable Water Infrastructure initiative and is an appropriate business practice. Future rate increases will be needed to replace aging infrastructure, support water conservation and recycling programs, and improve water quality.

Water rates from the 2009 Water Rate Survey prepared by the California-Nevada Section of the American Water Works Association are shown on the next page for water agencies throughout California, color-coded by region. This information reflects water rates as of summer 2009. These rates are based on the same average monthly water use for single-family homes in all regions. As shown, water users in the City of Woodland and the City of Davis currently pay some of the lowest water rates among the agencies listed. Most of these agencies are expected to continue increasing their rates to replace aging water infrastructure, modernize water systems, and meet increasingly stringent regulatory requirements.



## California Household Water Rate Comparison



Data from summer 2009

Water rates from the 2009 Water Rate Survey prepared by the California-Nevada Section of the American Water Works Association. Because water use varies by city and region, a benchmark amount of 1,500 cubic feet per month (11,220 gallons) was used as the basis for comparison.

\* Water rates from the utility

Although each of these water agencies has different sources of water and different future capital improvement programs, it is clear that Woodland and Davis have water rates substantially lower than most rates in California. Why are our rates so much lower? For many years, Woodland and Davis have been able to rely on earlier infrastructure investments and short-term solutions. We have made incremental progress in replacing failed and underperforming wells, drilling deeper into our groundwater aquifer, and conducting studies to help us decide on the best overall infrastructure investments for the long-term. Many other communities are further along the path toward making essential water infrastructure improvements, replacing pipelines, upgrading or building water treatment facilities, and other activities that are similar to this Project. Woodland, Davis, and UC Davis are at the point where major investments are now required.

Even with the new surface water system, we will still have to make further investments in our groundwater facilities as the old wells are replaced with new intermediate or deep aquifer wells. Further investment in groundwater infrastructure is essential, but sole reliance on groundwater in the future is simply not an option. It is clear that even if the region were to continue its sole reliance on groundwater, water rates would increase faster than inflation for the foreseeable future. And even with these rate increases, we would still not meet future salinity requirements for the treated wastewater discharges.

## Project Financing

While the Agency will continue to aggressively pursue state and federal funding, we face a great deal of competition for a limited amount of resources. Consequently, most of the costs for the Project are likely to be borne directly by water customers through issuance of 30-year revenue bonds, with the debt service repaid through water rates. This will require gradual increases in customer water rates, implemented by decisions of the Woodland and Davis City Councils based on local practice and as provided for by State law under Proposition 218, approved by California voters in 1996. Issuance of revenue bonds on an as-needed basis will allow the Agency to fund the Project while the cities incrementally increase water rates. The Agency will actively seek grant funding and low interest financing for the construction of all regional facilities to minimize rate impacts and decrease the size of revenue bonds.

Regional facility costs, including pre-design, design, and construction, will be split among the participants according to the amount of water supply capacity each will receive. Regional transmission piping between the treatment plant and Davis will be paid for by the City of Davis and UC Davis. The regional transmission pipeline between the treatment plant and Woodland will be paid for by the City of Woodland.







## IN SUMMARY

- The Project will provide a surface water supply from the Sacramento River for use within Woodland, Davis, and UC Davis to help meet forecasted water demands and expected water quality requirements through 2040.
- Treated surface water will supplement and largely replace current groundwater supplies. The supplies will be integrated as needed to meet current and future water quality requirements designed to protect public health and the environment. It will also improve regional water supply reliability.
- Treating drinking water supplies appears to be the only practical way to meet current and future water and wastewater quality requirements, regardless of the source of water supply.
- The Project includes increased water conservation above current levels and necessary improvements in the quality of source water supplies that will provide benefits to Woodland and Davis. Conservation alone will not meet the public health and environmental needs, but will reduce the amount of water required to be treated and delivered to our customers.
- The Agency has applied for new water right permits that, under California’s “area of origin” laws, will authorize the Agency to divert Sacramento River water during all but the driest conditions.
- Supplementary surface water in dry months will be purchased from willing sellers, identified as various agricultural water users in the Sacramento Valley, who will maintain irrigated agriculture by shifting more of their supply needs to groundwater or by implementing water conservation programs.
- The Project will take several years to implement and will significantly increase water rates. Nevertheless, it has been identified as the most feasible and cost-effective option to meet future water needs for Woodland, Davis and UC Davis.





WOODLAND - DAVIS  
Clean Water Agency

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