

# FOX CANYON GROUNDWATER MANAGEMENT AGENCY

A STATE OF CALIFORNIA WATER AGENCY



## BOARD OF DIRECTORS

Eugene F. West, **Chair**, Director, Camrosa Water District  
David Borchard, **Vice Chair**, Farmer, Agricultural Representative  
Steve Bennett, Supervisor, County of Ventura  
Charlotte Craven, Councilperson, City of Camarillo  
Robert Eranio, Director, United Water Conservation District

## EXECUTIVE OFFICER

Jeff Pratt, P.E.

## NOTICE OF MEETING

**NOTICE IS HEREBY GIVEN** that the Fox Canyon Groundwater Management Agency (FCGMA) will hold an **Operations Committee Meeting** at **2:00 p.m.** on **Monday, June 4, 2018** in the **Atlantic Conference Room**, at the Ventura County Government Center, Hall of Administration, Main Plaza at **800 South Victoria Avenue, Ventura, California**.

## FCGMA OPERATIONS COMMITTEE MEETING AGENDA

June 4, 2018

**Members:** Chair Steve Bennett  
Co-Chair Robert Eranio

### **A. Call to Order / Introductions**

**B. Public Comments** – Audience members may speak about FCGMA-related matters not on today's Agenda.

**C. Approval of Minutes** – Consider approval of minutes from the April 16, 2018 Operations Committee meeting

### **D. Agenda Review**

**E. NRCS Grant Implementation Update** – An update on the progress and next steps for AMI implementation and the Phase 2 of the Water Market Pilot.

**F. Water Supply and Infrastructure Projects** – Review and selection of projects submitted in response to Agency solicitation for inclusion in Groundwater Sustainability Plan forecasting of sustainable yield.

**G. Process Qualifying Flowmeter Calibration Certifiers** – Review and further define the process established within Resolution 2008-04 Section 2.A. for Agency to evaluate qualifications of interested parties to become an Agency approved calibration contractor.

### **H. Adjourn Operations Committee Meeting**

## NOTICES

*The FCGMA Board strives to conduct accessible, orderly, and fair meetings where everyone can be heard on the issues. The Board Chair will conduct the meeting and establish appropriate rules and time limitations for each item. The Board can only act on items designated as Action Items. Action items on the agenda are staff proposals and may be modified by the Board as a result of public comment or Board member input. Additional information about Board meeting procedures is included after the last agenda item.*

**Administrative Record:** Material presented as part of testimony will be made part of the Agency's record, and 10 copies should be left with the Board Clerk. This includes any photographs, slides, charts, diagrams, etc.

**ADA Accommodations:** Persons who require accommodation for any audio, visual, or other disability in order to review an agenda or to participate in the Board of Directors meeting per the Americans with Disabilities Act (ADA), may request such accommodation in writing addressed to the Clerk of the FCGMA Board, 800 South Victoria Avenue, Location #1610, Ventura, CA 93009-1610, or via telephone by calling (805) 654-2014. Any such request should be made at least 48 hours prior to the meeting so staff can make the necessary arrangements.

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**Availability of Complete Agenda Package:** A copy of the complete agenda package is available for examination at the FCGMA office during regular working hours (8:00 a.m. to 5:00 p.m. Monday through Friday) beginning five days before the Board meeting. Agenda packet contents are also posted on the FCGMA website as soon as possible, and left there for archival retrieval in case reference is needed on previously considered matters. Questions about specific items on the agenda should be directed to the Agency's Executive Officer.

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**Continuance of Items:** The Board will endeavor to consider all matters listed on this agenda. However, time may not allow the Board to hear all matters listed. Matters not heard at this meeting may be carried over to the next Board meeting or to a future Board meeting. Participating individuals or parties will be notified of the rescheduling of their item prior to the meeting. Please contact the FCGMA staff to find out about rescheduled items.

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**Electronic Information and Updates:** Visit <http://www.fcgma.org> (for home page information) or Facebook (for meeting updates). Information available online includes the Board's meeting schedule, a list of the Board members and staff, weather station data, general information, and various Agency forms. If you would like to speak to a staff member, please contact the Clerk of the Board at (805) 654-2014.

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## MINUTES

Minutes of the Fox Canyon Groundwater Management Agency's (FCGMA) Operations Committee meeting held **Monday, April 16, 2018 at 2:00 p.m.** in the Mediterranean Conference Room at the Ventura County Government Center, Hall of Administration, 800 South Victoria Avenue, Ventura California.

**Members:** Chair Steve Bennett  
Vice Chair Robert Eranio

### **A. Call to Order**

Chair Bennett called the meeting to order at

In attendance were: (1) Steve Bennett, FCGMA Operations Committee Chair; (2) Robert Eranio, FCGMA Operations Committee Vice Chair; (3) Arne Anselm, WPD, Deputy Director; (4) Kim Loeb, FCGMA, Groundwater Manager; (5) Alma Quezada, County of Ventura Groundwater Specialist; (6) Julia Dixon, Public Works Agency Central Services; (7) Kathleen Riedel, Groundwater Specialist; (8) Susan Pan, Ventura County Water Works District (VCWWD); (9) Matthew Fienup, California Lutheran University (CLU); (10) Bryan Bondy, Calleguas Municipal Water District (CMWD); (11) Brian Collings, United Water Conservation District; (12) Joe Deacon, City of Simi Valley; (13) Jared Bouchard, Pleasant Valley Mutual Water District; (14) Tony Morgan, consultant; (15) Jennifer Tribo, City of Ventura (16) Henry Graumlich, CMWD; (17) Steve Hammett, NBVC.

### **B. Public Comments**

There were no public comments.

### **C. Approval of Minutes**

Vice Chair Eranio made a motion to approve the minutes. Chair Bennett seconded the motion, and the motion was approved.

### **D. Agenda Review**

There were no changes made to the agenda.

### **E. Water Supply and Infrastructure Projects**

Kim Loeb presented the item's objective to identify and prioritize the projects for inclusion in the Groundwater Sustainability Plan (GSP) future scenario modeling. Projects to be included are those which are likely to be developed within the next 20 years. Future scenario models will project sustainable yield for a 50-year planning horizon under SGMA. It is not a selection of projects that will be funded by the agency, nor a commitment to fund and implement the projects, however the projects need to be viable with a reasonable likelihood of being implemented within the next 20

years. Criteria for inclusion on new projects are a reduction in demand, increase sustainable yield from the basin, or reduce impacts to sustainability indicators. The evaluation checklist from has been updated with the feedback from the last meeting. The group reviewed the checklist for appropriateness.

FCGMA staff currently do not have complete project information on proposed projects. The timeline and reasonable likelihood of implementation for inclusion was discussed. Director Eranio noted the modeling will take significant effort and the number of projects should be limited to viable projects, and requested project proponents provide an executive summary of their project. It was concluded the process should not be delayed, only robust projects with funding plans that will affect the sustainable yield of the basin should be included. Projects with less than a 50-year life-cycle can be considered, as long as the model reflects the limitations, and the responsibility for providing complete information belongs to the project proponents with review by the TAG as it relates to sustainable yield. Staff will release the request for projects by the end of the month. Project submittals are due by May 18<sup>th</sup>, and will be reviewed by the Committee at the June 4<sup>th</sup> meeting. Director Bennett requested the projects be uploaded to the website prior to the meeting. There will be other opportunities to submit projects, including after the GSP is final.

#### **F. NRCS Grant Implementation Update**

Arne Anselm introduced the three items to discuss:

##### **a. AMI Signups and Workshop update**

Alma Quezada reported over 80 attendees at the workshop on April 3<sup>rd</sup>. Post workshop there was a 25% increase in applications with many choosing to join the water market. 190 applications with 53 requesting to join the water market have been received, but not confirmed eligible. Flow meter calibration is the main reason for ineligibility.

##### **b. AMI incentives**

Arne Anselm clarified the NRCS grant is for a water market. The Nature Conservancy expressed the cost of water market participation should be covered by the grant. The committee approved.

##### **c. Grant requirements**

Arne Anselm shared the NRCS grant requires collecting information on the Environmental Quality Implementation Program (EQIP) eligibility. Applicants do not have to apply for EQIP or be EQIP eligible to receive grant funds, they only need to state if they are eligible, and if so, provide their taxpayer ID number.

#### **G. Calendar of Future Operations Committee Items**

Next meeting May 7, 2018. NRCS Grant and identifying projects for inclusion in the GSP will be principal items for future meetings. Upcoming agenda items include the June 4<sup>th</sup> discussion on projects submitted, and NRCS grant implementation. Future agenda items could include new meter calibration standards, smart meter implementation.

#### **H. Adjourn Operations Committee Meeting**

Chair Bennett adjourned the Operations Committee meeting at 2:56 p.m.

## Purchase of Imported Water from Calleguas Municipal Water District for Basin Replenishment

This replenishment activity involves purchase of imported water from Calleguas Municipal Water District (Calleguas) for the purpose of supplementing groundwater supplies by either direct basin recharge or “in lieu” delivery.

This activity is suitable for replenishment of basins or subbasins that are entirely within Calleguas’ service area boundaries. The only basins or subbasins that currently meet this requirement are the East/South Las Posas subbasins (referred to in the Las Posas Valley Basin GSP as the East Las Posas Management Area [ELPMA]).

The purchase of the imported water would be paid for by FCGMA and funded through replenishment fees paid by all pumpers in ELPMA.

- For injection, FCGMA would buy imported water from Calleguas and have it delivered into the basin through Calleguas’ aquifer storage and recovery wells in the East Las Posas Basin. This direct aquifer replenishment would increase the sustainable yield.
- For in lieu deliveries, FCGMA would reimburse a pumper the net cost to purchase imported water (cost to buy imported water minus the pumper’s normal cost of groundwater pumping and treatment, if any). ELPMA pumpers who have the ability to take direct delivery of water from Calleguas are Ventura County Waterworks District Nos. 1 & 19, Berylwood Heights Mutual Water Company, and Zone Mutual Water Company. The pumper would buy imported water from Calleguas and pump less, leaving the remaining available sustainable yield for all of the other pumpers to share. In addition, the imported water can be used to blend with saline groundwater to improve overall water quality for the end-users.

The method and location of replenishment would depend on a variety of factors:

- The need for replenishment in different portions of the ELPMA, as determined based on the sustainability criteria and groundwater conditions relative to those criteria;
- Willingness of potential in-lieu participants to use imported water in-lieu of pumping groundwater; and
- Total volume of replenishment needed to achieve the sustainability goal.

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

**BACKGROUND INFORMATION**

<b>Project Name</b>	Purchase of imported water from Calleguas MWD for Basin Replenishment using existing infrastructure
<b>Description</b>	Supplementation of GW supplies by either direct basin recharge via Calleguas ASR wells or by "in lieu" delivery
<b>Purpose of Project</b>	Water supply, infrastructure, water quality, etc. water supply, water quality
<b>Implementation Trigger</b> (if applicable)	
<b>Groundwater Basin</b>	East/South Las Posas
<b>Location</b>	East/South Las Posas Basin area
<b>Sponsoring Agency</b>	Calleguas MWD

EVALUATION CRITERIA	REVIEW
<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	No limit in most years
Sustainability indicators addressed (sub component of increase in SY)	1, 2, 4, 5, 6
Project has benefit in impacted area of basin	Yes
<b>Technical</b>	
Construction feasibility	No construction needed
Appropriateness of location	Yes
Ability to accomplish purpose	Yes
Life expectancy of project (for 50-year sustainable mangement modeling)	50 years
Level of uncertainty	Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	Complete
Will project likely be permitted? / Consistent with environmental regs	Yes
Sensitivity of location	None
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes
Consistent with planning agency regulations	Yes
Stakeholder support	Yes
<b>Permitting</b>	
Permits required	None
Status / time required	N/A
Likelihood of project being permitted	N/A
<b>Construction</b>	
Time table to implement	
<b>Operation and Maintenance</b>	
Description	Already being done by Calleguas
<b>Funding</b>	
Total capital cost	Part of Calleguas rate
Capital cost per AF/year produced	Part of Calleguas rate
Annual cost	Depends on quantity
Annual O&M cost per AF	\$1,528/AF (2018)
Funding source(s) - credible funding source	FCGMA Replenishment Fees
Likelihood of project being funded	Depends on FCGMA
Timeline to secure funding	Depends on FCGMA
<b>Project Status</b>	No project required
<b>Estimated Time to Project Completion</b>	No project required

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

BACKGROUND INFORMATION	
<b>Project Name</b>	Aquifer Storage and Recovery (ASR)
<b>Description</b>	Demonstration well project
<b>Purpose of Project</b>	Water supply, infrastructure, water quality, etc. water supply
<b>Implementation Trigger (if applicable)</b>	NA
<b>Groundwater Basin</b>	Oxnard Sub-Basin
<b>Location</b>	Campus Park (Corner of Fifth and H Streets)
<b>Sponsoring Agency</b>	City of Oxnard

EVALUATION CRITERIA	REVIEW
<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	3,500
Sustainability indicators addressed (sub component of increase in SY)	
Project has benefit in impacted area of basin	Yes
<b>Technical</b>	
Construction feasibility	Yes
Appropriateness of location	Yes
Ability to accomplish purpose	Yes
Life expectancy of project (for 50-year sustainable mangement modeling)	50-Year
Level of uncertainty	Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	Completed
Will project likely be permitted? / Consistent with environmental regs	Yes
Sensitivity of location	NA
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes
Consistent with planning agency regulations	Yes
Stakeholder support	Yes
<b>Permitting</b>	
Permits required	Yes
Status / time required	Pending - Public hearing
Likelihood of project being permitted	High
<b>Construction</b>	
Time table to implement	Two-Years
<b>Operation and Maintenance</b>	
Description	Oxnard Water Div. Staff
<b>Funding</b>	
Total capital cost	
Capital cost per AF/year produced	NA
Annual cost	
Annual O&M cost per AF	
Funding source(s) - credible funding source	
Likelihood of project being funded	High
Timeline to secure funding	
<b>Project Status</b>	In Construction
<b>Estimated Time to Project Completion</b>	2020

\* This project provides a place to store and reuse water generated by the AWPF. It does not create a new water source.

## **Project Name**

**Groundwater Replenishment and Reuse Project - Aquifer Storage and Recovery (ASR)**

## **Description of Project**

The purpose of this project is to store high quality recharged (recycled) water in over-pumped LAS aquifer zones for use later, resulting in elevated water levels during the recharge and storage periods.

Initially, this project involves a demonstration well to inject purified recycled water from the City's AWP into the groundwater aquifer for recharge. The recharged water is then held for a period of time and monitored to ensure the recharged water does not migrate to off-site potable water wells. The demonstration project includes the recycled water injection, monitoring and water quality testing as required by the State regulators. Upon demonstration the recharge water meets all of the requirements, the water may be extracted. Ultimately, the same well could also be used to pump the water stored below ground to supplement the City's potable water supply.

Following the initial demonstration, this ASR project involves the construction and installation of two additional wells and associated piping located near the demonstration well. The additional wells will be placed in different aquifers so they can operate concurrently. For example, while one well is injected with recharge water, another well is holding previously injected recharge water and the third well is used to extract recharge water that has met the regulatory holding and water quality requirements. The additional wells are intended provide flexibility, thereby allowing the City to maximize groundwater recharge.



**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

<b>BACKGROUND INFORMATION</b>	
<b>Project Name</b>	GREAT Program Advanced Water Purification Facility (AWPF)
<b>Description</b>	The AWPF treats secondary effluent (currently discharged to the ocean) to produce high-quality recycled water.
<b>Purpose of Project</b>	Water supply, infrastructure, water quality, etc. Water Supply, Water Quality
<b>Implementation Trigger</b> (if applicable)	NA
<b>Groundwater Basin</b>	Oxnard Sub-Basin
<b>Location</b>	5700 S. Perkins Road, Oxnard, CA 93033
<b>Sponsoring Agency</b>	City of Oxnard

<b>EVALUATION CRITERIA</b>	<b>REVIEW</b>
<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	7000 AF/year
Sustainability indicators addressed (sub component of increase in SY)	Promote Sustainable WLS
Project has benefit in impacted area of basin	Yes
<b>Technical</b>	
Construction feasibility	Yes
Appropriateness of location	Yes
Ability to accomplish purpose	Yes
Life expectancy of project (for 50-year sustainable management modeling)	50-year
Level of uncertainty	Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	Completed
Will project likely be permitted? / Consistent with environmental regs	Yes
Sensitivity of location	NA
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes
Consistent with planning agency regulations	Yes
Stakeholder support	Yes
<b>Permitting</b>	
Permits required	Permit Obtained
Status / time required	2011
Likelihood of project being permitted	High
<b>Construction</b>	
Time table to implement	Construction Complete
<b>Operation and Maintenance</b>	
Description	Currently in Operation
<b>Funding</b>	
Total capital cost	\$90 to \$100 million
Capital cost per AF/year produced	NA*
Annual cost	\$8 million*
Annual O&M cost per AF	\$300
Funding source(s) - credible funding source	City Bonds/Federal Grant
Likelihood of project being funded	High
Timeline to secure funding	NA
<b>Project Status</b>	Complete
<b>Estimated Time to Project Completion</b>	NA

\* The AWPF is designed for expansion, i.e. infrastructure in place for expansion to 28,000 AF/year.

## **Project Name**

**GREAT (Groundwater Recovery Enhancement and Treatment) Program Advanced Water Purification Facility (AWPF)**

## **Description of Project**

The purpose of this project is to provide high-quality recycled water for use within the City of Oxnard, the Oxnard Subbasin, and the Pleasant Valley Subbasin in lieu of pumping groundwater. The City of Oxnard's Advanced Water Purification Facility (AWPF) is a part of the City of Oxnard's Groundwater Recovery Enhancement and Treatment (GREAT) program, which focuses on using existing water resources more efficiently. As the key project of the GREAT program, the AWPF provides the City with a reclaimed water source that can be used for landscape irrigation, agricultural, industrial process water, and groundwater recharge. The AWPF is designed to initially treat approximately 8 to 9 million gallons per day (mgd) of secondary effluent from the Oxnard Wastewater Treatment Plant (OWTP) and produce 6.25 mgd (7,000 AFY) of product water for reclaimed water uses with infrastructure in place to ultimately produce 25 mgd (28,000 AFY) of product water for reuse. The main treatment processes consist of: microfiltration (MF), reverse osmosis (RO), and ultraviolet disinfection using advanced oxidation (UV/AOP).

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

BACKGROUND INFORMATION	
<b>Project Name</b>	AWPF Expansion
<b>Description</b>	Provide additional equipment to increase production of recycled water
<b>Purpose of Project</b>	Water supply, infrastructure, water quality, etc. Water Supply, Water Quality
<b>Implementation Trigger</b> (if applicable)	Increase in recycled water demand and availability of source water
<b>Groundwater Basin</b>	Oxnard and Pleasant Valley Sub-Basins
<b>Location</b>	5700 South Perkins Road, Oxnard, CA 93033
<b>Sponsoring Agency</b>	City of Oxnard

EVALUATION CRITERIA	REVIEW
<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	10,500 -28,000
Sustainability indicators addressed (sub component of increase in SY)	Promote sustainable WLS
Project has benefit in impacted area of basin	Yes
<b>Technical</b>	
Construction feasibility	Yes
Appropriateness of location	Yes
Ability to accomplish purpose	Yes
Life expectancy of project (for 50-year sustainable management modeling)	50-year
Level of uncertainty	High
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	Completed
Will project likely be permitted? / Consistent with environmental regs	Yes
Sensitivity of location	NA
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes
Consistent with planning agency regulations	Yes
Stakeholder support	Yes
<b>Permitting</b>	
Permits required	Already Permitted
Status / time required	NA
Likelihood of project being permitted	High
<b>Construction</b>	
Time table to implement	1-year
<b>Operation and Maintenance</b>	
Description	Oxnard Water Staff
<b>Funding</b>	
Total capital cost	TBD
Capital cost per AF/year produced	TBD
Annual cost	TBD
Annual O&M cost per AF	TBD
Funding source(s) - credible funding source	TBD
Likelihood of project being funded	Med
Timeline to secure funding	TBD
<b>Project Status</b>	Pending
<b>Estimated Time to Project Completion</b>	Varies

## **Project Name**

**GREAT (Groundwater Recovery Enhancement and Treatment) Program AWPf (Advanced Water Purification Facility) Expansion**

## **Description of Project**

The purpose of this project is to increase the production of high-quality recycled water for use within the City of Oxnard, the Oxnard Subbasin, and Pleasant Valley Subbasin.

This project is for expansion of the AWPf to provide additional reclaimed water for the use within the basin: for basin recharge, for in lieu of pumping groundwater, or for indirect potable reuse. The AWPf expansion is predicated on the availability of secondary effluent from the Oxnard Wastewater Treatment Plant (OWTP), or other available and appropriate source water. The main project components include purchase and installation of additional MF, RO and UV/AOP equipment and construction of influent flow equalization facilities. Expansion of the AWPf could occur in multiple Phases dictated by the availability of source water, recycled water uses and needs, and project funding.

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

BACKGROUND INFORMATION	
<b>Project Name</b>	Hueneme Road Recycled Water Pipeline Extension
<b>Description</b>	Extend existing recycled water pipeline from Olds Road to Wood Road
<b>Purpose of Project</b>	Water supply, infrastructure, water quality, etc. Water Supply and Infrastructure
<b>Implementation Trigger (if applicable)</b>	NA
<b>Groundwater Basin</b>	Oxnard and Pleasant Valley Sub-Basins
<b>Location</b>	Hueneme Road
<b>Sponsoring Agency</b>	City of Oxnard

EVALUATION CRITERIA	REVIEW
<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	NA
Sustainability indicators addressed (sub component of increase in SY)	Promote Sustainable WLs
Project has benefit in impacted area of basin	Yes
<b>Technical</b>	
Construction feasibility	Yes
Appropriateness of location	Yes
Ability to accomplish purpose	Yes
Life expectancy of project (for 50-year sustainable mangement modeling)	50-year
Level of uncertainty	Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	Complete
Will project likely be permitted? / Consistent with environmental regs	Yes
Sensitivity of locaticn	NA
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes
Consistent with planning agency regulations	Yes
Stakeholder support	Yes
<b>Permitting</b>	
Permits required	Yes/Encroachment
Status / time required	Pending
Likelihood of project being permitted	High
<b>Construction</b>	
Time table to implement	1-Year
<b>Operation and Maintenance</b>	
Description	Oxnard Water Div. Staff
<b>Funding</b>	
Total capital cost	\$14,000,000
Capital cost per AF/year produced	NA
Annual cost	NA
Annual O&M cost per AF	NA
Funding source(s) - credible funding source	
Likelihood of project being funded	High
Timeline to secure funding	Funding Secured
<b>Project Status</b>	In Progress
<b>Estimated Time to Project Completion</b>	2019

\* Project can potentially meet multiple sustainability goals, including no seawater intrusion, no net subsidence, etc.

## **Project Name**

**East Recycled Water Distribution System - Hueneme Road Recycled Water Pipeline Extension**

## **Description of Project**

The purpose of this project is to provide infrastructure to convey high-quality recycled wastewater to the heavily pumped areas of the Oxnard and Pleasant Valley Subbasins.

In 2015, the California Regional Water Quality Control Board granted the City of Oxnard a temporary use permit to convey recycled water via the Calleguas Regional Salinity Management Pipeline (RSMP) to Pleasant Valley County Water District (PVCWD) to offset the loss of agricultural water due to the extended drought. The temporary use permit is due to expire in 2019. Since 2016, the City of Oxnard has delivered more 700 million gallons of recycled water to the Oxnard and Pleasant Valley Subbasins. The City has constructed one segment of the recycled water conveyance pipeline along Hueneme Road. This project is for construction of the second segment of the recycled water conveyance pipeline. The second segment of the recycled water pipeline (36 inches in diameter) is three (3) miles in length and runs along Hueneme Road from Olds Road to Wood Road.

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

BACKGROUND INFORMATION	
<b>Project Name</b>	AWPF Source Water Evaluation - Stormwater Capture
<b>Description</b>	Investigate use of Dry Weather and Wet Weather stormwater as a source water for recycling
<b>Purpose of Project</b>	Water supply, infrastructure, water quality, etc. Water Supply
<b>Implementation Trigger (if applicable)</b>	NA
<b>Groundwater Basin</b>	Oxnard Sub-Basin
<b>Location</b>	South Oxnard
<b>Sponsoring Agency</b>	City of Oxnard

EVALUATION CRITERIA	REVIEW
<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	1,000 to 2,000
Sustainability indicators addressed (sub component of increase in SY)	Promote sustainable WLs
Project has benefit in impacted area of basin	Yes
<b>Technical</b>	
Construction feasibility	Yes
Appropriateness of location	Yes
Ability to accomplish purpose	Yes
Life expectancy of project (for 50-year sustainable management modeling)	50-year
Level of uncertainty	High
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	Following Investigation
Will project likely be permitted? / Consistent with environmental regs	Yes
Sensitivity of location	NA
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes
Consistent with planning agency regulations	Yes
Stakeholder support	Yes
<b>Permitting</b>	
Permits required	VC Flood Control
Status / time required	Following Investigation
Likelihood of project being permitted	Med
<b>Construction</b>	
Time table to implement	1-2 years
<b>Operation and Maintenance</b>	
Description	Oxnard Water Div. Staff
<b>Funding</b>	
Total capital cost	TBD
Capital cost per AF/year produced	TBD
Annual cost	TBD
Annual O&M cost per AF	TBD
Funding source(s) - credible funding source	TBD
Likelihood of project being funded	Med
Timeline to secure funding	NA
<b>Project Status</b>	Ongoing
<b>Estimated Time to Project Completion</b>	December 2018

## **Project Name**

**AWPF Source Water Evaluation - Stormwater Capture**

## **Description of Project**

The purpose of this project is to investigate stormwater as a source water for treatment at the AWPF. This potential project would include stormwater diversion, collection and storage.

This additional source water could be blended with secondary effluent from the Oxnard Wastewater Treatment Plant (OWTP) and used to produce high-quality recycled wastewater for agricultural, irrigation, industrial process water, indirect potable reuse, groundwater injection and/or delivery to the heavily pumped areas of the Oxnard and Pleasant Valley Subbasins. This project has the potential to add water that would otherwise be lost to the ocean into the Basins.





## **ANACAPA PROJECT**

The “Anacapa Project” proposes to pump “excess” groundwater from the Upper Aquifer System (UAS) in the northwest Oxnard Plain at opportune times for distribution to other areas in the basin where overdraft exists. The Anacapa Project would increase the yield of the Oxnard Plain basin by modifying the distribution of groundwater pumping in times when groundwater elevations are high in the area west of the Oxnard Forebay. Artesian conditions have been observed in the project area following successive wet years. The project would not operate during times of drought.

The aquifers underlying the northwest portion of the Oxnard Plain groundwater basin are known to extend 4 - 5 miles offshore. During wet or normal precipitation cycles, water levels are commonly above sea level in this portion of the basin, which is located west of the Forebay where most recharge occurs. This area could be used for increased groundwater production, as groundwater not captured (i.e., pumped) will flow past the coastline and into the offshore portions of the aquifers and eventually discharge to the Pacific Ocean. Groundwater in storage in offshore areas is believed to be fresh, as onshore gradients historically have been uncommon in this part of the basin. Groundwater extraction in this area would be managed to reduce offshore gradients.

Key infrastructure components of the Anacapa Project would likely include: (1) An extraction well field located near the coastline in the northwest portion of the Oxnard Plain basin; (2) Pipeline(s) to convey the pumped groundwater from the extraction wells to points of use; and (3) A network of monitoring wells to observe the groundwater gradient in and around the extraction well field. Arrangements could potentially be made with land owners to use existing wells in the project area, if the proposed use of the water is not for potable supply.

Pipelines to convey produced water to areas of use likely represents the most expensive element of this proposed project. Recent local cost estimates for construction of 36-inch diameter pipeline are \$1,354/ft in paved roadways and 646/ft in agricultural fields. Direct delivery to the City of Oxnard’s potable system is the closest potential user, although this would preclude the use of existing wells and would require the construction of new wells to State Water Resources Control Board Division of Drinking Water standards. Alternately, produced water could be conveyed to the El Rio Groundwater Recharge facility for groundwater recharge and dilution of high nitrate concentrations that are sometimes an issue, although nitrate concentrations are generally less of a problem under wetter climatic conditions. Produced water could also be distributed to the Pumping Trough Pipeline which serves agricultural users in the area east of the City of Oxnard and (primarily) south of Hwy 101. UAS groundwater quality in the project area is generally comparable to other areas of the Oxnard Plain and the Forebay.

Additional work remains to be done to better assess project costs, feasibility, and the frequency of basin conditions that would allow operation of the project. Groundwater modeling will be required to predict how much groundwater could be extracted from the aquifers without inducing sea water intrusion and without unduly impacting existing wells in the area. Groundwater flow modeling will also assist in identifying areas for water delivery to optimize yield of the Oxnard Plain basin. Target yield from the project is estimated at 3,000 – 5,000 AF/Y. Reduced yield from the Freeman Diversion due to regulatory restraints or drier climatic conditions would reduce the frequency of healthy basin conditions required for operation of the project.

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

**BACKGROUND INFORMATION**

**Project Name** \_\_\_\_\_

**Description** \_\_\_\_\_

**Purpose of Project** \_\_\_\_\_  
 Water supply, infrastructure, water quality, etc.

**Implementation Trigger** (if applicable) \_\_\_\_\_

**Groundwater Basin** \_\_\_\_\_

**Location** \_\_\_\_\_

**Sponsoring Agency** \_\_\_\_\_

<b>EVALUATION CRITERIA</b>	<b>REVIEW</b>
----------------------------	---------------

<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	
Sustainability indicators addressed (sub component of increase in SY)	
Project has benefit in impacted area of basin	Yes / No
<b>Technical</b>	
Construction feasibility	Yes / No
Appropriateness of location	Yes / No
Ability to accomplish purpose	Yes / No
Life expectancy of project (for 50-year sustainable mangement modeling)	
Level of uncertainty	High / Med / Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	
Will project likely be permitted? / Consistent with environmental regs	Yes / No
Sensitivity of location	
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes / No
Consistent with planning agency regulations	Yes / No
Stakeholder support	Yes / No
<b>Permitting</b>	
Permits required	
Status / time required	
Likelihood of project being permitted	High / Med / Low
<b>Construction</b>	
Time table to implement	
<b>Operation and Maintenance</b>	
Description	
<b>Funding</b>	
Total capital cost	
Capital cost per AF/year produced	
Annual cost	
Annual O&M cost per AF	
Funding source(s) - credible funding source	
Likelihood of project being funded	High / Med / Low
Timeline to secure funding	
<b>Project Status</b>	
<b>Estimated Time to Project Completion</b>	



## **BRACKISH WATER TREATMENT, SOUTHERN OXNARD PLAIN**

Broad areas of the Upper Aquifer System (UAS) in the southern Oxnard Plain are impaired by poor-quality groundwater, related to past episodes of seawater intrusion and subsequent dispersal by regional groundwater flow patterns. This degraded water could be desalted and put to beneficial use. Local water managers have struggled for decades to maintain seaward groundwater gradients in the coastal areas surrounding the near-shore Hueneme and Mugu submarine canyons, especially during times of drought. Injection barriers have been proposed to protect inland areas from further saline intrusion, but adequate water supplies to feed a network of injection wells have never been identified. Hydraulic control in coastal areas can also be achieved by means of an extraction barrier. Pumping from an extraction well field near the coast could be managed to produce a large pumping depression, creating a seaward groundwater gradient in areas inland of the well field, while causing additional seawater intrusion in areas closer to the coast. In the early years of operation local brackish water would be extracted and treated. In later years of operation groundwater production could be shifted towards the coast near Hueneme Canyon, where produced water would be a blend of induced seawater intrusion and fresh or brackish groundwater from areas inland of the extraction barrier wells. Seawater intrusion would intensify in the area seaward of the extraction wells, but the overall extent of brackish water on the southern Oxnard Plain would be reduced. Permitting issues for this approach for desalting seawater are greatly simplified compared to projects that include open ocean intakes.

In 2014 United Water Conservation District contracted with Carollo Engineers to conduct a feasibility study for the pumping and treatment of brackish groundwater in the area south of Hueneme Road on the southern Oxnard Plain. The study contemplated a well field of up to 12 UAS wells in the area surrounding the southern portions of Edison Road and Arnold Road. Samples from monitoring wells in the study area showed an average total dissolved solids (TDS) concentration of 6,400 mg/l, and a “worst-case” TDS of 10,000 mg/l was also considered, as membrane selection and power costs change with varying water quality. Membrane efficiency was expected to range from 72-80%. Produced water would have a TDS concentration of less than 600 mg/l and chloride concentration of less than 50 mg/l. The feasibility study confirmed the following basic technical elements that are key for the development of a successful groundwater desalter project: (1) There is an adequate supply of raw water, as the groundwater extraction facilities would be located in an area currently impacted by salt water intrusion. The proximity to the ocean means the aquifer would be replenished by sea water; (2) A desalter in the project area is technically feasible, as the water quality and raw water availability are suitable for a desalter facility; (3) A viable waste brine disposal option currently exists, as the Salinity Management Pipeline constructed by Calleguas Municipal Water District is located nearby; (4) Potential customers exist nearby (both agricultural and municipal/industrial); and (5) Cost estimates suggest this is a viable option for long-term water supply, as the costs are competitive with other brackish water treatment projects in Southern California and are similar to current State Water Project supplies.

Cost for treated water from a brackish water treatment facility, including wells and connections to the Pumping Trough Pipeline (PTP) and Pleasant Valley County Water District delivery systems, were estimated in 2014. For a 10,000 acre-feet per year (AFY) facility, capital costs were estimated at \$85 million, with operating costs of \$650 - \$820 per acre-foot (AF), resulting total costs of \$1,110 - \$1,280 per AF. To produce 20,000 AFY, facility capital costs were estimated at \$148 million, with operating costs of \$600 - \$730 per AF, resulting total water costs of \$1,000 - \$1,130 per AF. Brine disposal rates for agricultural use were used for these estimates. Land costs for the plant site and wells were not included. Approximately 3 acres would be required for a 20,000 AFY facility, and a 10,000 AFY facility would require 2 acres.

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

**BACKGROUND INFORMATION**

**Project Name** \_\_\_\_\_

**Description** \_\_\_\_\_

**Purpose of Project** \_\_\_\_\_  
 Water supply, infrastructure, water quality, etc.

**Implementation Trigger** (if applicable) \_\_\_\_\_

**Groundwater Basin** \_\_\_\_\_

**Location** \_\_\_\_\_

**Sponsoring Agency** \_\_\_\_\_

<b>EVALUATION CRITERIA</b>	<b>REVIEW</b>
----------------------------	---------------

<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	
Sustainability indicators addressed (sub component of increase in SY)	
Project has benefit in impacted area of basin	Yes / No
<b>Technical</b>	
Construction feasibility	Yes / No
Appropriateness of location	Yes / No
Ability to accomplish purpose	Yes / No
Life expectancy of project (for 50-year sustainable mangement modeling)	
Level of uncertainty	High / Med / Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	
Will project likely be permitted? / Consistent with environmental regs	Yes / No
Sensitivity of location	
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes / No
Consistent with planning agency regulations	Yes / No
Stakeholder support	Yes / No
<b>Permitting</b>	
Permits required	
Status / time required	
Likelihood of project being permitted	High / Med / Low
<b>Construction</b>	
Time table to implement	
<b>Operation and Maintenance</b>	
Description	
<b>Funding</b>	
Total capital cost	
Capital cost per AF/year produced	
Annual cost	
Annual O&M cost per AF	
Funding source(s) - credible funding source	
Likelihood of project being funded	High / Med / Low
Timeline to secure funding	
<b>Project Status</b>	
<b>Estimated Time to Project Completion</b>	



## Freeman Expansion Project

**Background:** UWCD acquired the Ferro (approx. 180 acres) and Rose (approx. 90 acres) properties from Vulcan Materials in 2009. Both basins are former gravel mines and located adjacent to UWCD's Noble Basin recharge facility. The Freeman Expansion Project is proposed as the yield of the Freeman Diversion has been reduced as more restrictive environmental regulatory requirements have lessened the amount of Santa Clara River surface water available for aquifer recharge and direct delivery to growers. The project proposes facilities capable of diverting higher flows when the river is carrying high levels of suspended sediment, flows that have not been diverted historically. Both regulatory agencies and NGOs have encouraged the district to take advantage of these high flows when fish migration opportunity is less of a concern.

**Description of Project:** Increase capacity of UWCD's existing diversion and groundwater recharge system, benefitting the basins of the Oxnard coastal plain by expanding and extending water conveyance and retention features of the reclaimed Rose and Ferro aggregate mining pits. The project will include modification and expansion of existing fish screens, high-capacity conveyance to the Ferro basin, and modifications to the existing desilting basin. The increase in diversion capacity will require a new water right.

**Benefits of Project:** The Freeman Expansion Project will be a valuable facility for managing limited water resources while balancing the needs of various users. Groundwater recharge activities improve the water quality of the basin. The current diversion and conveyance canals are a gravity system and the project will not significantly increase energy consumption to deliver water. Replenishing the groundwater basins also reduces pump lift, thereby reducing energy consumption for municipal and agricultural pumpers. The project is proposed to be built in phases, with the ultimate build out expected to allow an additional 7,400 AF of diversions over United's current operations.

**Project Cost:** There will be an application fee of approximately \$500,000 for increasing United's instantaneous water delivery rate from 375 cfs to 750 cfs. Improvements to the inlet, fish screens and conveyance system are estimated to cost \$31,000,000. Construction can be phased to spread out the timing of project costs.

**Projected Timeline:** Previous reports have been reviewed and this project has been selected for inclusion in the District's Habitat Conservation Plan (HCP). District is investigating potential yields and operational burdens from diverting storm flows with higher sediment loads in excess of current operating limits. The required modifications to the existing conveyance system needed to deliver highly-turbid water to the Ferro and Rose basins have been analyzed. Remaining tasks include environmental review; engineering design; permitting; and construction. It is estimated that processing of the application for an increased water right can take anywhere from 2 to 10 years.

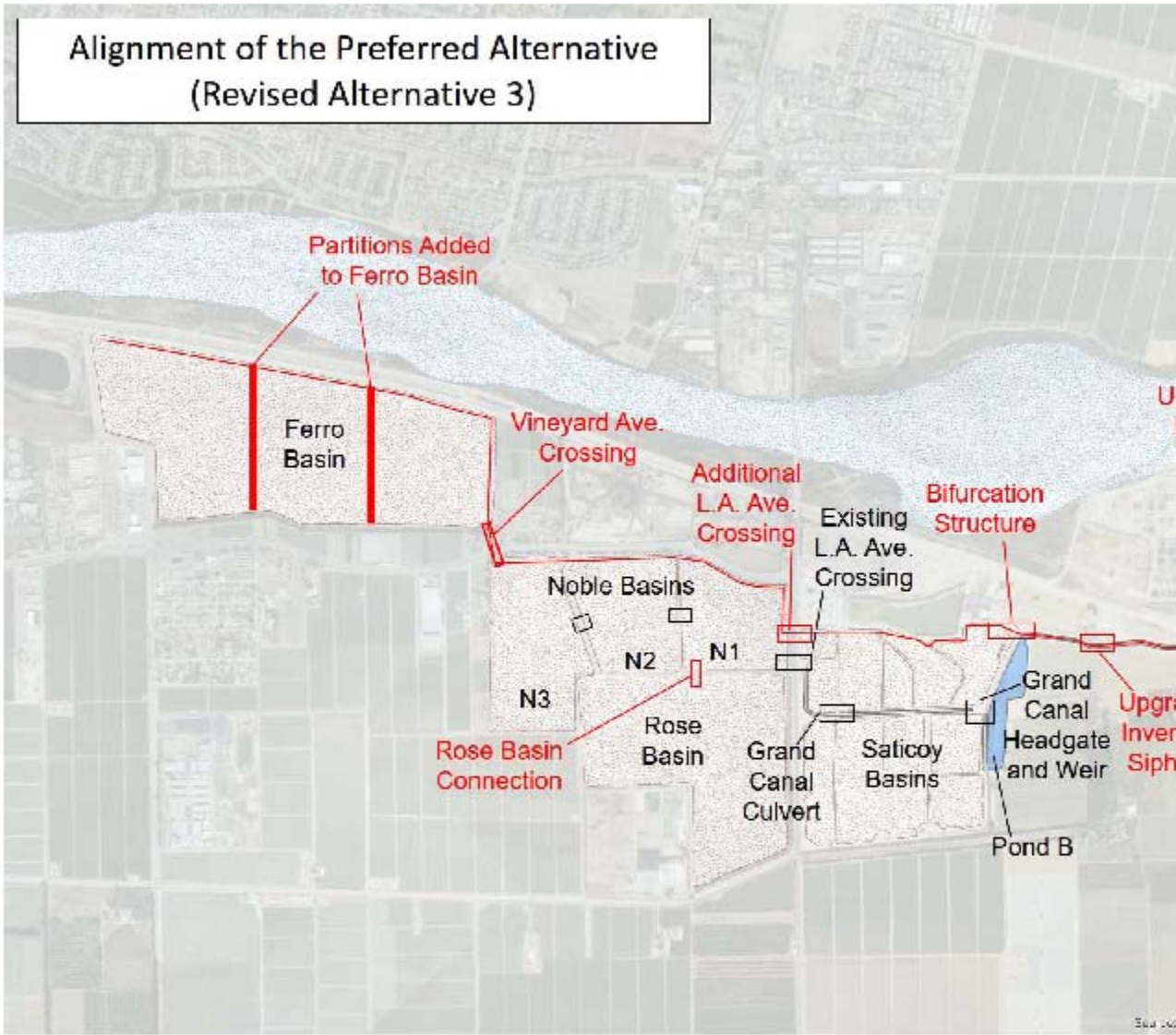


Figure 50 Alignment of the preferred alternative

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

**BACKGROUND INFORMATION**

**Project Name** \_\_\_\_\_

**Description** \_\_\_\_\_

**Purpose of Project** \_\_\_\_\_  
 Water supply, infrastructure, water quality, etc.

**Implementation Trigger** (if applicable) \_\_\_\_\_

**Groundwater Basin** \_\_\_\_\_

**Location** \_\_\_\_\_

**Sponsoring Agency** \_\_\_\_\_

<b>EVALUATION CRITERIA</b>	<b>REVIEW</b>
----------------------------	---------------

<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	
Sustainability indicators addressed (sub component of increase in SY)	
Project has benefit in impacted area of basin	Yes / No
<b>Technical</b>	
Construction feasibility	Yes / No
Appropriateness of location	Yes / No
Ability to accomplish purpose	Yes / No
Life expectancy of project (for 50-year sustainable management modeling)	
Level of uncertainty	High / Med / Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	
Will project likely be permitted? / Consistent with environmental regs	Yes / No
Sensitivity of location	
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes / No
Consistent with planning agency regulations	Yes / No
Stakeholder support	Yes / No
<b>Permitting</b>	
Permits required	
Status / time required	
Likelihood of project being permitted	High / Med / Low
<b>Construction</b>	
Time table to implement	
<b>Operation and Maintenance</b>	
Description	
<b>Funding</b>	
Total capital cost	
Capital cost per AF/year produced	
Annual cost	
Annual O&M cost per AF	
Funding source(s) - credible funding source	
Likelihood of project being funded	High / Med / Low
Timeline to secure funding	
<b>Project Status</b>	
<b>Estimated Time to Project Completion</b>	



## Purchase of State Water Project (SWP) Water Imports

**Background:** United Water Conservation District (UWCD) is one of three Ventura County agencies that make up the Ventura County Watershed Protection District (VCWPD) State Water Contractors group. The other two agencies are the City of Ventura (City) and Casitas Municipal Water District (CMWD). The VCWPD group has a contract with the State of California Department of Water Resources (DWR) for 20,000 acre feet allocation of State Water Project (SWP) Table A water designated to the VCWPD members in varying amounts. The City has 10,000 acre feet of entitlement, and CMWD and UWCD each have 5,000 acre feet of entitlement. The City and CMWD currently do not have a method of directly receiving their respective entitlements, and over the past several years have “turned back” their entitlements to the DWR SWP pool. UWCD is capable of receiving its entire SWP Table A water entitlement and more via Castaic Lake and the Santa Clara River or via Pyramid Lake to Lake Piru for release to the Santa Clara River for groundwater recharge. For over twenty years, UWCD has taken its entitlement every year, except in very wet years when purchase of the entitlement could not be fully utilized for recharging local aquifers. A more efficient means for conveyance of this resource could be achieved through the ASAPP Pipeline project that is concurrently being submitted by UWCD along with this proposed increased purchase of imported SWP water.

**Description of Project:** Purchase of additional SWP water by the Fox Canyon Groundwater Management Agency (FCGMA) would provide additional imported water supply for southern Ventura County, and in particular the Oxnard Plain. The acquisition of additional SWP water can be accomplished by purchasing the unused Table A entitlements of the City and CMWD, which cannot currently be delivered to the two agencies; purchasing or transferring unused SWP Table A water from a SWP contractor outside of the VCWPD group; purchasing SWP Turn Back Pool water; purchasing SWP Article 21 water; or purchasing SWP water through other DWR programs, when available. The purchased water would be delivered to the Santa Clara River groundwater basins and the Oxnard Plain groundwater basins via Pyramid or Castaic Lakes.

**Benefits of Project:** The Piru, Fillmore, Santa Paula, Mound, Oxnard Plain, and Pleasant Valley groundwater basins are interconnected. The purchase of additional SWP water would be delivered through the groundwater basins mentioned above and benefit the Oxnard Plain basin located within the FCGMA boundaries. Importing additional water into the region would help mitigate seawater intrusion. Groundwater quality would also be improved by diluting chlorides and nitrates in the basins. The purchase of the City’s and CMWD’s unused SWP Table A entitlements would allow SWP Table A water that has been designated for Ventura County to be delivered into Ventura County groundwater basins. This project would be exclusive of UWCD’s current SWP Table A entitlement that benefits all UWCD customers.

**Estimated Cost:** Estimated cost for the purchase of City and CMWD SWP Table A entitlements would be approximately \$1.70 million dollars per year for fixed costs, plus average variable costs of \$1.71 million dollars per year per 5,000 AF for SWP Table A water delivered, based on projected costs from 2019 to 2038. Costs for other SWP program water would be dependent on SWP water type and quantity to be purchased for a particular year.

**Projected Timeline:** Potential implementation could begin as early as 2019 and the purchase of the City and CMWD SWP Table A water entitlements could continue until such time that construction of an interconnection pipeline from Calleguas MWD could be completed to directly convey the City’s and CMWD’s SWP Table A water entitlements.



**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

**BACKGROUND INFORMATION**

**Project Name** \_\_\_\_\_

**Description** \_\_\_\_\_

**Purpose of Project** \_\_\_\_\_  
 Water supply, infrastructure, water quality, etc.

**Implementation Trigger** (if applicable) \_\_\_\_\_

**Groundwater Basin** \_\_\_\_\_

**Location** \_\_\_\_\_

**Sponsoring Agency** \_\_\_\_\_

<b>EVALUATION CRITERIA</b>	<b>REVIEW</b>
----------------------------	---------------

<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	
Sustainability indicators addressed (sub component of increase in SY)	
Project has benefit in impacted area of basin	Yes / No
<b>Technical</b>	
Construction feasibility	Yes / No
Appropriateness of location	Yes / No
Ability to accomplish purpose	Yes / No
Life expectancy of project (for 50-year sustainable mangement modeling)	
Level of uncertainty	High / Med / Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	
Will project likely be permitted? / Consistent with environmental regs	Yes / No
Sensitivity of location	
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes / No
Consistent with planning agency regulations	Yes / No
Stakeholder support	Yes / No
<b>Permitting</b>	
Permits required	
Status / time required	
Likelihood of project being permitted	High / Med / Low
<b>Construction</b>	
Time table to implement	
<b>Operation and Maintenance</b>	
Description	
<b>Funding</b>	
Total capital cost	
Capital cost per AF/year produced	
Annual cost	
Annual O&M cost per AF	
Funding source(s) - credible funding source	
Likelihood of project being funded	High / Med / Low
Timeline to secure funding	
<b>Project Status</b>	
<b>Estimated Time to Project Completion</b>	



## **RiverPark-Saticoy Recycled Water/Groundwater Replenishment Reuse Project (GRRP)**

**Background:** The City of Oxnard (Oxnard) produces recycled water from its Advanced Water Purification Facility (AWPF) located at 5700 Perkins Road. Secondary treated wastewater from Oxnard's Wastewater Treatment Plant (OWTP) undergoes microfiltration, reverse osmosis, hydrogen peroxide/ultraviolet treatment for disinfection, and degasification/lime addition for stabilization. This multi-step process removes a high level of bacteria, inorganic and organic compounds, protozoa, turbidity, and viruses. The current production capacity of the AWPF is 6.25 million gallons per day (mgd) or 7,000 acre-feet per year (ac-ft/yr) and may be expanded in the future.

In 2016, Oxnard completed the northern-most portion of its 9.5 mile north-south Recycled Water Backbone (RWB) pipeline, which terminates in the large RiverPark development adjacent to the Santa Clara River and north of U.S. Route 101. The RWB pipeline is currently delivering, or projected to deliver, recycled water to the River Ridge Golf Club, RiverPark Development, and Oxnard's Aquifer Storage and Recovery program. Separate pipelines are currently delivering recycled water to Southland Sod, Reiter Affiliated Companies, and New Indy Containerboard.

United Water Conservation District (UWCD) owns and operates the Saticoy Groundwater Recharge facility (Saticoy, Noble, Rose and Ferro basins) and the El Rio Groundwater Recharge facility, located north and east of the RiverPark development. These basins are located within an area known as the Oxnard Forebay which exhibits excellent recharge capabilities and contains a hydraulic connection between the upper and lower (confined) aquifer systems in the Oxnard Plan. UWCD also operates the Saticoy well field, which can extract mounded groundwater and deliver it to municipal, industrial and agricultural customers throughout the Oxnard plain.

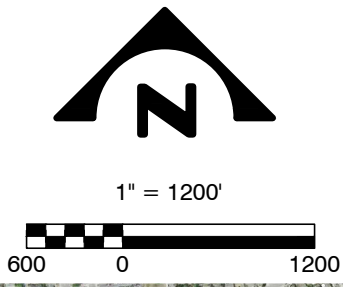
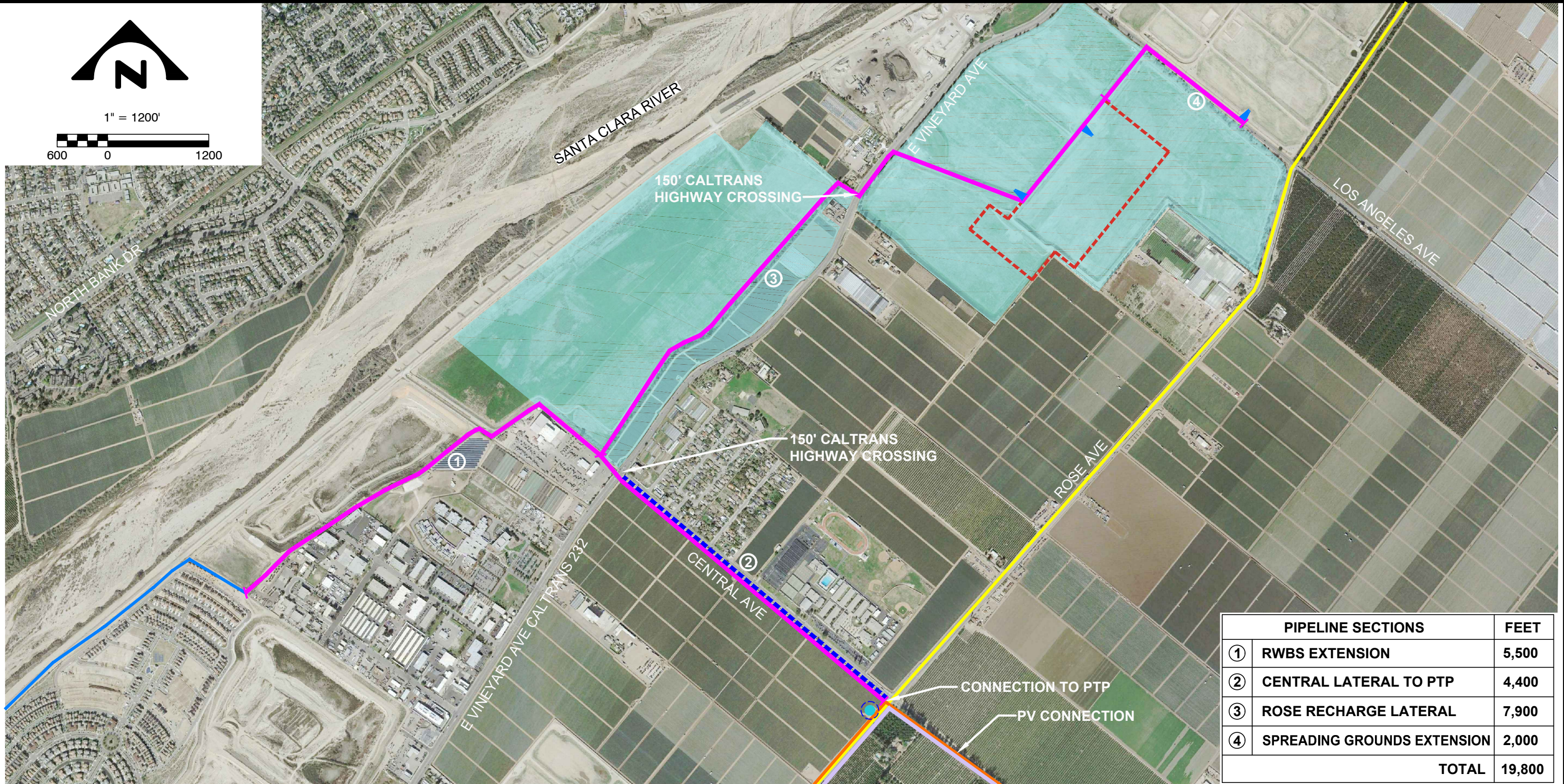
**Description of Project:** The RiverPark-Saticoy (R-S) pipeline will provide a three (3) mile extension to the existing RWB pipeline. The point of discharge for the R-S pipeline will be in UWCD's Saticoy, Noble and Rose basins. UWCD will then supplement the recharge of surface water at the Saticoy Groundwater Recharge facility with up to 4,800 AF per year (AF/yr) of recycled water produced by the City of Oxnard's AWPF. The goal of supplementing United's artificial recharge of surface water with recycled water from the AWPF is to increase the total volume of groundwater recharged to the Forebay subbasin, and thereby contribute further to mitigation of the negative impacts resulting from groundwater overdraft in the aquifers underlying the Oxnard Coastal Plain.

**Benefits of Project:** Secondary treated wastewater from the OWTP is being discharged to the ocean which could otherwise be treated and used for direct deliveries or groundwater recharge. The R-S pipeline and GRRP will help ensure that all excess flows from the AWPF will be used for groundwater recharge. The project will help bridge the gap between existing water demand and supply in addition to improving groundwater quality.

**Estimated Cost:** The City is currently conducting a cost of service study to help determine the delivered cost of recycled water with and without groundwater pumping allocations. UWCD has preliminary estimated the produced cost of water at \$800 per ac-ft. With the addition of UWCD's artificial-recharge operational costs and requirements for GRRP permit compliance, the total cost for recharging recycled water is preliminarily estimated to be approximately \$1,000 per ac-ft. Estimated capital costs for United to construct the pipeline, install additional infrastructure, and receive regulatory approval is \$6.4 million.

**Projected Timeline:** Potential implementation in mid-2020, continuing (with possible future expansion) through the foreseeable future.

DWG: S:\Projects\United Water Conservation District\UWCD-01-16) Recycled Water Pipelines Phase 1\900 CAD\Kick-off meeting Figures\FIGURE 2-2.dwg  
 DATE: Dec 27, 2016 3:59pm  
 USER: JDitch  
 XREFS: X-KEH STD-BDR-11x17



PIPELINE SECTIONS		FEET
①	RWBS EXTENSION	5,500
②	CENTRAL LATERAL TO PTP	4,400
③	ROSE RECHARGE LATERAL	7,900
④	SPREADING GROUNDS EXTENSION	2,000
<b>TOTAL</b>		<b>19,800</b>

### LEGEND

- PROPOSED ALTERNATIVE NO 3
- 16" CITY OF OXNARD PW BACKBONE PIPELINE PER DWG NO. 07-72A (PENFIELD & SMITH)
- 78" CCP SURFACE WATER SUPPLY PIPELINE (42" AFTER CROSSING CENTRAL AVENUE)
- WELL No.12 [APN 1440010280]
- VCWPD STORM DRAIN
- PTP 54" RCCP
- 36" CMWD SUPPLY PIPELINE (OXNARD)
- TURNOUT/AIR GAP
- POTENTIAL DIKE CONTAINS RW FOR SPREADING, TO AVOID PW WELLS. 1-2 WELLS MULTIPLE TURNOUTS

PROPERTY OWNED BY UNITED WATER CONSERVATION DISTRICT



<b>VARIOUS RECYCLED WATER PIPELINES ALTERNATIVE 3</b>		
UNITED WATER CONSERVATION DISTRICT SANTA PAULA, CALIFORNIA	SCALE AS SHOWN	FIGURE 2-2

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

**BACKGROUND INFORMATION**

**Project Name** \_\_\_\_\_

**Description** \_\_\_\_\_

**Purpose of Project** \_\_\_\_\_  
 Water supply, infrastructure, water quality, etc.

**Implementation Trigger** (if applicable) \_\_\_\_\_

**Groundwater Basin** \_\_\_\_\_

**Location** \_\_\_\_\_

**Sponsoring Agency** \_\_\_\_\_

<b>EVALUATION CRITERIA</b>	<b>REVIEW</b>
----------------------------	---------------

<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	
Sustainability indicators addressed (sub component of increase in SY)	
Project has benefit in impacted area of basin	Yes / No
<b>Technical</b>	
Construction feasibility	Yes / No
Appropriateness of location	Yes / No
Ability to accomplish purpose	Yes / No
Life expectancy of project (for 50-year sustainable mangement modeling)	
Level of uncertainty	High / Med / Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	
Will project likely be permitted? / Consistent with environmental regs	Yes / No
Sensitivity of location	
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes / No
Consistent with planning agency regulations	Yes / No
Stakeholder support	Yes / No
<b>Permitting</b>	
Permits required	
Status / time required	
Likelihood of project being permitted	High / Med / Low
<b>Construction</b>	
Time table to implement	
<b>Operation and Maintenance</b>	
Description	
<b>Funding</b>	
Total capital cost	
Capital cost per AF/year produced	
Annual cost	
Annual O&M cost per AF	
Funding source(s) - credible funding source	
Likelihood of project being funded	High / Med / Low
Timeline to secure funding	
<b>Project Status</b>	
<b>Estimated Time to Project Completion</b>	

**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

**BACKGROUND INFORMATION**

**Project Name** \_\_\_\_\_

**Description** \_\_\_\_\_

**Purpose of Project** \_\_\_\_\_  
 Water supply, infrastructure, water quality, etc.

**Implementation Trigger** (if applicable) \_\_\_\_\_

**Groundwater Basin** \_\_\_\_\_

**Location** \_\_\_\_\_

**Sponsoring Agency** \_\_\_\_\_

<b>EVALUATION CRITERIA</b>	<b>REVIEW</b>
----------------------------	---------------

<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	
Sustainability indicators addressed (sub component of increase in SY)	
Project has benefit in impacted area of basin	Yes / No
<b>Technical</b>	
Construction feasibility	Yes / No
Appropriateness of location	Yes / No
Ability to accomplish purpose	Yes / No
Life expectancy of project (for 50-year sustainable management modeling)	
Level of uncertainty	High / Med / Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	
Will project likely be permitted? / Consistent with environmental regs	Yes / No
Sensitivity of location	
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes / No
Consistent with planning agency regulations	Yes / No
Stakeholder support	Yes / No
<b>Permitting</b>	
Permits required	
Status / time required	
Likelihood of project being permitted	High / Med / Low
<b>Construction</b>	
Time table to implement	
<b>Operation and Maintenance</b>	
Description	
<b>Funding</b>	
Total capital cost	
Capital cost per AF/year produced	
Annual cost	
Annual O&M cost per AF	
Funding source(s) - credible funding source	
Likelihood of project being funded	High / Med / Low
Timeline to secure funding	
<b>Project Status</b>	
<b>Estimated Time to Project Completion</b>	



## **State Water Interconnection Pipeline (Drought and Resiliency Pipeline Project)**

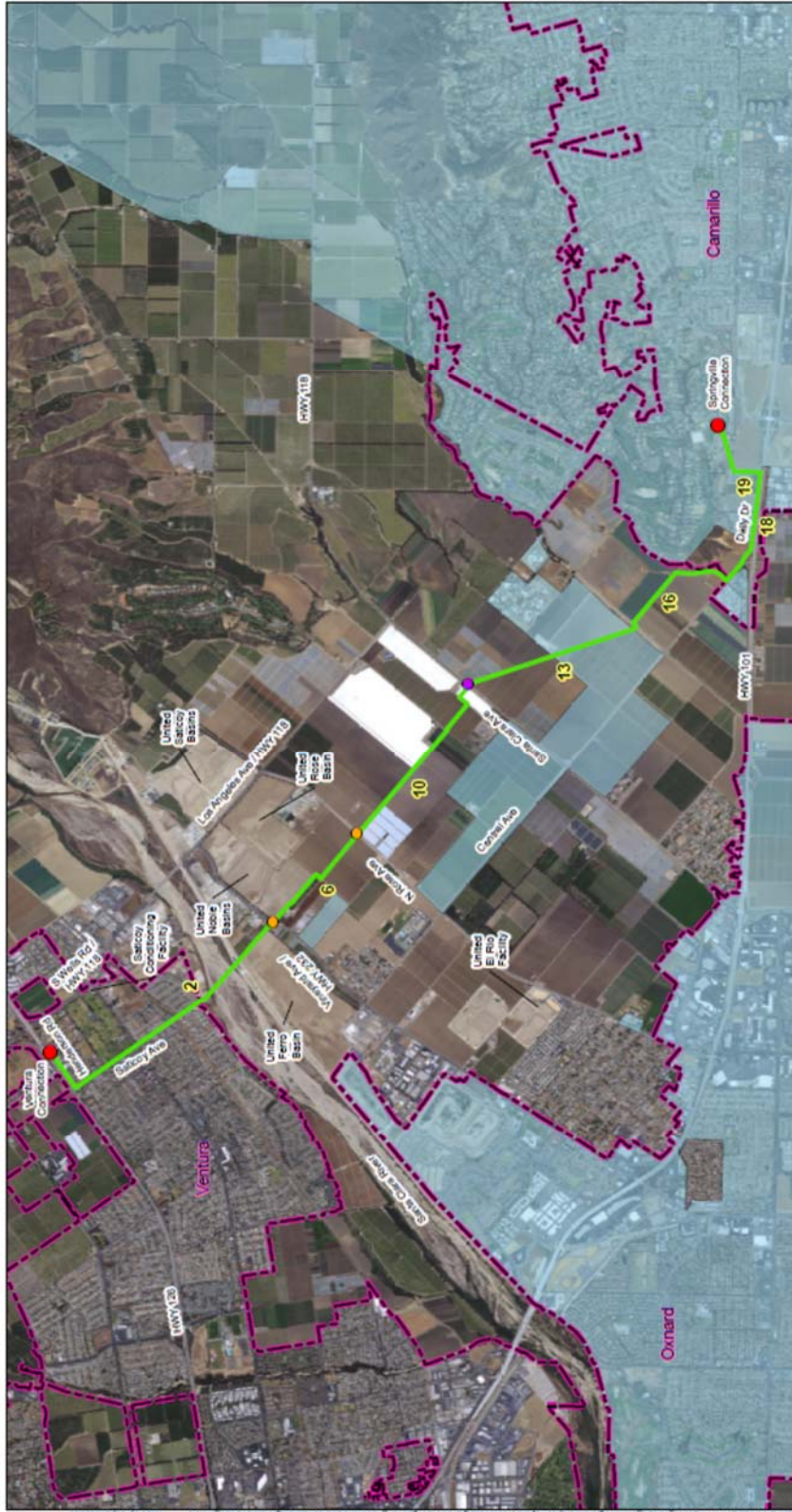
**Background:** The City of San Buenaventura (City), Casitas Municipal Water District (Casitas), United Water Conservation District (United) and Calleguas Municipal Water District (Calleguas) are collaborating on a water transmission pipeline project (Interconnection) that would transport potable water between Calleguas' and the City's distributions systems. The City, Casitas, United and Calleguas are collectively referred to as Stakeholder Agencies. The proposed Interconnection will allow the City, Casitas and United to receive their State Water Project (SWP) allocations by wheeling water through the Metropolitan Water District of Southern California and Calleguas systems. The Interconnection will also provide an alternate means for: (1) Calleguas to receive water supply from the City during an outage of its imported water supplies; (2) Casitas will be interconnected indirectly through the City and; (3) an alternate means for United to receive its allocation and surplus SWP other than releases into the Santa Clara River from Santa Felicia Dam or Castaic Dam. ***This document will focus on how United would utilize the SWP pipeline and how the Oxnard Plain basin stakeholders benefit.***

**Description of Project:** The proposed Interconnection pipeline includes approximately 7 miles of 36-inch diameter pipeline between the City's distribution system and the Calleguas' Springville Reservoir/Hydro Station. United would have two turnouts from the pipeline. The points of discharge for the pipeline would be in: (1) UWCD's Noble and/or Ferro recharge basins and; (2) Rose Avenue near the Rose Recharge basin (connecting to United's main supply pipeline). The amount of water would vary year to year from zero deliveries to 10,000 acre-feet, depending on groundwater conditions in the Forebay and availability of SWP water.

**Benefits of Project:** United would have the option to utilize the supplemental water for groundwater recharge via surface spreading at its Saticoy Groundwater Recharge facility, supplement recharge operations to reduce water quality problems (nitrates) at El Rio, convey Article 21 surplus water directly to downstream users, as alternative dilution water supply for potential recycled water recharge, and potentially for groundwater injection into the Lower Aquifer System (LAS). The project will help bridge the gap between existing water demand and supply, in addition to improving groundwater quality.

**Estimated Cost:** The capital cost to construct the pipeline is in the range between \$42 million and \$59 million. The City and Calleguas would bear the burden of the construction costs. United would be responsible for construction of additional conveyance facilities connecting the pipeline to its El Rio and Saticoy facilities. The estimated cost of the pipeline extensions is \$3 to \$5 million. With the addition of UWCD's artificial-recharge operational costs, wheeling charges and permit compliance, the total cost for the water is preliminarily estimated to be approximately \$1,800 to \$2,000 per ac-ft.

**Projected Timeline:** The City has begun the environmental review process and required by CEQA. Construction could begin by 2022.



**Legend**

- Point of Connection
- Potential United Turnout
- Proposed Metering Facility
- Recommended Alignment
- Calleguas Municipal Water District Service Area
- City Boundary

**Kennedy/Jenks Consultants**  
 State Water Interconnection Alignment Study  
 City of Ventura

**Recommended Alignment**

KJ 1744-205'00  
 August 2017  
 Figure 13-4

Scale: 0 0.5 1 Miles

North Arrow



## Alternative Supply Alliance Pipeline Project

**Background:** United Water Conservation District (UWCD) has performed conservation releases from Lake Piru since 1955, releasing stored flood flows and imported State Water Project (SWP) water to benefit groundwater basins of the Santa Clara River valley as well as those underlying the Oxnard Plain. Conveyance of released water occurs through lower Piru Creek, the Santa Clara River channel, and the Freeman Diversion. During the period of release, losing river reaches overlaying the Piru and Fillmore basins usually percolate a large portion of the released water. Some water may also percolate in the Santa Paula basin, and the remainder is diverted at the Freeman Diversion for groundwater recharge and in-lieu surface water deliveries. Percolation to groundwater basins generally decreases over time during a release, and accounting for SWP water is normally applied at the end of a conservation release, as the release would otherwise end without this imported water. On average, 58% of the released SWP water has immediately benefitted users on the Oxnard Plain, although this number varies annually depending on hydrologic and river channel conditions. Water percolated to the upper groundwater basins (Piru, Fillmore and Santa Paula) is stored temporarily, with the duration ranging from several months when basins are mostly full, to multiple years when groundwater levels are low.

UWCD is currently working to purchase additional SWP water for imports, including any unused Table A entitlements from the Ventura County Watershed Protection District (VCWPD) SWP contract (City of Ventura and Casitas Municipal Water District entitlements); unused SWP Table A water from a State Water Contractor outside of the VCWPD contract; SWP Article 21 water; or other California Department of Water Resources transfer programs, when available. These additional SWP water imports would be released as part of UWCD's conservation release, and relative benefits to the basins upstream and downstream of the Freeman Diversion would depend on release strategy and hydrologic conditions on a given year.

**Description of Project:** The Alternative Supply Alliance Pipeline Project (ASAPP) includes construction of a well field and pipeline for delivery of additional SWP water to users on the Oxnard Plain. Three project alternatives are currently being considered. Alternative 1 includes construction of a ~5,000 gpm well field in Piru basin and an approximately ten-mile long, sixteen-inch diameter pipeline with an outfall to the river near the Santa Paula/Fillmore basin boundary. This alternative takes advantage of natural conveyance capacity across Santa Paula basin where natural percolation is generally low. Alternative 2 consists of Alternative 1 facilities with extension of the pipeline to UWCD's diversion canal on the south bank of the Santa Clara River, for a total pipeline length of approximately nineteen miles. Alternative 3 includes construction of a ~5,000 gpm well field in the Fillmore basin and an approximately seven to ten-mile long, sixteen-inch pipeline to deliver extracted water to UWCD's diversion canal.

**Benefits of Project:** With natural conveyance only, UWCD estimates that approximately 84% of released water can be diverted at the Freeman Diversion. During drought periods, it may take years before released water that infiltrates to groundwater naturally flows to the Freeman Diversion. The ASAPP will increase the efficiency of delivery to UWCD's facilities to an estimated 95%, and reduce the time lag between release and delivery to less than one year (in most cases). Therefore, more water purchased during drought years will benefit the Oxnard Plain during that same year, when the water is most needed. Depending on the selected alternative, the project will also temporarily increase groundwater levels in the Piru and Fillmore basins during temporary storage of additional SWP water.

**Estimated Cost:** Estimated capital costs to construct the well fields and pipelines, install additional infrastructure, and receive regulatory approval is \$13 million for Alternative 1, \$20 million for Alternative 2, and \$10 to \$12 million for Alternative 3.



**Fox Canyon Groundwater Management Agency  
GSP Project Evaluation Checklist**

**BACKGROUND INFORMATION**

**Project Name** \_\_\_\_\_

**Description** \_\_\_\_\_

**Purpose of Project** \_\_\_\_\_  
 Water supply, infrastructure, water quality, etc.

**Implementation Trigger** (if applicable) \_\_\_\_\_

**Groundwater Basin** \_\_\_\_\_

**Location** \_\_\_\_\_

**Sponsoring Agency** \_\_\_\_\_

<b>EVALUATION CRITERIA</b>	<b>REVIEW</b>
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<b>Sustainable Yield</b>	
Annual increase in Sustainable Yield (AF/year)	
Sustainability indicators addressed (sub component of increase in SY)	
Project has benefit in impacted area of basin	Yes / No
<b>Technical</b>	
Construction feasibility	Yes / No
Appropriateness of location	Yes / No
Ability to accomplish purpose	Yes / No
Life expectancy of project (for 50-year sustainable management modeling)	
Level of uncertainty	High / Med / Low
<b>Environmental</b>	
CEQA/NEPA type and status (timing)	
Will project likely be permitted? / Consistent with environmental regs	Yes / No
Sensitivity of location	
<b>Political</b>	
Consistent with adopted jurisdictional plans	Yes / No
Consistent with planning agency regulations	Yes / No
Stakeholder support	Yes / No
<b>Permitting</b>	
Permits required	
Status / time required	
Likelihood of project being permitted	High / Med / Low
<b>Construction</b>	
Time table to implement	
<b>Operation and Maintenance</b>	
Description	
<b>Funding</b>	
Total capital cost	
Capital cost per AF/year produced	
Annual cost	
Annual O&M cost per AF	
Funding source(s) - credible funding source	
Likelihood of project being funded	High / Med / Low
Timeline to secure funding	
<b>Project Status</b>	
<b>Estimated Time to Project Completion</b>	