Written materials relating to an item on this agenda that are distributed to the legislative bodies within 72 hours before the item is to be considered at its regularly scheduled meeting will be made available for public inspection at the City Clerk's Office, 300 West Third Street 4th Floor and at the Oxnard main library, 251 South A Street during customary business hours. Agenda reports are also on the City of Oxnard web site at www.oxnard.gov.

CITY OF OXNARD CALIFORNIA

AGENDA
OXNARD CITY COUNCIL
PUBLIC WORKS AND TRANSPORTATION COMMITTEE
Council Chambers, 305 West Third Street
May 26, 2026
Regular Meeting -6:45 PM to 8:15 PM

Zoom details to call-in for public comment during a meeting:

1. Dial Phone Number: (888) 475-4499
2. Enter Meeting ID: 854 2486 9065
3. Passcode: 317018

If you wish to speak during public comments or a particular item on the agenda, please sign-on by following the zoom call-in steps listed above. Once the presiding officer calls for public speakers, press *9 to raise your hand to inform the City Clerk you would like to speak during the public speaking section for that particular item on the agenda, while in the zoom waiting room. Press *6 when asked to unmute. Listen to the instructions provided virtually on the phone while on hold in the zoom waiting room. Please note that there is a slight time delay when viewing the meeting via television.

IN ACCORDANCE WITH ASSEMBLY BILL 2449, MEMBERS OF THE LEGISLATIVE BODY MAY MEET IN-PERSON OR REMOTELY. TO PARTICIPATE REMOTELY VISIT WWW.OXNARD.ORG.

To find out how you may provide public comment, please refer to the instructions below or at **www.https://www.oxnard.org/city-meetings/**.

The public may view the meeting from home on Spectrum channel 10, Frontier channel 35, or YouTube at Youtube.com/oxnardnews. Video recordings of the meeting are typically available online following the meeting at the City's website at www.oxnard.org/city-meetings.

*Please see the link for the Measure M pre-recorded presentation video for each item listed on this agenda.

YOU MAY PARTICIPATE IN THE MEETING IN THE FOLLOWING WAYS:

1. ATTEND THE MEETING AT THE LOCATION LISTED ABOVE: Submit a speaker card to the City Clerk.

2. EMAIL COMMENTS OR SIGN UP TO SPEAK REMOTELY BEFORE THE MEETING

    a. Submit a request to speak remotely by no later than 3 p.m. on the day of the meeting by using the form available at **www.oxnard.org/citymeetings**.
    b. Submit an email to **cityclerk@oxnard.org** no later than 3 p.m. on the day of the meeting (indicate the agenda item number in the subject line). All email correspondence will be forwarded to the legislative body prior to the start of the meeting and made part of the legislative record.
    c. Contact the City Clerk's Office at (805) 385-7803 to submit your request.

3. PROVIDING PUBLIC COMMENTS REMOTELY DURING THE MEETING

In compliance with the Americans with Disabilities Act, if you require special assistance to participate in a meeting, please contact the City Clerk's Office at 385-7803. Notice at least 72 hours prior to the meeting will enable the City to reasonably arrange for your accessibility to the meeting.

Agenda Item Time Estimates include: (Minutes for Presentation + Council Discussion + Public Comment)

a. To provide public comment during the meeting dial (888) 475-4499 and enter the Meeting ID and Passcode listed above as the Zoom details for this meeting. When the presiding officer announces the particular item on the agenda you want to speak on, press *9 to raise your hand while in the zoom waiting room. Once called on, press *6 to unmute your phone.
b. Public comments on agenda items will be taken following the announcement of the item. After the item is announced, members of the public may register or otherwise be recognized for the purpose of providing public comment.

Please review the Zoom instructions on the registration page to help ensure there are no technical difficulties during your comments and help you understand public comment procedures using Zoom. Detailed participation instructions can be found at www.oxnard.org/city-meetings.

In the event of a disruption which prevents a legislative body of the City of Oxnard from broadcasting a meeting using a call-in option or internet-based service option, or in the event of a disruption within the City's control which prevents members of the public from offering public comment using the call-in option or internet-based service option, the legislative body shall take no further action on items appearing on a meeting agenda until public access to the meeting via the call-in option or internet-based service option is restored. However, if any of the broadcast options are disrupted, but any of the other broadcast options is still available to the public, the legislative body may take further action on items appearing on a meeting agenda without waiting for the disrupted broadcast option(s) to be restored.

A. ROLL CALL, POSTING OF AGENDA, FLAG SALUTE
Consideration of Teleconference Participation pursuant to Assembly Bill 2449.

B. PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA AND NON-ACTION ITEMS
A person may address the legislative body only on matters not appearing on the agenda and within the subject matter jurisdiction of the legislative body, and on non-action items. Speaker requests shall be submitted as set forth on the first page of this agenda. Speakers are limited to three minutes. After 30 minutes, if all speakers have not had the opportunity to speak, the remaining speakers will be given an opportunity to speak prior to the adjournment of the meeting. The legislative body cannot enter into a detailed discussion or take action on any items presented during public comments at this time. Such items may only be referred to the City Manager for administrative action or scheduled on a subsequent agenda for discussion.

C. CONSENT AGENDA

1. City Clerk Department
SUBJECT: Approval of Minutes.
RECOMMENDATION: That the Public Works and Transportation Committee approve the regular meeting minutes for May 12, 2026.
Contact: Luly Lopez, (805) 385-7805

D. REPORTS

1. Public Works Department
SUBJECT: Assignment of Easements to Calleguas Municipal Water District for the Calleguas – Ventura Interconnection (APN: 157-0-270-015).
RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute the Easement Assignment Deed (A-8622) and Easement Transfer Agreement (A-8623) with Calleguas Municipal Water District for APN 157-0-270-015.

Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/FW1a7dAjw5M
Contact: Michael Wolfe, (805) 385-8055

2. Public Works Department
SUBJECT: 2025 Urban Water Management Plan and Water Shortage Contingency Plan.
RECOMMENDATION: That the Public Works and Transportation Committee:

1. Recommend that the City Council receive a presentation and receive public comment regarding the City of Oxnard's 2025 Urban Water Management Plan and Water Shortage Contingency Plan;
2. Recommend that the City Council hold a Public Hearing on the 2025 Urban Water Management Plan and Water Shortage Contingency Plan; and
3. Recommend that the City Council adopt a resolution to approve the 2025 Urban Water Management Plan and Water Shortage Contingency Plan and authorize City staff to file the plans with the State of California.

(Presentation will be live upon consultant's request.)
Contact: Michael Wolfe, (805) 385-8055

3. Public Works Department
SUBJECT: Purchase Order with Quinn Company for One Caterpillar 950 Wheel Loader for the Environmental Resources Division.
RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute a Purchase Order with Quinn Company in an amount not to exceed $573,818.15 for the purchase of one new Caterpillar Inc. Model 950 Wheel Loader, utilizing the Sourcewell cooperative purchasing agreement (#011723-CAT), for use by the Environmental Resources Division.

Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/3CaYcs3sgzQ
Contact: Michael Wolfe, (805) 385-8055

4. Public Works Department
SUBJECT: Multiple Agreements for On-Call Construction Management and Inspection Services.
RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute the following Agreements, each with an initial term of three years from July 1, 2026, to June 30, 2029, with an option for two consecutive one-year period extensions ending June 30, 2031, for on-call construction management and inspection services:

1. Agreement 32600484 with Filippin Engineering, Inc., for a total amount not to exceed $500,000.00;
2. Agreement 32600485 with Michael K. Nunley & Associates, LLP, for a total amount not to exceed $500,000.00;
3. Agreement 32600486 with MNS Engineers, Inc. for a total amount not to exceed $500,000.00; and
4. Agreement 32600488 with Turner & Townsend Heery, LLC, for a total amount not to exceed $500,000.00.

Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/BZHYgn2V1jw
Contact: Michael Wolfe, (805) 385-8055

E. ITEMS FOR FUTURE AGENDAS

F. ADJOURNMENT

CITY OF OXNARD CALIFORNIA

PUBLIC WORKS AND TRANSPORTATION COMMITTEE AGENDA REPORT

CONSENT AGENDA
AGENDA ITEM NO. C.1

DATE: May 26, 2026

TO: Public Works and Transportation Committee

FROM: Luly Lopez, City Clerk, (805) 385-7805, luly.lopez@oxnard.org

SUBJECT: Approval of Minutes.

RECOMMENDATION

That the Public Works and Transportation Committee approve the regular meeting minutes for May 12, 2026.

BACKGROUND

Approval of minutes.

STRATEGIC PRIORITIES

This agenda item is a routine operational item or does not relate to the five strategic priorities adopted by City Council on March 16, 2021.

FINANCIAL IMPACT

There is no financial impact.

Prepared by: Luly Lopez, City Clerk

ATTACHMENTS

1. Minutes of Public Works and Transportation Committee for May 12 2026

MINUTES
OXNARD CITY COUNCIL
PUBLIC WORKS AND TRANSPORTATION COMMITTEE
Regular Meeting
May 12, 2026

A. ROLL CALL, POSTING OF AGENDA, FLAG SALUTE

At 6:47 p.m., Chair Luis A. Mc Arthur called to order the regular meeting of the Oxnard City Council Public Works and Transportation Committee in the City Hall Council Chambers at 305 West Third Street, Oxnard, California. Member Gabriela Basua, Vice Chair Gabriel Teran* and Chair Luis A. Mc Arthur were present. The City Clerk stated that the agenda was posted on Tuesday, May 5, 2026 at the Library, City Hall kiosk, City Administrative Offices and on the website.

The meeting opened with the pledge of allegiance to the flag of the United States led by Chair Mc Arthur.

Staff members present were Alexander Nguyen, City Manager; Michelle McCarron, Assistant City Attorney; Michael Wolfe, Public Works Director; Steve Howlett, Assistant Public Works Director; Brian Yanez, Assistant Public Works Director; Nicole Riley, Environmental Resources Manager; Anthony Miller, Special Districts Manager; Chris Peyton, Water Division Manager; Jose Arreola, Fleet Services Manager; Luis Ortega, Management Analyst and Lourdes A. López, City Clerk

*Vice Chair Teran participated remotely from Embassy Suites by Hilton Anaheim South, 11767 Harbor Boulevard, Garden Grove, CA 92840.

Consideration of Teleconference Participation pursuant to Assembly Bill 2449.

B. PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA AND NON-ACTION ITEMS

No public comments were received.

C. CONSENT AGENDA

D. REPORTS

1. Public Works Department
SUBJECT: Added Facilities Agreement 32600436 with Southern California Edison for the Wastewater Headworks Facility.
RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute an Added Facilities Agreement with Southern California Edison to renew electrical maintenance service for the Wastewater Headworks Facility in perpetuity, with a

one-time payment of $62,246, and a recurring monthly maintenance service charge of $747.41.

No public comments were received.

It was moved by Vice Chair Teran, seconded by Member Basua, to approve the recommended action. VOTE: Teran, Basua and Mc Arthur voted in favor; the motion carried 3-0.

2. Public Works Department
SUBJECT: Agreement 32600474 with CCS Facility Services - Los Angeles, Inc. for Custodial Services for the Public Works Utilities Divisions.
RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute an Agreement with CCS Facility Services - Los Angeles, Inc. in an amount not to exceed $738,000 for an initial term of one year from July 1, 2026, to June 30, 2027, with the option for four consecutive one-year period extensions ending June 30, 2031, for Custodial Services for the Public Works Utilities Divisions.

Management Analyst Ortega stated that this contract is a full-service agreement that includes facility cleaning services, as well as the provision of all necessary supplies and equipment. Discussed ensued among Council and Staff. No public comments were received.

It was moved by Member Basua, seconded by Vice Chair Teran, to approve the recommended action. VOTE: Basua, Teran and Mc Arthur voted in favor; the motion carried 3-0.

3. Public Works Department
SUBJECT: Agreement 32600473 with Executive Facilities Services, Inc. for Custodial Services at the Oxnard Main Library.
RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute an Agreement with Executive Facilities Services, Inc. in an amount not to exceed $675,000 for an initial term of one year from July 1, 2026, to June 30, 2027, with the option for four consecutive one-year period extensions ending June 30, 2031, for Custodial Services at the Oxnard Main Library.

Assistant Public Works Director Howlett stated that the City of Oxnard will provide the custodial supplies and equipment necessary to maintain the Library. Discussion ensued among Council and staff.

No public comments were received.

It was moved by Member Basua, seconded by Vice Chair Teran, to approve the recommended action. VOTE: Teran, Basua and Mc Arthur voted in favor; the motion carried 3-0.

4. Public Works Department
SUBJECT: Agreement 32600503 with Ojos Trucking dba AGT Trucking School for Commercial Driver's License Training.
RECOMMENDATION: That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute an Agreement with Ojos Trucking dba AGT Trucking School in an amount not to exceed of $385,000 for an initial term of three years from June 2, 2026, to June 1, 2029, with the option for two consecutive one-year period extensions ending June 1, 2031 for Commercial Driver's License Training.

The Public Works Director, Water Division Manager Peyton and Fleet Services Manager Arreola presented and were available to answer questions. Discussion ensued among Council and staff.

No public comments were received.

It was moved by Mayor Mc Arthur, seconded by Member Basua, to approve the recommended action. VOTE: Basua, Teran and Mc Arthur voted in favor; the motion carried 3-0.

5. Public Works Department
SUBJECT: Agreement 32600497 with Haaker Equipment Company for Short-Term Rental of Refuse Collection Vehicles for the Environmental Resources Division.
RECOMMENDATION: That the Public Works and Transportation Committee recommended that the City Council approve and authorize the Mayor to execute a Rental Agreement with Haaker Equipment Company for an annual contract amount of $2,800,000, for an initial term of one year from July 1, 2026, to June 30, 2027, with the option for two consecutive one-year period extensions ending June 30, 2029, with a total contract amount not to exceed $8,400,000, for the rental of refuse collection vehicles.

No public comments were received.

Assistant Public Works Director Yanez introduced Nicole Riley, Environmental Resources Manager.

It was moved by Member Basua, seconded by Vice Chair Teran, to approve the recommended action. VOTE: Teran, Basua and Mc Arthur voted in favor; the motion carried 3-0.

E. ITEMS FOR FUTURE AGENDAS

No requests were made.

F. ADJOURNMENT

There being no further business on the agenda, and without objection, Chair Mc Arthur adjourned the meeting at 7:14 p.m.

_____	_____
LOURDES A. LÓPEZ	LUIS A. MC ARTHUR
City Clerk	Chair

CITY OF OXNARD CALIFORNIA

PUBLIC WORKS AND TRANSPORTATION COMMITTEE AGENDA REPORT

REPORTS
AGENDA ITEM NO. D.1

DATE: May 26, 2026

TO: Public Works and Transportation Committee

FROM: Michael Wolfe, Public Works Director, (805) 385-8055, michael.wolfe@oxnard.org

SUBJECT: Assignment of Easements to Calleguas Municipal Water District for the Calleguas – Ventura Interconnection (APN: 157-0-270-015).

RECOMMENDATION

That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute the Easement Assignment Deed (A-8622) and Easement Transfer Agreement (A-8623) with Calleguas Municipal Water District for APN 157-0-270-015.

Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/FW1a7dAjw5M

BACKGROUND

Calleguas Municipal Water District (Calleguas) and the City of San Buenaventura (Ventura) are working in partnership to complete the Calleguas-Ventura Interconnection to link their water systems together. The project will construct a bidirectional flow pipeline to increase water reliability for Ventura County, specifically the City of Oxnard.

A portion of the Calleguas pipeline, located in the Springville area of Camarillo, is proposed to be routed through an existing City of Oxnard easement. Calleguas is requesting a permanent easement for the pipeline and a temporary construction easement to facilitate its construction from the City. The City and Calleguas collaborated extensively on the design of the new Calleguas pipeline within the existing Oxnard easement area to maintain operations of the existing City pipeline infrastructure while accommodating existing and future maintenance and construction needs.

DISCUSSION

The Calleguas-Ventura Interconnection would provide a pipeline for conveying water between Ventura and Calleguas. The pipeline would allow Ventura and United Water Conservation District to receive delivery of their State Water Project allocations by wheeling it through the Metropolitan Water District of Southern California and Calleguas's systems. The Calleguas-Ventura Interconnection would also provide a means for Calleguas to receive up to 14.7 cubic feet per second of potable water from Ventura during an outage of imported supplies.

This additional water could be critical under outage conditions, particularly in a lengthy outage if Calleguas's stored water is depleted, as water from Ventura could be available when imported water supplies are

interrupted. Ventura has a variety of water sources available, including groundwater from multiple basins.

The total length of the Calleguas-Ventura Interconnection is approximately 41,043 linear feet, of which Calleguas's portion is approximately 19,213 feet, extending from Calleguas's Springville Reservoir and Hydrogenator in the Spanish Hills area of Camarillo to Santa Clara Avenue in Oxnard, where it will connect to Ventura's portion of the pipeline.

Calleguas is requesting a permanent easement for the new pipeline and a temporary easement for construction purposes, located within the City's easement. The requested permanent easement is located on the less desirable sloped portion of the City's easement, and the temporary construction easement is located along the existing access road.

The Calleguas - Ventura Interconnection will provide several benefits to the City of Oxnard, including:

Alternative Water supply: During imported water outages and emergencies, Calleguas will have an alternative water supply available to deliver to the City. The new pipeline will deliver water to Calleguas' Springville Reservoirs, where the City of Oxnard water deliveries are sourced directly from. This increases the City's water supply resiliency. The value of an alternative water supply is difficult to quantify, but in times of water outages, it will be considered extremely valuable.

Alternative / Emergency City of Oxnard 30" connection – Calleguas will construct a new 30" outlet connection for the City as part of their project. This new outlet provides the City with an alternative connection to the Calleguas water system for use in emergencies. The alternative connection increases the City's water system resiliency by having a redundant connection to Calleguas' system. In the event that the City's existing connection is not operational, this alternative connection could be utilized to ensure water deliveries continue to the City. The estimated construction cost for the 30" outlet connection with blind flange is $30,000.

Existing access road paving – Calleguas will repave the City's existing asphalt concrete access road that is located along the waterlines in the easement area as part of their project. The City's access road pavement is nearing the end of its useful life and will require replacement soon. Having the pavement replaced by Calleguas will save the City the capital expenditure and the personnel resources to manage the project design, contracting, and construction. In addition, the new pavement will provide the City with safer and more reliable access to their infrastructure for maintenance, repair, and future construction activities. The estimated construction cost for removal and replacement of the access road asphalt paving and AC Curb is $220,000.

STRATEGIC PRIORITIES

This agenda item supports the Infrastructure and Natural Resources strategy. The purpose of the Infrastructure and Natural Resources strategy is to preserve and improve our roads, utilities, parks, trees, water supply and natural resources through effective planning, prioritization, and an equitable and efficient use of available funding.

FINANCIAL IMPACT

This item does not require an expenditure of City funds, as Calleguas will compensate the City for the easements as well as construct the improvements. The appraised value of the permanent and temporary easements is based on the land use designation of the underlining parcel, which is Open Space. The calculated value of the Permanent easement is 20,731 Square Feet x $0.10 / Square Foot x 50% = $1,036.55 and the Temporary easement is 16,324 Square Feet x $0.10 / Square Foot x 10% = $163.24, with a total of = $1,199.79. Please note that the 50% and 10% factors are commonly used percentages for similar types of permanent and subsurface easement rights and temporary access rights respectively based upon International Right of Way Association standards and practices. However, Calleguas is providing an additional $5,000 for a total of $6,200

(rounded).

The maintenance costs resulting from the repaved access road will have no new increases to the Public Works operating budget and there will be less maintenance needs when compared to the existing deteriorated access road.

Prepared by: Michael Wolfe, Public Works Director

ATTACHMENTS

1. Easement Assignment Deed with Exhibits A-8622
2. Easement Transfer Agreement A-8623
3. Presentation

Recorded at request of and
When recorded return to:

Calleguas Municipal Water District
c/o Hamner, Jewell & Associates
Government Real Estate Services
3183 Duncan Road, Suite E
San Luis Obispo, CA 93401

Space above this line for Recorder's Use

A.P. No. 157-0-270-015
CMWD Parcel No. 6308

No fee pursuant to Government Code § 6103 No Documentary Transfer Tax per R&T Code § 11922 No Recording Fee per Government Code § 27383

Calleguas Municipal Water District

ASSIGNMENT OF EASEMENT

Calleguas - Ventura Interconnection (Project No. 562)

Helen M. Pearson, Dorothy E. James and Robert E. Pearson ("Vendor"), executed a Contract and Grant of Easement ("Easement Deed") granting an exclusive permanent easement to the City of Oxnard, a municipal corporation ("City"). The Easement Deed was recorded in Book 2702, Page 258-266 on December 31, 1964, in the County Recorder's Office of the County of Ventura, a copy of which is attached as Exhibit "A".

This Assignment of Easement ("Assignment") is being executed between the City and Calleguas Municipal Water District ("District") to transfer certain easement rights through the City's exclusive easement area ("City's Exclusive Permanent Easement Area"), described in the attached Easement Deed as Parcel 2202-B. The granting of the new easement rights to the District shall have no effect whatsoever on the rights and easements held by the City. Further, the District's new easement rights will be subservient and secondary to the City's rights.

NOW THEREFOR FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

CITY OF OXNARD, A MUNICIPAL CORPORATION ("CITY")

hereby GRANTS, ASSIGNS, and TRANSFERS to

CALLEGUAS MUNICIPAL WATER DISTRICT ("DISTRICT")

the following interests in real property:

Permanent Easement

A Permanent Easement in gross to survey, install, construct, reconstruct, enlarge, lay, alter, operate, patrol, remove, replace, and maintain a water or wastewater conduit, consisting of one or more underground water or wastewater pipelines and related facilities. These related facilities may include but are not limited to markers, air valves, manholes, valves, meters, surge control devices, test stations, buried communication devices, buried electrical conduits and devises, pull boxes, and all related incidents, fixtures, and appurtenances. The markers, test stations, pull boxes, blow off valves, air release valves, manholes, other related facilities, and turnouts may be located above ground or partially above ground. The facilities shall be consistent with the construction drawings for the Calleguas – Ventura Interconnection project as reviewed and agreed to by the City. Construction of improvements shall be consistent with plans and documents reviewed and accepted by the City. Construction of District improvements outlined in attached Exhibit "D" shall not interfere with the City's access and ability to perform routine, emergency, or replacement operations in the future. District shall have the right of ingress and egress for personnel, vehicles, and construction equipment to, from, and along the easement area at any time. This easement shall be in, over, on, through, within, under, and across the Easement Area of the City's Exclusive Permanent Easement Area. The "Easement Area" which comprises the District's new Permanent Easement is described and depicted in Exhibit "B", attached hereto and incorporated by reference herein. And;

A Temporary Construction Easement

A Temporary Construction Easement for the purposes of facilitating construction of District Facilities, including the right to place equipment and vehicles, pile earth thereon, and utilize said Temporary Construction Easement for all other related activities and purposes in, on, over, under, through, and across that certain portion of the Real Property which is described and depicted in Exhibit "C", attached hereto and incorporated by reference herein ("Temporary Construction Easement"). Said Temporary Construction Easement shall commence ninety (90) days after issuance by District of a Notice of Commencement of Construction, which shall be issued to City by U.S. Mail, and shall automatically terminate upon completion of construction of District Facilities and restoration of the Temporary Construction Easement Area, or one (1) year after the effective date of the Notice of Commencement of Construction, whichever occurs first; however, District shall have the right to extend the Temporary Construction Easement term for a maximum of three (3) extensions of three (3) months each if District determines that additional time beyond the one year period is necessary for construction completion. In such case, District shall have the unilateral right to extend the Temporary Construction Easement period through construction completion and agrees to compensate City **Five Hundred Dollars ($500)** for each three-month extension term exercised. Payment for any such extension(s) shall be paid by District to City concurrent with District's written notice to City of District's intent to exercise such extension provisions. In any event, this Temporary Construction Easement shall terminate on or before December 31, 2029.

GRANTOR:

City of Oxnard, a municipal corporation

Luis Mc Arthur, Mayor Date

ATTEST:

Lourdes A. López, City Clerk Date

APPROVED AS TO FORM:

Stephen M. Fischer, City Attorney Date

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____

On _____ before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signatures(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)

CERTIFICATE OF ACCEPTANCE
(Government Code §27281)

This is to certify that the interest in real property conveyed by this easement deed dated _____, from the City of Oxnard, a municipal corporation, is hereby accepted by order of the Board of Directors of Calleguas Municipal Water District on _____, pursuant to authority conferred by Ordinance No. 18, which the Calleguas Municipal Water District Board of Directors adopted on July 21, 2021, and the grantee consents to the recordation thereof by its duly authorized officers.

Dated:_____

CALLEGUAS MUNICIPAL WATER DISTRICT

By: _____
Raul Avila, President, Board of Directors

By: _____
Kristine McCaffrey, General Manager

STATE OF CALIFORNIA)

S S

COUNTY OF VENTURA)

I, _____, Clerk of the Board of Directors of Calleguas Municipal Water District, DO HEREBY CERTIFY that the attached and foregoing is a full, true and correct copy of Ordinance No. 18 of said Board, and the same has not been amended or repealed.

By: _____
Clerk of the Board

Dated: _____

RECORDED AT REQUEST OF
TITLE INSURANCE & TRUST CO.
AT 20 MIN. PAST 11 A M.
OFFICIAL RECORDS VENTURA COUNTY
DEC 31 1964
BOOK 2702 PAGE 258
Robert L. Hanson RECORDER

94252

BOOK 2702 PAGE 258

CONTRACT AND GRANT OF EASEMENT

FREE - 9

This contract is made and entered into this 1st day of December, 1964, by and between the CITY OF OXNARD, a municipal corporation, hereinafter referred to as City, and HELEN M. PEARSON, DOROTHY E. JAMES and ROBERT E. PEARSON, hereinafter referred to as Vendor.

In consideration of the sum of $7,287.00, receipt of which is hereby acknowledged by Vendor, and of the mutual covenants herein contained, it is agreed as follows:

1. Vendor hereby grants unto City, its successors and assigns, the exclusive right, privilege and easement to enter upon and to survey, construct, reconstruct, lay, relay, increase the size of, operate, maintain, inspect and remove at any time, structures, buildings, a road, street or alley, storm drains and facilities, sanitary sewers, and utilities, including but not limited to a water main or conduit and water mains or conduits branching therefrom, with all fixtures, devices and appurtenances used or useful in the operation of said road, street or alley, water main or conduit, storm drains and facilities, sanitary sewers or other utilities, and to remove objects interfering therewith, at any and all points within, under, over, upon, through and across the following described land, situate in the County of Ventura, State of California:

Parcel 2202-B (Permanent)

That portion of Lots 2 and 5 of Fractional Section 28, Township 2 North, Range 21 West, San Bernardino Meridian, in the county of Ventura, state of California, according to the official plat of said land filed in the District Land Office on July 10, 1873, described as a whole as follows:

Beginning at a 1-1/4 inch iron pipe marked with a metal tag stamped "SGB-LS 1842" set at the Northwest corner of said Lot 5; thence along the Northerly line of said Fractional Section 28,

1st - North 74° 26' 30" East 1388.66 feet; thence,

2nd - South 56° 56' 56" West 99.81 feet to an intersection with a line that is parallel with and distant Southeasterly 30.00 feet, measured at right angles, from the Northerly line of said Fractional Section 28; thence along said parallel line,

3rd - South 74° 26' 30" West 1302.20 feet to the Westerly line of said Lot 5; thence along said Westerly line,

4th - North 0° 40' 03" East 31.25 feet to the point of beginning.

Parcel 2202-B (Slope)

That portion of Lots 2 and 5 of Fractional Section 28, Township 2 North, Range 21 West, San Bernardino meridian, in the county of Ventura, state of California, according to the official plat of said land filed in the District Land Office on July 10, 1873, described as follows:

Commencing at a point on the Northerly line of said Fractional Section 28, from which a 1-1/2 inch iron pipe marked with a metal tag stamped "SGB-LS 1842" set at the Northwest corner of said Lot 5 bears along said Northerly line South 74° 26' 30" West 1388.66 feet; thence South 56° 56' 56" West 54.22 feet to the true point of beginning; thence,

1st - South 39° 41' 00" West 46.84 feet; thence,

2nd - South 74° 26' 30" West 51.54 feet; thence,

3rd - South 15° 33' 30" East 35.00 feet; thence,

4th - South 74° 26' 30" West 80.00 feet; thence,

5th - North 15° 33' 30" West 30.00 feet; thence,

6th - South 74° 26' 30" West 180.00 feet; thence,

7th - South 15° 33' 30" East 45.00 feet; thence,

8th - South 74° 26' 30" West 80.00 feet; thence,

9th - North 15° 33' 30" West 48.00 feet; thence,

10th - South 74° 26' 30" West 240.00 feet; thence,

11th - South 15° 33' 30" East 20.00 feet; thence,

12th - South 74° 26' 30" West 85.00 feet; thence,

13th - North 15° 33' 30" West 20.00 feet; thence,

14th - South 74° 26' 30" West 80.00 feet; thence,

15th - South 15° 33' 30" East 5.00 feet; thence,

16th - South 74° 26' 30" West 85.00 feet; thence,

17th - North 15° 33' 30" West 10.00 feet; thence,

18th - South 74° 26' 30" West 155.00 feet; thence,

19th - North 15° 33' 30" West 5.00 feet; thence,

Description: Ventura,CA Document - Book Page 2702.258 Page: 2 of 9
Order: 5461 Comment:

20th - South 74° 26' 30" West 125.00 feet; thence,

21st - North 15° 33' 30" West 5.00 feet to an intersection with a line which is parallel with and distant Southeasterly 30.00 feet, measured at right angles, from the Northerly line of said Fractional Section 28; thence along said parallel line,

22nd - North 74° 26' 30" East 1156.54 feet to an intersection with a line that bears South 56° 56' 56" West and which passes through the true point of beginning; thence along said line,

23rd - North 56° 56' 56" East 45.59 feet to the true point of beginning.

2. Vendor also hereby grants unto City, its successors or assigns, the temporary right, privilege and easement to enter upon and use the below described property for the placing or piling thereon of earth, materials and machinery and for other purposes useful or necessary in connection with the construction of a water main and conduit, access road and storm drainage facilities on the property hereinabove described:

Parcel 2202-B (Temporary)

That portion of Lots 2 and 5 of Fractional Section 28, Township 2 North, Range 21 West, San Bernardino Meridian, in the county of Ventura, state of California, according to the official plat of said land filed in the District Land Office on July 10, 1873, described as a whole as follows:

Beginning at a point on the Northerly line of said Fraction Section 28 from which a 1-1/2 inch iron pipe marked with a metal tag stamped "SGB-LS 1842" set at the Northwest corner of said Lot 5, bears along said Northerly line South 74° 26' 30" West 1388.66 feet; thence,

1st - South 56° 56' 56" West 54.22 feet; thence,

2nd - South 39° 41' 00" West 46.84 feet; thence,

3rd - South 74° 26' 30" West 51.54 feet; thence,

4th - South 15° 33' 30" East 35.00 feet; thence,

5th - South 74° 26' 30" West 80.00 feet; thence,

6th - North 15° 33' 30" West 30.00 feet; thence,

7th - South 74° 26' 30" West 180.00 feet; thence,

8th - South 15° 33' 30" East 45.00 feet; thence,

9th - South 74° 26' 30" West 80.00 feet; thence,

10th - North 15° 33' 30" West 48.00 feet; thence,

11th - South 74° 26' 30" West 240.00 feet; thence,

12th - South 15° 33' 30" East 20.00 feet; thence,

13th - South 74° 26' 30" West 85.00 feet; thence,

Description: Ventura,CA Document - Book Page 2702.258 Page: 3 of 9
Order: 5461 Comment:

14th - North 15° 33' 30" West 20.00 feet; thence,

15th - South 74° 26' 30" West 80.00 feet; thence,

16th - South 15° 33' 30" East 5.00 feet; thence,

17th - South 74° 26' 30" West 85.00 feet; thence,

18th - South 15° 33' 30" East 50.00 feet; thence,

19th - North 74° 26' 30" East 957.54 feet; thence,

20th - North 30° 54' 30" East 138.72 feet; thence,

21st - North 75° 54' 30" East 234.75 feet; thence,

22nd - North 3° 02' 30" East 11.04 feet; to the Northerly line of said Fractional Section 28; thence along said Northerly line,

23rd - South 74° 26' 30" West 324.57 feet to the true point of beginning.

Parcel 2202-C (Temporary)

That portion of Lots 2 and 5 of Fractional Section 28, Township 2 North, Range 21 West, San Bernardino Meridian, in the county of Ventura, state of California, according to the official plat of said land filed in the District Land Office on July 10, 1873, described as a whole as follows:

Commencing at a point on the Northerly line of said Fractional Section 28 from which a 1-1/2 inch iron pipe marked with a metal tag stamped "SGB-LS 1842" set at the Northwest corner of said Lot 5 bears along said Northerly line South 74° 26' 30" West 1388.66 feet; thence South [illegible]; South 56° 56' 56" West 54.22 feet; thence South 39° 41' 00" West 46.84 feet; thence South 74° 26' 30" West 51.54 feet; thence South 15° 33' 30" East 35.00 feet; thence South 74° 26' 30" West 80.00 feet; thence, North 15° 33' 30" West 30.00 feet; thence South 74° 26' 30" West 180.00 feet; thence, South 15° 33' 30" East 45.00 feet; thence South 74° 26' 30" West 80.00 feet; thence North 15° 33' 30" West 48.00 feet; thence South 74° 26' 30" West 240.00 feet; thence South 15° 33' 30" East 20.00 feet; thence, South 74° 26' 30" West 85.00 feet; thence North 15° 33' 30" West 20.00 feet; thence South 74° 26' 30" West 80.00 feet; thence South 15° 33' 30" East 5.00 feet; thence South 74° 26' 30" West 85.00 feet; thence North 15° 33' 30" West 10.00 feet; thence, South 74° 26' 30" West 155.00 feet; to the true point of beginning; thence,

1st - North 15° 33' 30" West 5.00 feet; thence,

2nd - South 74° 26' 30" West 125.00 feet; thence,

3rd - North 15° 33' 30" West 5.00 feet to an intersection with a line which is parallel with and distant Southeasterly 30.00 feet; measured at right angles, from the Northerly line of said Fractional Section 27; thence along said parallel line,

4th - South 74° 26' 30" West 145.66 feet to the Westerly line of said Lot 5; thence along said Westerly line,

5th - South 0° 40' 03" West 10.41 feet to an intersection with a line which has a bearing of South 74° 26' 30" West and which passes through the true point of beginning; thence along said line,

6th - North 74° 26' 30" East 273.57 feet to the point of beginning.

Description: Ventura,CA Document - Book Page 2702.258 Page: 4 of 9
Order: 5461 Comment:

EXHIBIT A

The temporary right, privilege and easement shall terminate upon completion of construction and installation of the water main, access road and storm drainage facilities and acceptance thereof by the City, or on August 1, 1965, whichever date first occurs.

3. The Vendor reserves unto himself, his heirs, executors, administrators, successors and assigns all oil, oil rights, minerals, mineral rights, natural gas, natural gas rights and other hydrocarbons by whatsoever name known that may be within or under the parcel of land described in Paragraph One hereof, without, however, any right of entry on the surface of said property, on the subsurface thereof to a depth of five hundred feet measured vertically from said surface.

4. The Vendor agrees that it will not use nor will it grant to any other association, corporation, governmental agency, person or utility company, the right, privilege or easement to use the property described in Paragraph One hereof, except for the drilling and exploration for oil, gas and minerals as herein provided. The Vendor shall not erect any structures upon or dig or drill any well through the surface of, or remove earth or other material from the property described in Paragraph One herein. Provided, however, the Vendor shall have the right to use any access road constructed by the City on its easement for ingress and egress to her adjoining property so long as said property is used for agricultural purposes only.

5. The City shall have the right to grant to any association, corporation, governmental agency, person or utility company the right, privilege or easement to use the property described in Paragraph One hereof for any of the purposes described in said Paragraph One. The City agrees that it will sell said right, privilege or easement for not more than the fair market value of comparable, unencumbered land, as determined at the time of such sale. The grant of such right, privilege and easement shall be upon such terms and conditions as shall not interfere with or endanger any of the structures or facilities of the City within said property.

Description: Ventura,CA Document - Book Page 2702.258 Page: 5 of 9
Order: 5461 Comment:

EXHIBIT A

6. The City agrees to restore the land described in Paragraph Two hereof to the same condition, as nearly as practicable, as it was in prior to the commencement of construction of the water main, storm drainage facilities and access road.

Upon completion of the construction by the City of any structure or facility on the property described in Paragraph One hereof, the City shall restore the premises to the same condition, as nearly as practicable and as may be consistent with the design and plans of said structure or facility, as they were in prior to the commencement of the construction thereof.

7. The Vendor agrees to accept the sum paid hereunder in full payment for the loss or damage to any crops, trees, shrubs, pasturage rights or improvements located within the property described in Paragraph One and Two hereof.

8. This agreement shall be binding upon and inure to the benefit of the heirs, assigns, executors, personal representatives and successors of the parties hereto.

CITY OF OXNARD

By: _____
R. F. Howlett, Mayor

Attest:

_____
Ethel Dale, City Clerk

VENDOR:

_____

_____

_____

_____

Description: Ventura,CA Document - Book Page 2702.258 Page: 6 of 9
Order: 5461 Comment:

EXHIBIT A

BOOK 2702 PAGE 264

RECORDER'S MEMO: Legibility of writing, Typing or Printing UNSATISFACTORY in Portions of this document when received.

STATE OF CALIFORNIA)
COUNTY OF Ventura) ss

On November 8, 1964 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Helen M. Pearson, Robert E. Pearson and Dorothy E. James

_____, known to me to be the person s whose name s are subscribed to the within instrument and acknowledged that they executed the same.

WITNESS my hand and official seal.

Thomas R. Ferguson
Notary Public in and for said County and State.

(SEAL)

THOMAS R. FERGUSON
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
VENTURA COUNTY

EXHIBIT A

BOOK 2702 PAGE 265

STATE OF CALIFORNIA)
) ss.
COUNTY OF VENTURA)

On December 10, 1964, before me the undersigned, a Notary Public in and for said County and State, personally appeared Robert F. Howlett, known to me to be the Mayor and Ethel Dale, known to me to be the City Clerk of the City of Oxnard, and known to me to be the persons who executed the within instrument on behalf of the City of Oxnard, and acknowledged to me that the City of Oxnard executed the within instrument pursuant to Resolution #3568.

WITNESS my hand and official seal.

Helen M. Lee
Notary Public in and for said County and State

(SEAL)

My commission expires Sept. 17, 1967.

EXHIBIT A

BOOK 2702 PAGE 266

CERTIFICATE OF ACCEPTANCE

This is to certify that the interest in real property conveyed by the Contract and Grant of Easement dated December 1, 1964 from Helen M. Pearson, Dorothy E. James and Robert E. Pearson to CITY OF OXNARD, a political corporation and governmental agency, is hereby accepted and pursuant to City Council Resolution 1939, recorded in book 1591, Official Records of Ventura County at page 273, the City Council consents to recordation thereof by its duly authorized officer.

DATED December 21, 1964.

By _____
R. F. Howlett, Mayor

END OF RECORDED DOCUMENT

Description: Ventura,CA Document - Book Page 2702.258 Page: 9 of 9
Order: 5461 Comment:

EXHIBIT "B"

LEGAL DESCRIPTION FOR
PERMANENT EASEMENT LYING WITHIN LOT 6 TRACT 5671-2 170MR91
APN 157-0-270-015

THAT PORTION OF LOT 6 TRACT 5671-2 IN THE CITY OF CAMARILLO, COUNTY OF VENTURA, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 170, PAGE 91 THROUGH 99 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF LOT 6;

THENCE NORTH 74°26'45" EAST 1382.32 FEET ALONG THE NORTHERLY LINE OF LOT 6 TO THE NORTHEAST CORNER OF LOT 6;
THENCE SOUTH 00°39'51" WEST 13.92 FEET ALONG THE EASTERLY LINE OF LOT 6;
THENCE SOUTH 56°57'14" WEST 5.44 FEET TO A POINT WHICH IS 15.00 FEET AT RIGHT ANGLES TO THE NORTHERLY LINE OF SAID LOT 6;
THENCE PARALLEL WITH AND DISTANT SOUTHERLY 15.00 FEET WITH THE NORTHERLY LINE OF LOT 6, SOUTH 74°26'45" WEST 1377.62 FEET TO THE WESTERLY LINE OF LOT 6;

THENCE NORTH 00°41'40" EAST 15.62 FEET ALONG THE WEST LINE OF LOT 6 TO THE NORTHWEST CORNER OF LOT 6;

PARCEL CONTAINS 0.476 ACRES, OR 20,731 SQUARE FEET, MORE OR LESS.

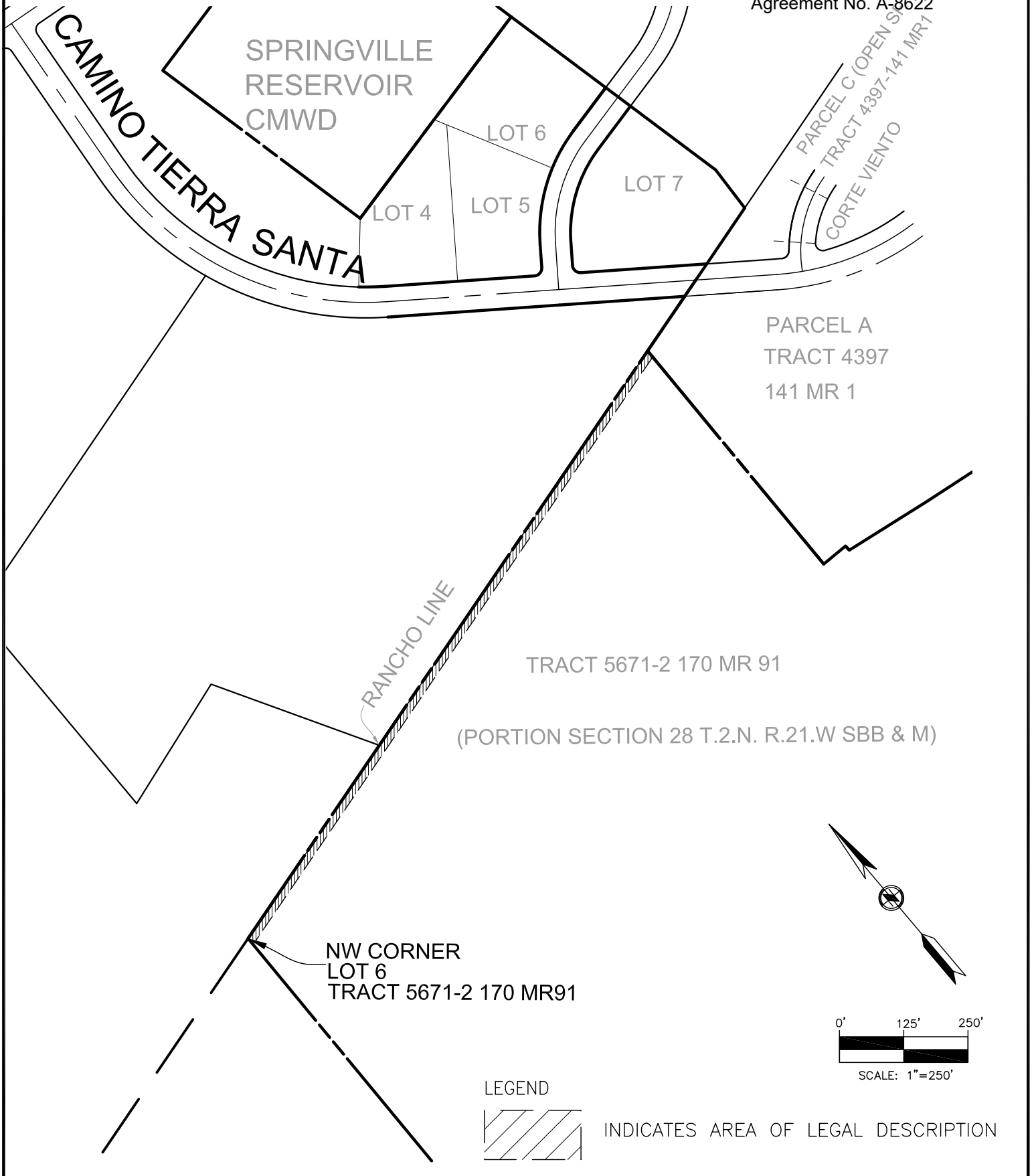
EXHIBIT B SHEETS 2 THROUGH 3 OF 3 IS INCLUDED HEREIN AND MADE A PART HEREOF.

LICENSED LAND SURVEYOR
GREGORY D. HINDSON
NO. 5670
STATE OF CALIFORNIA

3/12/26

GREGORY D. HINDSON
CALIFORNIA LICENSED PROFESSIONAL LAND SURVEYOR, PLS 5670
FOR AND ON BEHALF OF THE MOLLENHAUER GROUP

Agreement No. A-8622



G:\Projects\Survey\LA21300-LA21399\LA21363_CVI_Calleguas-Ventura Interconnection Project 562_P&I\Acad Drawings\PERM ESMT EXHIBIT.dwg Date:03/10/26 02:07p mkhudave

MOLLENHAUER GROUP
213 624 2661 TEL
818 937 9899 TEL
919 W. GLENOAKS BLVD 2ND FL
GLENDALE CALIFORNIA 91202
WWW.MOLLENHAUERGROUP.COM
CIVIL ENGINEERING
SURVEYING+MAPPING
LAND DEVELOPMENT

EXHIBIT "B"

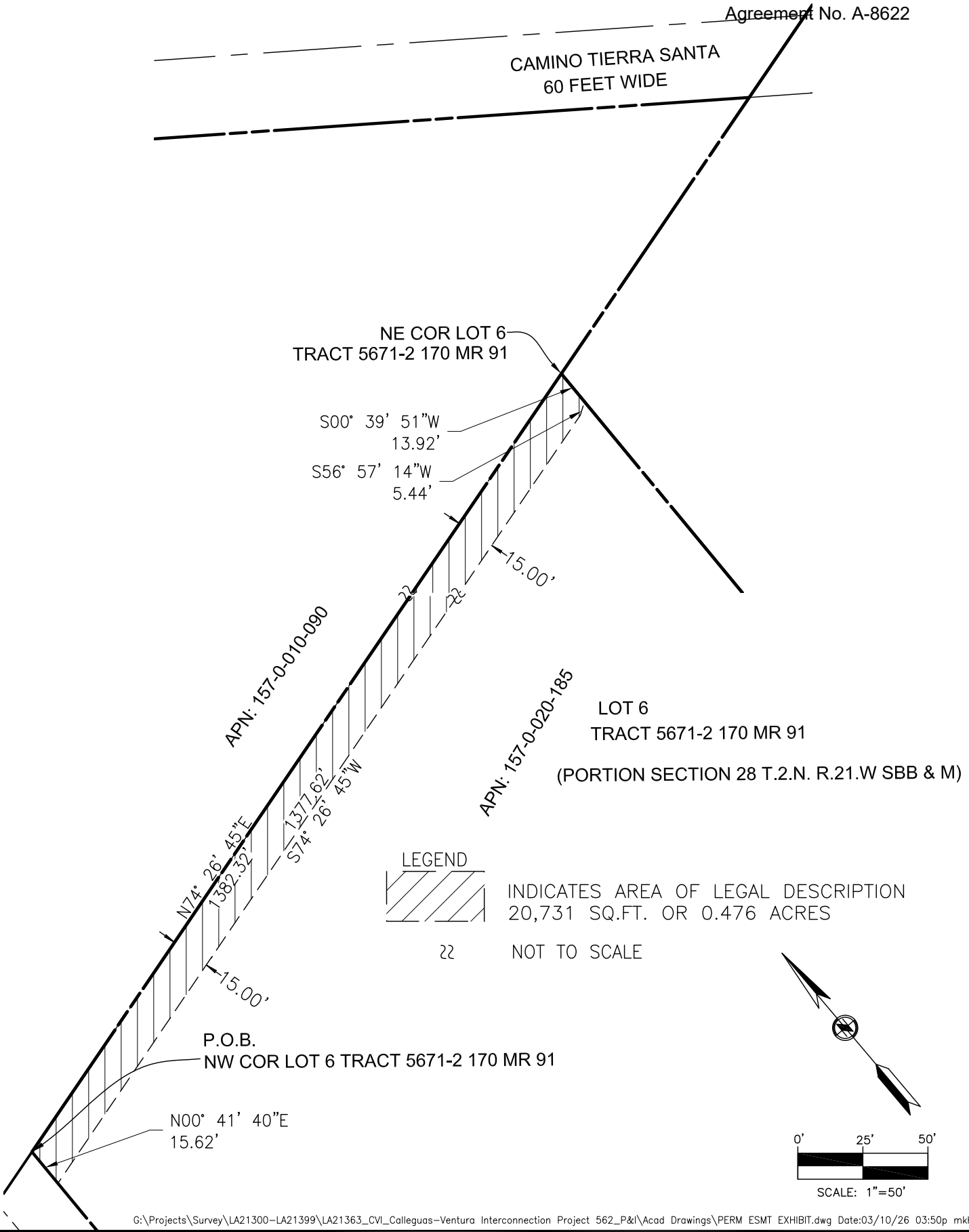
PERMANENT EASEMENT
APN: 157-0-270-015

PREPARED FOR:

CALLEGUAS MUNICIPAL WATER DISTRICT

DATE:	MARCH, 2026
JOB #	LA21363
DRAWN	MK
SCALE	1"=250'

SHEET 2 OF 3



G:\Projects\Survey\LA21300-LA21399\LA21363_CVI_Calleguas-Ventura Interconnection Project 562_P&I\Acad Drawings\PERM ESMT EXHIBIT.dwg Date:03/10/26 03:50p mkhudave

MOLLENHAUER GROUP
213 624 2661 TEL
818 937 9899 TEL
919 W. GLENOAKS BLVD 2ND FL
GLENDALE CALIFORNIA 91202
WWW.MOLLENHAUERGROUP.COM
CIVIL ENGINEERING
SURVEYING+MAPPING
LAND DEVELOPMENT

EXHIBIT "B"

PERMANENT EASEMENT
APN: 157-0-270-015

PREPARED FOR:

CALLEGUAS MUNICIPAL WATER DISTRICT

DATE:	MARCH, 2026
JOB #	LA21363
DRAWN	MK
SCALE	1"=50'

SHEET 3 OF 3

EXHIBIT "C"

LEGAL DESCRIPTION FOR
TEMPORARY EASEMENT LYING WITHIN LOT 6 TRACT 5671-2 170MR91
APN 157-0-270-015

THAT PORTION OF LOT 6 TRACT 5671-2 IN THE CITY OF CAMARILLO, COUNTY OF VENTURA, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 170, PAGE 91 THROUGH 99 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF LOT 6;

THENCE SOUTH 00°41'40" WEST 15.62 FEET ALONG THE EASTERLY LINE OF LOT 6 TO THE **TRUE POINT OF BEGINNING,**

THENCE NORTH 74°26'45" WEST 1377.62 FEET ALONG A LINE WHICH IS PARALLEL WITH AND 15.00 FEET SOUTHERLY OF THE NORTHERLY LINE OF LOT 6;

THENCE SOUTH 56°57'14" WEST 39.92 FEET TO A POINT WHICH IS 27.00 FEET AT RIGHT ANGLES TO THE NORTHERLY LINE OF SAID LOT 6;

THENCE PARALLEL WITH AND DISTANT SOUTHERLY 27.00 FEET WITH THE NORTHERLY LINE OF LOT 6, SOUTH 74°26'45" WEST 1343.04 FEET TO THE WESTERLY LINE OF LOT 6;

THENCE NORTH 00°41'40" EAST 12.50 FEET TO THE **TRUE POINT OF BEGINNING,**

PARCEL CONTAINS 0.375 ACRES, OR 16,324 SQUARE FEET, MORE OR LESS.

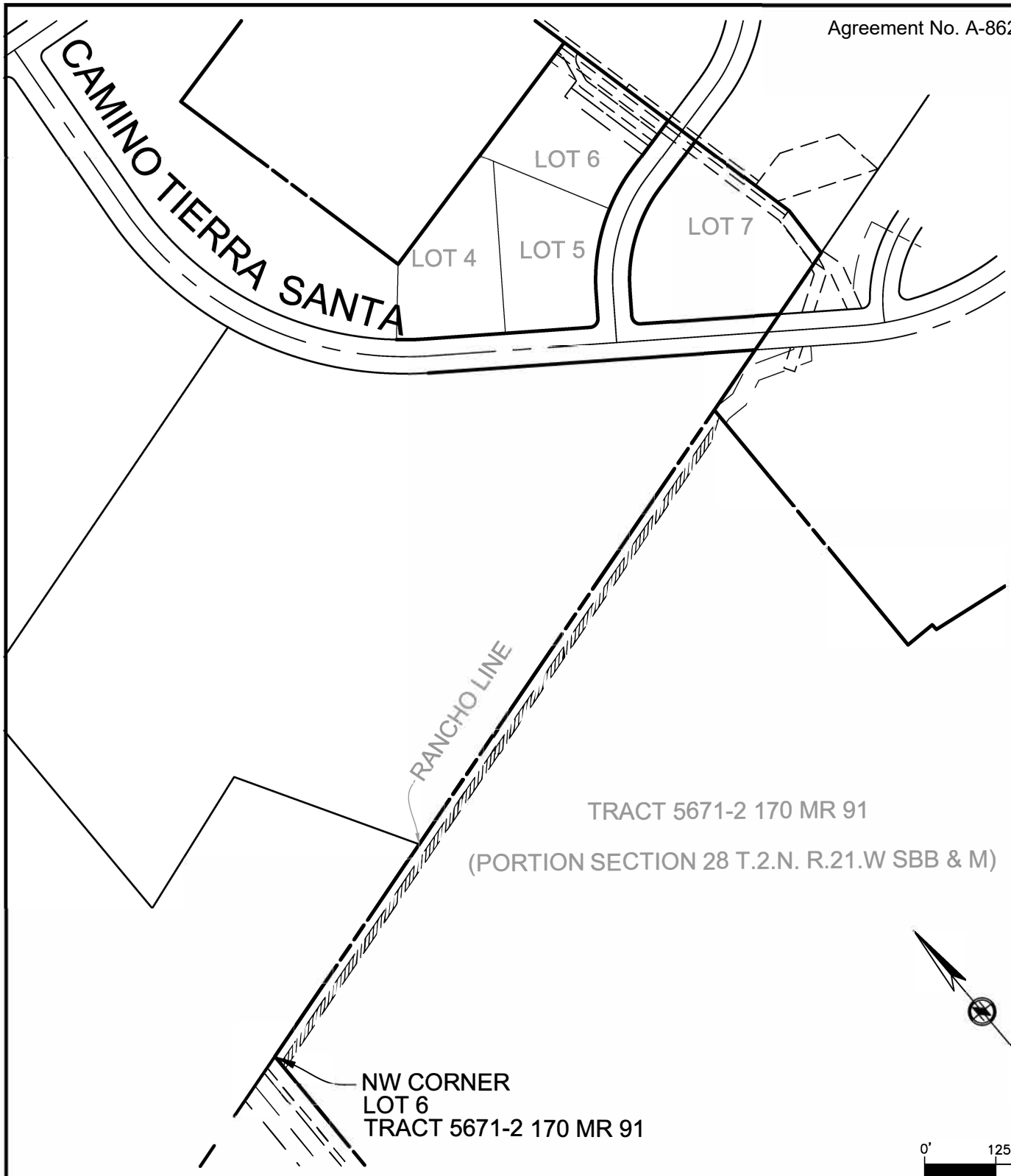
EXHIBIT C SHEETS 2 THROUGH 3 OF 3 IS INCLUDED HEREIN AND MADE A PART HEREOF.

LICENSED LAND SURVEYOR
GREGORY D. HINDSON
NO. 5670
STATE OF CALIFORNIA

3/12/26

GREGORY D. HINDSON
CALIFORNIA LICENSED PROFESSIONAL LAND SURVEYOR, PLS 5670
FOR AND ON BEHALF OF THE MOLLENHAUER GROUP

Agreement No. A-8622



LEGEND

INDICATES AREA OF LEGAL DESCRIPTION

G:\Projects\Survey\LA21300-LA21399\LA21363_CVI_Calleguas-Ventura Interconnection Project 562_P&I\Acad Drawings\TEMP ESMT EXHIBIT.dwg Date:03/10/26 02:03p mkhudave

MOLLENHAUER GROUP
213 624 2661 TEL
818 937 9899 TEL
919 W. GLENOAKS BLVD 2ND FL
GLENDALE CALIFORNIA 91202
WWW.MOLLENHAUERGROUP.COM
CIVIL ENGINEERING
SURVEYING+MAPPING
LAND DEVELOPMENT

EXHIBIT "C"

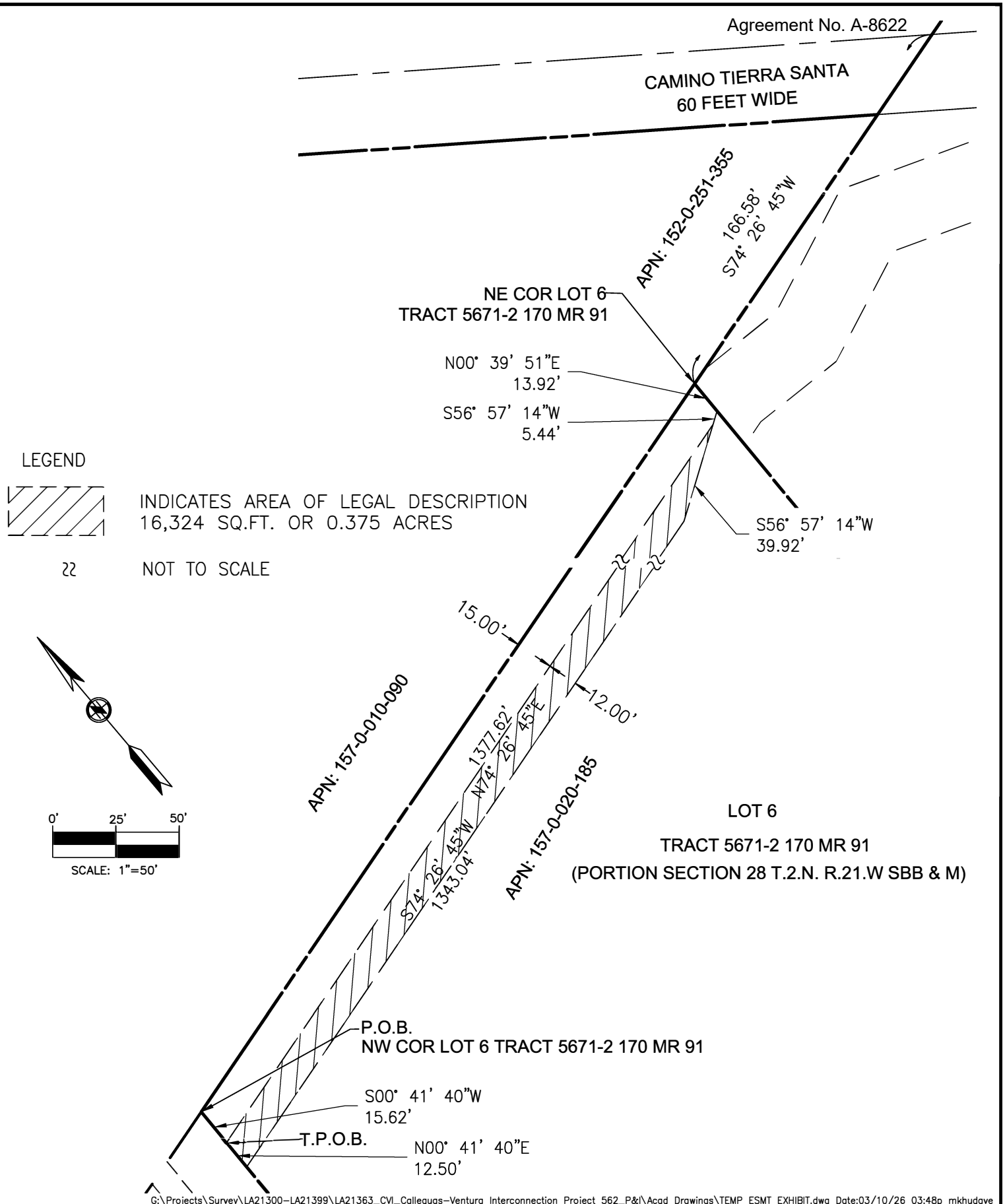
TEMPORARY EASEMENT
APN: 157-0-270-015

PREPARED FOR:

CALLEGUAS MUNICIPAL WATER DISTRICT

DATE:	MARCH, 2026
JOB #	LA21363
DRAWN	MK
SCALE	1"=250'

SHEET 2 OF 3



G:\Projects\Survey\LA21300-LA21399\LA21363_CVI_Calleguas-Ventura Interconnection Project 562_P&I\Acad Drawings\TEMP ESMT EXHIBIT.dwg Date:03/10/26 03:48p mkhudave

MOLLENHAUER GROUP
213 624 2661 TEL
818 937 9899 TEL
919 W. GLENOAKS BLVD 2ND FL
GLENDALE CALIFORNIA 91202
WWW.MOLLENHAUERGROUP.COM
CIVIL ENGINEERING
SURVEYING+MAPPING
LAND DEVELOPMENT

EXHIBIT "C"

TEMPORARY EASEMENT
APN: 157-0-270-015

PREPARED FOR:

CALLEGUAS MUNICIPAL WATER DISTRICT

DATE:	MARCH, 2026
JOB #	LA21363
DRAWN	MK
SCALE	1"=50'

SHEET 3 OF 3

EXHIBIT "D"

CALLEGUAS MUNICIPAL WATER DISTRICT

T H O U S A N D O A K S, C A L I F O R N I A

CALLEGUAS
MUNICIPAL WATER DISTRICT

CALLEGUAS – VENTURA INTERCONNECTION

PROJECT NO. 562

BOARD OF DIRECTORS

RAUL AVILA, PRESIDENT
THIBAULT ROBERT, VICE PRESIDENT
REDDY PAKALA, SECRETARY
JACQUE McMILLAN, TREASURER
SCOTT H. QUADY , DIRECTOR

★ ★ ★ ★ ★ ★ ★ ★

KRISTINE McCAFFREY, GENERAL MANAGER
IAN PRICHARD, DEPUTY GENERAL MANAGER
FERNANDO BAEZ, MANAGER OF ENGINEERING
JAY LUKIEWSKI, SENIOR PROJECT MANAGER

P E R L I T E R & I N G A L S B E
C O N S U L T I N G E N G I N E E R S
G L E N D A L E, C A L I F O R N I A

REGISTERED PROFESSIONAL ENGINEER
AMAR SHAH
No. 46198
Exp. 12-31-26
CIVIL
STATE OF CALIFORNIA

EXHIBIT "D"

INDEX TO DRAWINGS

SHT. NO.	DWG. NO.	TITLE
GENERAL		
01	A1	COVER SHEET
02	A2	INDEX TO DRAWINGS
03	A3	PROJECT LOCATION AND VICINITY MAP
04	A4	GENERAL ABBREVIATIONS, SYMBOLS AND LEGEND
05	A5	SURVEY ABBREVIATIONS, SYMBOLS, LEGEND AND CONTROL POINTS
06	A6	GENERAL NOTES AND AGENCY CONTACT INFORMATION
PIPELINE KEY PLAN AND PROFILES		
07	B1	KEY PLAN AND PROFILE PIPE STA 1+04.77 TO STA 50+00
08	B2	KEY PLAN AND PROFILE PIPE STA 50+00 TO 101+00
09	B3	KEY PLAN AND PROFILE PIPE STA 101+00 TO 148+00
10	B4	KEY PLAN AND PROFILE PIPE STA 148+00 TO STA 188+41.77 AND BRANCH B1 PIPE STA 1+00 TO STA 5+26.31
PIPELINE PLAN AND PROFILES		
11	C1	PLAN AND PROFILE PIPE STA 1+04.77 TO STA 10+00
12	C2	PLAN AND PROFILE PIPE STA 10+00 TO STA 20+00
13	C3	PLAN AND PROFILE PIPE STA 20+00 TO STA 30+00
14	C4	PLAN AND PROFILE PIPE STA 30+00 TO STA 40+00
15	C5	PLAN AND PROFILE PIPE STA 40+00 TO STA 50+00
16	C6	PLAN AND PROFILE PIPE STA 50+00 TO STA 60+00
17	C7	PLAN AND PROFILE PIPE STA 60+00 TO STA 70+00
18	C8	PLAN AND PROFILE PIPE STA 70+00 TO STA 80+00
19	C9	PLAN AND PROFILE PIPE STA 80+00 TO STA 90+00
20	C10	PLAN AND PROFILE PIPE STA 90+00 TO STA 101+00
21	C11	PLAN AND PROFILE PIPE STA 101+00 TO STA 110+00
22	C12	PLAN AND PROFILE PIPE STA 110+00 TO STA 119+00
23	C13	PLAN AND PROFILE PIPE STA 119+00 TO STA 129+00
24	C14	PLAN AND PROFILE PIPE STA 129+00 TO STA 140+00
25	C15	PLAN AND PROFILE PIPE STA 140+00 TO STA 148+00
26	C16	PLAN AND PROFILE PIPE STA 148+00 TO STA 159+00
27	C17	PLAN AND PROFILE PIPE STA 159+00 TO STA 169+00
28	C18	PLAN AND PROFILE PIPE STA 169+00 TO STA 175+00
29	C19	PLAN AND PROFILE PIPE STA 175+00 TO STA 181+00
30	C20	PLAN AND PROFILE PIPE STA 181+00 TO STA 188+41.77
31	C21	BRANCH B1 PLAN AND PROFILE PIPE STA 1+00 TO STA 5+26.31
CASING CROSSINGS		
32	D1	CASING NO. 1 – BEARDSLEY ROAD AND CHANNEL CROSSING PLAN AND PROFILE
33	D2	CASING NO. 2 – LAS POSAS ESTATES DRAIN AND WEST PONDEROSA DRIVE PLAN AND PROFILE
34	D3	STEEL CASINGS AND MISC DETAILS
BLOW-OFF DETAILS		
35	E1	BLOW-OFF NO. 1 DETAILS
36	E2	BLOW-OFF NO. 2 DETAILS
37	E3	BLOW-OFF NO. 3 DETAILS
38	E4	BLOW-OFF NO. 4 DETAILS
39	E5	BLOW-OFF NO. 5 DETAILS
40	E6	BLOW-OFF NO. 6 DETAILS
41	E7	BLOW-OFF NO. 7 DETAILS
AVARV DETAILS		
42	F1	MAIN AND BRANCH LINE AVARV SCHEDULE, NOTES, AND MISC. DETAILS
43	F2	AVARV NOS. 1 THRUGH 4 DETAILS
44	F3	AVARV NOS. 5 THRUGH 8 DETAILS
45	F4	AVARV NOS. 9 THROUGH 11 DETAILS
46	F5	AVARV NOS. 12 THROUGH 14 DETAILS
47	F6	AVARV NOS. 15 THROUGH 17 DETAILS
48	F7	AVARV NOS. 18 THROUGH 21 DETAILS
49	F8	AVARV NOS. 22 THROUGH 24 DETAILS

SHT. NO.	DWG. NO.	TITLE
VAULT DETAILS		
50	G1	VAULT NO. 1 SITE LAYOUT PLAN
51	G2	VAULT NO. 2 SITE LAYOUT PLAN
52	G3	VAULT NO. 3 SITE LAYOUT PLAN
53	G4	VAULT NO. 1 – PIPING PLAN AND PLAN AT ROOF TOP
54	G5	VAULT NO. 1 – PIPING SECTIONS
55	G6	VAULT NO. 2 – PIPING PLAN AND PLAN AT ROOF TOP
56	G7	VAULT NO. 2 – PIPING SECTONS
57	G8	VAULT NO. 3 – PIPING PLAN AND PLAN AT ROOF TOP
58	G9	VAULT NO. 3 – PIPING SECTIONS
59	G10	VAULT NO. 3 – PIPING SECTION AND SPRINGVILLE RESERVOIR CONNECTION DETAILS
60	G11	VAULT NO. 1 STRUCTURAL DETAILS
61	G12	VAULT NO. 2 STRUCTURAL DETAILS
62	G13	VAULT NO. 3 STRUCTURAL DETAILS I
63	G14	VAULT NO. 3 STRUCTURAL DETAILS II
TYPICAL AND MISCELLANEOUS DETAILS		
64	H1	MAINLINE PIPE CONNECTION TO EXISTING 30–INCH VENTURA PIPE
65	H2	BRANCH B1 CONNECTION TO EXISTING 39–INCH CMWD PIPELINE – PLANS
66	H3	BRANCH B1 CONNECTION TO EXISTING 39–INCH CMWD PIPELINE – SECTIONS
67	H4	TYPICAL STRUCTURAL DETAILS I
68	H5	TYPICAL STRUCTURAL DETAILS II
69	H6	TYPICAL PIPING AND MISCELLANEOUS DETAILS I
70	H7	TYPICAL AND MISCELLANEOUS DETAILS II
71	H8	EXISTING SEWER AND CLEANOUT REPLACEMENT DETAIL
72	H9	RETAINING WALL AND PERIMETER CONCRETE SLAB AT VAULT NO. 2 DETAILS
73	H10	CONCRETE WALKWAY AND STEPS
ROW PLANS		
74	J1	RIGHT–OF–WAY PLAN PIPE STA 1+04.77 TO STA 20+00
75	J2	RIGHT–OF–WAY PLAN PIPE STA 20+00 TO STA 40+00
76	J3	RIGHT–OF–WAY PLAN PIPE STA 40+00 TO STA 60+00
77	J4	RIGHT–OF–WAY PLAN PIPE STA 60+00 TO STA 80+00
78	J5	RIGHT–OF–WAY PLAN PIPE STA 80+00 TO 101+00
79	J6	RIGHT–OF–WAY PLAN PIPE STA 101+00 TO STA 119+00
80	J7	RIGHT–OF–WAY PLAN PIPE STA 119+00 TO STA 140+00
81	J8	RIGHT–OF–WAY PLAN PIPE STA 140+00 TO STA 159+00
82	J9	RIGHT–OF–WAY PLAN PIPE STA 159+00 TO 176+00 AND BRANCH B1 PIPE STA 1+00 TO STA 5+26.31
83	J10	RIGHT–OF–WAY PLAN PIPE STA 176+00 TO 188+41.77
PHOTO PLANS		
84	K1	PHOTO PLAN PIPE STA 1+04.77 TO STA 20+00
85	K2	PHOTO PLAN PIPE STA 20+00 TO 40+00
86	K3	PHOTO PLAN PIPE STA 40+00 TO 60+00
87	K4	PHOTO PLAN PIPE STA 60+00 TO STA 80+00
88	K5	PHOTO PLAN PIPE STA 80+00 TO STA 101+00
89	K6	PHOTO PLAN PIPE STA 101+00 TO STA 119+00
90	K7	PHOTO PLAN PIPE STA 119+00 TO STA 140+00
91	K8	PHOTO PLAN PIPE STA 140+00 TO STA 159+00
92	K9	PHOTO PLAN PIPE STA 159+00 TO STA 176+00 AND BRANCH B1 PIPE STA 1+00 TO STA 5+26.31
93	K10	PHOTO PLAN PIPE STA 176+00 TO STA 188+41.77

SHT. NO.	DWG. NO.	TITLE
STREET STRIPING PLANS		
94	L1	STREET STRIPING PLAN PIPE STA 171+00± TO STA 180+50± AND BRANCH B1 PIPE STA 1+00 TO STA 3+80±
AC IMPROVEMENT AND SLURRY SEAL PLANS		
95	M1	EXIST. AC AND CONC. COMPONENTS IMPROVEMENT PIPE STA 121+75 TO STA 124+55
96	M2	SLURRY SEAL PLAN – PIPE STA 171+50 TO STA 181+10 AND BRANCH B1 PIPE STA 1+00 TO STA 5+26.31
ELECTRICAL PLANS		
97	N1	ELECTRICAL SYMBOLS, LEGEND, AND NOTES
98	N2	ELECTRICAL ABBREVIATIONS, ADDITIONAL SYMBOLS AND LIGHTING FIXTURE SCHEDULE
99	N3	VAULT NO. 2 ELECTRICAL PLAN
100	N4	VAULT NO. 2 POWER AND COMMUNICATION SITE CONDUITS PLAN – I
101	N5	VAULT NO. 2 POWER AND COMMUNICATION CONDUITS PLAN – II
102	N6	CVI VAULT NO. 2 SITE CONDUIT SCHEDULES AND MODIFICATIONS TO EXIST. 120/240V PANEL "A" AT SPRINGVILLE HYDRO STATION
103	N7	ELECTRICAL CONDUIT PLAN AT EXISTING STRAINER VAULT NO. 2
104	N8	VAULT NO. 3 ELECTRICAL PLAN
105	N9	VAULT NO. 3 SITE ELECTRICAL & COMMUNICATIONS CONDUITS PLAN AND CONDUIT SCHEDULE
106	N10	MOD. TO EXIST. LOAD CENTER LOAD SCHEDULE AND EXISTING POWER AND CONTROL CABINETS PLAN & ELEVATION
TRAFFIC CONTROL PLANS		
107	P1	TEMPORARY TRAFFIC CONTROL NOTES, SIGN AND STRIPING LEGEND
108	P2	TEMPORARY TRAFFIC CONTROL KEY LAYOUT PLAN PIPE STA 121+30 TO STA 124+90
109	P3	TEMPORARY TRAFFIC CONTROL KEY LAYOUT PLAN PIPE STA 170+85 TO STA 180+75 AND BRANCH B1 PIPE
110	P4	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 121+30 TO STA 124+64
111	P5	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 124+64 TO STA 124+90
112	P6	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 170+85 TO STA 171+25
113	P7	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 171+25 TO STA 172+25
114	P8	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 172+25 TO STA 174+15
115	P9	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 174+15 TO STA 174+56
116	P10	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 174+56 TO STA 174+85
117	P11	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 174+85 TO STA 177+85
118	P12	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 177+85 TO STA 180+75
119	P13	TEMPORARY TRAFFIC CONTROL PLAN BRANCH B1 PIPE STA 1+00 TO 1+75
120	P14	TEMPORARY TRAFFIC CONTROL PLAN BRANCH B1 PIPE STA 1+75 TO STA 2+60 AND STA. 4+95 TO 5+26.31
121	P15	TEMPORARY TRAFFIC CONTROL PLAN BRANCH B1 STA 2+60 TO STA 4+95

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER – AMAR SHAH – No. 46198 – Exp. 12–31–26 – CIVIL – STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: 03–16–2026 — FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198
REVIEWED: 03–16–2026 — CLIENT SIGNATURE
DESIGNED: VT/AMS | DRAWN: NV/VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

INDEX TO DRAWINGS

DATE	PROJECT NO.	SHEET 02 OF 121 SHEETS	DWG.
MARCH 2026	562		A2

EXHIBIT "D"

GENERAL ABBREVIATIONS

AB	AGGREGATE BASE, ANCHOR BOLT
AC	ASPHALT CONCRETE
ACP	ASBESTOS CONCRETE PIPE
AC PVMT	ASPHALT CONCRETE PAVEMENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AGG	AGGREGATE
ALT	ALTERNATE, ALTERNATIVE
ALUM	ALUMINUM
AP	ANGLE POINT
APPRO	APPROXIMATE
APPROV	APPROVED
APPROX	APPROXIMATELY
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ARHM	ASPHALT RUBBER HOT MIX
ASSY	ASSEMBLY
AVARV	AIR VACUUM AND AIR RELEASE VALVE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BEGIN CURVE
BDRY	BOUNDARY
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BM	BENCH MARK, BEAM
BO	BLOW-OFF
BOP	BOTTOM OF PIPE
BOT, BTM	BOTTOM
BTWN	BETWEEN
BVC	BEGINNING VERTICAL CURVE
BVCE	BEGINNING VERTICAL CURVE ELEVATION
BVCS	BEGINNING VERTICAL CURVE STATION
BW	BARBED WIRE
B/W	BOTH WAYS
C	CONDUIT
C & G	CURB AND GUTTER
CATV	CABLE TELEVISION
CB	CATCH BASIN
C/C	CENTER TO CENTER
CF	CURB FACE
CFS	CUBIC FEET PER SECOND
CHKD	CHECKED
CI	CAST IRON
CIW	CONTROL INTERCONNECTING WIRING
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
CL	CLASS
CLF	CHAIN LINK FENCE
C/L, ℄	CENTERLINE
C/O	CLEAN OUT
CLR, CL	CLEAR
CMC	CEMENT MORTAR COATING
CML&C	CEMENT MORTAR LINED & COATED
CML&P	CEMENT MORTAR LINED & PAINTED
CMP	CORRUGATED METAL PIPE
CMWD	CALLEGUAS MUNICIPAL WATER DISTRICT
COMM	COMMUNICATION
COMP	COMPACTION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT, CONT'D	CONTINUED OR CONTINUOUS
CPLG	COUPLING
CP	CONTROL POINT
CPT	CONE PENETRATION TEST
CR	CROWN
CTF	CUT TO FIT
CTOC	CENTER TO CENTER
CTS	CATHODIC TEST STATION
CU	CUBIC
Cu	COPPER
CY	CUBIC YARD
D	DEPTH
DB	DIRECT BURIED, DRAINAGE BOX
DBL	DOUBLE
DG	DECOMPOSED GRANITE
DH	DRILL HOLE
DI	DRAIN INLET
DIA	DIAMETER
DIAG	DIAGONAL
DIP	DUCTILE IRON PIPE
DIR	DIRECTION
DISTR	DISTRIBUTION
DMH	DRAIN MANHOLE
DR	DRIVE
DTL	DETAIL
DWG	DRAWING
DWY	DRIVEWAY

E	EAST, ELECTRICAL
(E)	EXISTING
EA	EACH
EC	END CURVE
ECC	ECCENTRIC
EF	EACH FACE
EG	EXISTING GRADE
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
ELECT	ELECTRICAL, ELECTRONIC
ELL	ELBOW
EM	EDISON METER, EMERGENCY
EOP	EDGE OF PAVEMENT
EQPT	EQUIPMENT
EQUIV	EQUIVALENT
ESMT	EASEMENT
EVC	END VERTICAL CURVE
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EXIST, EXST	EXISTING
EXP	EXPANSION
FAB	FABRICATE
FAC	FACILITY
FF	FINISHED FLOOR
FD	FOUND
FDN	FOUNDATION
FDR	FEEDER
FG	FINISHED GRADE
FGR	FINISHED GRADE OVER ROOF
FH	FIRE HYDRANT
FIN	FINISHED
FL, ℄ FL	FLOWLINE, FLOOR
FLEX	FLEXIBLE
FLG	FLANGE
FM	FORCE MAIN
FP	FINISHED PAVEMENT
FS	FINISHED SURFACE
FT	FEET, FOOT
FTG	FOOTING
FUT	FUTURE
FXF	FIXED BY FIXED
G	GAS (PROPANE), GROUND
GA	GAGE, GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GRADE CHANGE
GEN	GENERATOR
GM	GAS METER
GN	GENERAL NOTE
GP	GUY POLE, GUARD POST
GPM	GALLONS PER MINUTE
GR	GUARD RAIL
GRTG	GRATING
GV	GATE VALVE
GRVD	GROOVED
H	HEIGHT
HB	HORIZONTAL BEND, HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HH	HAND HOLE
HOR, HORIZ	HORIZONTAL
HP	HIGH PRESSURE, HIGH POINT, HORSE POWER
HR	HANDRAIL
HW	HEADWALL
HWL	HIGH WATER LEVEL
IB	IRRIGATION BOX
ICV	IRRIGATION CONTROL VALVE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IM	IRRIGATION METER
IN	INCH
INDIC	INDICATE
INSUL	INSULATED
INT, INTERMED	INTERMEDIATE
INVT, INV	INVERT
IP	IRON PIPE
IRR	IRRIGATION
J, JCT	JUNCTION BOX
JT	JOINT
LAT	LATERAL
LF	LINEAL FEET
LT	LEFT
LG	LONG
LGTH	LENGTH
LONGIT	LONGITUDINAL
LP	LOW POINT, LIGHT POLE
LPF	LAS POSAS FEEDER
LV	LOW VOLTAGE

MAN	MANUAL
MAX	MAXIMUM
MC	MORTAR COATED
MFR	MANUFACTURER
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MH	MANHOLE, MOUNTING HEIGHT
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
ML	MORTAR LINED
ML&C	MORTAR LINED AND COATED
MODIF	MODIFICATION
MON	MONUMENT
MPF	MOORPARK FEEDER
MTL	MATERIAL
MTR	METER
MV	MEDIUM VOLTAGE
N	NORTH
(N)	NEW
NC	NORMALLY CLOSED
NG	NATURAL GAS
NO OR #	NUMBER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OFCI	OWNER-FURNISHED CONTRACTOR INSTALLED
OH	OVERHEAD
OPER	OPERATOR
OR	OFFICIAL RECORD
OSR	OXNARD SANTA ROSA
OVERFL, OF	OVERFLOW
OVHD, O/H	OVERHEAD
OW	OZONATED WATER
P	PUMP
P & I	PERLITER & INGALSBE
PB	PULLBOX
PC	POINT OF CURVATURE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
PE	PLAIN END, POLYETHYLENE
PEM	POLYETHYLENE MEDIUM (PRESSURE)
PEN	PENETRATION
PERF	PERFORATED
PERI	PERIMETER
PERM	PERMANENT
PI	POINT OF INTERSECTION
PL	PLATE
PME	PAD MOUNTED EQUIPMENT
PMH	PETROLEUM MANHOLE
PO	PUSH ON
POC	POINT ON CURVE
PP	POWER POLE
PRESS	PRESSURE
PRS	PRESSURE REGULATING STATION
PRV	PRESSURE RELIEF VALVE
PROV	PROVIDE
PTS	POINTS
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PW	PLANT WATER, POTABLE WATER
PWR	POWER
PWS	PETROLEUM LINE WARNING SIGN
QT	QUANTITY
R	RIGHT, RADIUS
R/W, ROW	RIGHT OF WAY
RC	REINFORCED CONCRETE
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDCR	REDUCER
REG	REGULATING
REQD	REQUIRED
RES	RESERVOIR
RESIL	RESILIENT
REV	REVISION, REVERSE
RS	RUBBER SEATED
RT, R	RIGHT
RW	RETAINING WALL
S	SOUTH
S TO D	SLOPE TO DRAIN
SAN	SANITARY SEWER
SCCP	STEEL CYLINDER CONCRETE PIPE
SCE	SOUTHERN CALIFORNIA EDISON
SCG	SOUTHERN CALIFORNIA GAS
SCH	SCHEDULE

SD	STORM DRAIN
SEC	SECTION
SERV	SERVICE
SHT	SHEET
SIM	SIMILAR
SL	SLOPE, STREET LIGHT
SLPB	STREET LIGHT PULLBOX
SMH	SEWER MANHOLE
SP	SPACE
SPECS	SPECIFICATIONS
SPPWC	STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
SQ	SQUARE
SR	SHORT RADIUS, SANTA ROSA
SS, SST	STAINLESS STEEL
SSPWC	STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
SSW	SANITARY SEWER
ST	START, STREET
STA	STATION
STD	STANDARD
STD DWG	STANDARD DRAWING
STL	STEEL
STRUCT	STRUCTURE
SUSP	SUSPENDED
SW	SIDEWALK
SWBD	SWITCHBOARD
SYMM.	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TBD	TO BE DETERMINED
TBR	TO BE REMOVED
TC, TOC	TOP OF CURB/CONCRETE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEL	TELEPHONE
TEMP	TEMPORARY
TG	TOP OF GRATING
THD	THREADED
THK	THICK
TMH	TELEPHONE MANHOLE
TOS	TOE OF SLOPE
TOW	TOP OF WALL
TRANS	TRANSITION
TP	TOP OF PAVEMENT
TR	TREE, TOP OF ROOF
TTF	TOP OF TRENCH FLOOR
TYP	TYPICAL
UG	UNDERGROUND
UNC	UNIFIED COARSE THREAD
UNO	UNLESS NOTED OTHERWISE
UW	UTILITY WATER
V	VALVE, VERTICAL
VAR	VARIES
VARV	VACUUM AND AIR RELEASE VALVE
VB	VERTICAL BEND
VC	VERTICAL CURVE
VCJ	VERTICAL CONTROL JOINT
VCP	VITRIFIED CLAY PIPE
VCSSM	VENTURA COUNTY STANDARD SURVEY MONUMENT
VCWPD	VENTURA COUNTY WATERSHED PROTECTION DISTRICT
VER,VERT	VERTICAL
VFI	VACUUM FAULT INTERRUPTER
VIC	VICTAULIC (GROOVED) COUPLING
VLT	VAULT
W	WEST, WATER
W/	WITH
W/O	WITHOUT
WCJ	WALL CONSTRUCTION JOINT
WL	WATERLINE
WM	WATER METER
WMH	WATER MANHOLE
WSEL	WATER SURFACE ELEVATION
WS	WELDED STEEL
WSP	WELDED STEEL PIPE
WT	WEIGHT
WV	WATER VALVE
WW	WASTEWATER
WWM	WELDED WIRE MESH
WWS	WATER LINE WARNING SIGN
XFMR	TRANSFORMER

GENERAL SYMBOLS AND LEGEND

- Centerline
- Property Line
- 540 — Existing Contour
- 540 — Existing Contour to be Changed
- 540 — New Contour
- x — x — x — Chain Link Fence, Gate
- Guard Rail
- Handrail
- xxx — xxx — Temporary Privacy/Protection Fence
- Temporary Sound Wall
- Metal Fence, Gate
- W — Waterline
- WS — CMWD Water Supply Line
- T — Telephone Line
- E — Electrical Line
- G — Gas Line
- CTV — Cable TV
- SS — Sanitary Sewer Line
- SD — Storm Drain
- OE/T — Overhead Electric and Telephone
- Bush Line
- WAB — WAB — Work Area Boundary
- A — Section Line
- GP — Guard Post
- PP — Power Pole
- MH — Manhole
- Water Valve
- FE — Fire Extinguisher
- WM — Water Meter
- Street Light, Light Post
- T — Tracer Wire Terminal Post
- New Slope
- Existing Slope
- Sign
- Control Point
- Tree/Shrub
  10" Diameter of Trunk Where Shown
- Fire Hydrant
- Sandbags
- CP5 — Temporary Benchmark
- Gravel/Granular Material
- Concrete
- Undisturbed Earth
- A.C. Pavement
- Available Staging and Storage Area
- Permanent Easement
- Temporary Easement

NOTES:

1. Additional symbols and legend pertaining to survey work are shown on Dwg. A5.
2. Some abbreviations may not be used in this Contract.

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER — AMAR SHAH — No. 46198 Exp. 12-31-26 — CIVIL — STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: 03-16-2026 — FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198
REVIEWED: 03-16-2026 — CLIENT SIGNATURE
DESIGNED: VT/AMS | DRAWN: NV/VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

GENERAL ABBREVIATIONS, SYMBOLS AND LEGEND

DATE	PROJECT NO.	SHEET 04 OF 121 SHEETS	DWG.
MARCH 2026	562		A4

EXHIBIT "D"

SURVEY GENERAL ABBREVIATIONS

AC	ASPHALT CONCRETE
AD	AREA DRAIN
AG	ANCHOR GUY
AL	AREA LIGHT
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BOTT	BOTTOM
BW	BACK OF WALK
CB	CATCH BASIN
CL	CHAIN LINK
CMP	CORRUGATED METAL PIPE
CMWD MH	CALLEGUAS MWD MANHOLE
CO	CLEAN OUT
CONC	CONCRETE
CP	CONTROL POINT
DIA	DIAMETER
DSY	DOUBLE SOLID YELLOW
DY	DOUBLE YELLOW
EC	EDGE OF CONCRETE
EG	EDGE OF GUTTER
ELEC	ELECTRICAL
ELEV	ELEVATION
ER	ELECTRIC RISER
ES	EDGE OF STEPS
FF	FINISH FLOOR
FL	FLOW LINE
FS	FINISHED SURFACE
GB	GRADE BREAK
GM	GAS METER
GND	GROUND
GP	GUARD POST
INV	INVERT
IP	IRON PIPE
IPB	IRRIGATION PULL BOX
IRR	IRRIGATION
MG	MOLLENHOUER GROUP (DESIGN SURVEYOR)
NAD	NATIONAL AMERICAN DATUM
NAVD	NATIONAL AMERICAN VERTICAL DATUM
(P)	PAINT LINE
RD	ROOF DRAIN
SSM	SURVEY SUB-SURFACE MONUMENT
SW	SINGLE WHITE
TSCB	TRAFFIC SIGNAL CONTROL BOX
TC	TOP OF CURB
TOP	TOP OF SLOPE
TOE	TOE OF SLOPE
TG	TOP OF GRATE
TS	TRAFFIC SIGNAL
TYP	TYPICAL
TW	TOP OF WALL
UR	UNKNOWN RISER
WR	WATER RISER

SURVEY GENERAL SYMBOLS AND LEGEND

BUILDING LINE
BUILDING LINE OVERHANG
EDGE OF ASPHALT
FLOW LINE
WALL/CURB
TOP OF SLOPE
TOE OF SLOPE
OHP — OVERHEAD POWER
DSY(P) — DOUBLE SOLID YELLOW PAINT LINE
SW(P) — SOLID WHITE PAINT LINE
W — WATER LINE
X — FENCE LINE
WROUGHT IRON FENCE
GUARD RAIL
CO — CLEAN OUT
AD — AREA DRAIN
AL — AREA LIGHT
W — WATER VALVE
G — GAS VALVE
ANCHOR GUY
POWER POLE WITH STREET LIGHT
STREET LIGHT AND TRAFFIC LIGHT
TRAFFIC LIGHT
POWER POLE

PIV — POST INDICATOR VALVE
IRRIGATION VALVE
IRRIGATION PULLBOX
IPB
MH — MANHOLE
PB — UNKNOWN PULL BOX
FH — FIRE HYDRANT
BFP — BACKFLOW PREVENTER
SIGN
GP — GUARD POST
CP1 — CONTROL POINT
CONCRETE SURFACE
WV — WATER PIPE VAULT
WM — WATER METER
CROSS WALK POLE
E — ELECTRICAL MANHOLE
T — TELEPHONE MANHOLE
TS — TRAFFIC SIGNAL PULL BOX
PALM TREE WITH TRUNK DIAMETER
12" — TREE WITH TRUNK DIAMETER
DRIVE ARROW

NOTES:

1. Additional general symbols and legend are shown on Dwg. A4.
2. Some abbreviations may not be used in this Contract.

CONTROL LIST
(MODIFIED NAD 83 – ZONE 5 STATE PLANE COORDINATES)

CONTROL POINTS	NORTH	EAST	ELEVATION	DESCRIPTION
CP 4	1914747.6500'	6224313.1400'	103.650'	(MG CONTROL) MG SPIKE & WASHER
CP 100	1911351.6800'	6221399.7400'	90.450'	SSM SANTA CLARA & CENTRAL
CP 103	1907889.1100'	6225493.6600'	82.890'	SSM CENTRAL & BEARDSLEY
CP 172	1908147.5200'	6227422.2100'	85.010'	(MG CONTROL) PLASTIC CAP & REBAR
CP 182	1909764.9600'	6225986.9900'	87.180'	(MG CONTROL) PLASTIC CAP & REBAR
CP 186	1911808.7100'	6225323.9800'	91.700'	(MG CONTROL) PLASTIC CAP & REBAR
CP 193	1905741.7100'	6232228.6500'	162.160'	(MG CONTROL) MG SPIKE & WASHER
CP 196	1905889.0000'	6232766.0400'	211.030'	(MG CONTROL) MG SPIKE & WASHER
CP 219	1905262.0700'	6228547.5900'	82.170'	(MG CONTROL) MG SPIKE & WASHER
CP 224	1905724.7300'	6228084.9100'	74.980'	CALTRANS SPIKE & WASHER
CP 232	1911890.1540'	6225262.6090'	90.371'	(MG CONTROL) PLASTIC CAP & REBAR
CP 236	1912841.3380'	6224937.9370'	93.240'	(MG CONTROL) PLASTIC CAP & REBAR
CP 240	1914091.4360'	6224512.9480'	98.606'	(MG CONTROL) PLASTIC CAP & REBAR
CP 242	1914623.5700'	6224332.0090'	102.103'	(MG CONTROL) PLASTIC CAP & REBAR
CP 250	1906181.8100'	6232939.4500'	265.900'	2 INCH IP RCE 32981 ZAMORA & CAMINO TIERRA SANTA
CP 298	1906021.2170'	6233130.9890'	247.740'	(MG CONTROL) MG SPIKE & WASHER
CP 315	1905863.3730'	6227984.4340'	76.680'	(MG CONTROL) MG SPIKE & WASHER
CP 410	1910573.8350'	6225722.8100'	88.460'	(MG CONTROL) PLASTIC CAP & REBAR
CP 421	1914611.9100'	6224368.0300'	101.330'	(MG CONTROL) PLASTIC CAP & REBAR
CP 502	1907506.2200'	6228192.3600'	84.850'	(MG CONTROL) MG SPIKE & WASHER
CP 504	1908740.2000'	6226747.1700'	85.790'	(MG CONTROL) PLASTIC CAP & REBAR
CP 505	1908842.2900'	6226281.3000'	87.980'	(MG CONTROL) MG SPIKE & WASHER
CP 506	1907559.9400'	6228217.5700'	86.700'	(MG CONTROL) MG SPIKE & WASHER
CP 516	1904681.4360'	6231590.6670'	84.740'	CHIS + ELEC BOX FOOTING
CP 526	1906424.1750'	6233206.9340'	290.190'	(MG CONTROL) MG SPIKE & WASHER
CP 527	1906644.2710'	6233205.1550'	303.680'	(MG CONTROL) MG SPIKE & WASHER
CP 532	1906736.0780'	6228197.5070'	80.118'	(MG CONTROL) PLASTIC CAP & REBAR
CP 533	1906495.6870'	6228069.2410'	83.774'	(MG CONTROL) PLASTIC CAP & REBAR
CP 539	1909069.9730'	6226279.3940'	86.143'	SCRIBED+

SURVEY

BASIS OF BEARINGS / VERTICAL DATUM:

BENCHMARK: 96-1 AUX 1 1976

VENTURA COUNTY BRASS DISK SET IN TOP OF CURB AT THE NORTHEASTERLY CORNER OF LAS POSAS ROAD AND US HIGHWAY 101 OVERPASS, 43.0 FEET EAST FROM MIDDLE OF LAS POSAS ROAD, 17.5 FEET SOUTH FROM THE NORTH END OF THE WEST SIDEWALK.

ELEVATION: 122.975 FEET (NAVD 88)

HORIZONTAL DATUM:

NORTH AMERICAN DATUM 1983 (NAD 83)
CALIFORNIA – ZONE 5
ESTABLISHED USING TRIMBLE R-10 RECEIVERS AND SMART NET SOFTWARE

AERIAL PHOTOGRAPHY: FROM FEBRUARY 16, 2023

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER — AMAR SHAH — No. 46198 Exp. 12-31-26 — CIVIL — STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: 03-16-2026 — FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198
REVIEWED: 03-16-2026 — CLIENT SIGNATURE
DESIGNED: VT/AMS | DRAWN: VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

SURVEY ABBREVIATIONS, SYMBOLS, LEGEND AND CONTROL POINTS

DATE	PROJECT NO.	SHEET 05 OF 121 SHEETS	DWG.
MARCH 2026	562		A5

EXHIBIT "D"

GENERAL NOTES

A. GENERAL:

1. Reference to "Std Dwgs" shall mean Calleguas MWD Standard Drawings, included in an Appendix to the Specifications, unless noted otherwise.
2. See Specifications for index list and copies of Calleguas MWD Standard Drawings.
3. Reference letters and numbers shown in circles are detail identification symbols as described below.

REFERENCE SYMBOL	IDENTIFICATION/DESCRIPTION
F / C2	Detail F on Drawing C2 or as referenced on Drawing C2.
B / –	Detail B on the Same Drawing/Sheet.
704	Calleguas MWD Standard Drawing 704.

4. Drawings may not show all or any existing vegetation for clarity.
5. Unless noted otherwise, all work shown in these documents is new and to be performed under this Contract.
6. All profile elevations are expressed in feet above Mean Sea Level (MSL). Horizontal distances are in feet and/or in inches.
7. Temporary benchmarks shown may have been destroyed or damaged.
8. Owner's yard is located at 2100 Olsen Road, Thousand Oaks, CA 91360.

B. EXISTING FACILITIES:

1. Available record data are included in the Specifications.
2. The District does not warrant nor guarantee the accuracy of locations and grades for existing facilities and utilities, including structures, main lines, service lines and laterals as shown on these Drawings or on the record drawings included in the Specifications.
3. The details and dimensions of the existing facilities have been taken from existing records. Contractor shall verify all existing facilities, elevations and dimensions in the field prior to fabrication of new materials and/or equipment. Such verification shall include potholing for existing pipe and conduits. See General Condition 5.23 in the Specifications for additional requirements.
4. No equipment which exceeds AASHTO H20 loading may be operated within four (4) feet of the outside face of any existing District facility, including pipelines, vaults and building, unless approved in advance, in writing, by the District.
5. Soil stockpile higher than 4 feet or equivalent material storage over any existing belowground utilities shall not be allowed unless approved in advance, in writing, by the District.
6. Provide temporary supports as required to protect existing facilities, including belowground utilities.
7. Surface features shown on the Drawings may have changed since survey maps and aerial photos were compiled and developed in early 2023. The Contractor shall verify in field existing condition as required and include its impact on procurement and installation of the new components under this project.
8. Not all existing facilities and utilities are shown on the Drawings. Refer to record data for additional information.
9. Existing private farm roads shown on the drawings may not exist or may be modified since survey plans prepared.
10. Existing facilities damaged or removed due to construction operations shall be replaced in kind as accepted by the Owner at no additional cost to the Owner. Refer to Section 02990, Miscellaneous Work, for additional requirements
11. Unless otherwise noted, existing facilities shall be protected in place. If existing facilities interfere with construction operations, they shall be temporarily relocated as accepted by the Owner and restored or replaced in kind as accepted by the Owner. All costs shall be borne by the Contractor.
12. Refer to Special Condition 27 for requirements for taking Preconstruction Videos.

C. PIPING AND TRENCHING:

1. Stations shown are along the centerline of pipeline or on a line normal to the centerline of pipeline.
2. Stationing is based on horizontal measurements of all tangent distances, sub–tangent distances at fabricated bends and true curve lengths where horizontal curves are indicated.
3. Where angles are shown in the pipeline alignment which exceed the permissible deflection of the joints, including bevel joints where applicable, fabricated fittings shall be installed.
4. Unless otherwise shown, wall penetrations for all pipes and conduits shall be constructed in accordance with CMWD Standard Drawing 703C.
5. Unless otherwise noted, pipe trenches shall be in accordance with Section 02220 and CMWD Standard Drawings 301A through 301E.
6. Unless otherwise noted, provide at least 8" extra pipe at each buttstrap connection and for pipe with loose flange for field adjustment. Cut pipe in field as required.
7. Buttstrap steel thickness shall be at least 1.25 times the thickness of thickest steel cylinder in adjoining pipe sections.
8. Filler plate shall be provided as required to make connection between two pieces of pipeline and as approved by the Engineer. Thickness of filler plate shall be as required, but not less than 1/8". Required filler plates shall be available on site prior start of making connection.

GENERAL NOTES (CONT'D)

C. PIPING AND TRENCHING (Continued):

9. Filler rods shall be provided as required to make connection between two pieces of pipeline and as approved by the Engineer. Diameter of filler rod shall be as required, but not less than 1/4". Filler rod shall conform to ASTM A36. For each connection between existing and new pipe pieces, sufficient length of filler rod shall be available on site prior to start of making connection.
10. Unless otherwise noted, pipe closure pieces connecting the existing pipe shall be installed during specified shutdown period of the existing facility and after completion of all other work as specified in Special Conditions Sections 1 and 5.
11. All welded steel pipelines shall have bonding jumpers at rubber gasketed joints per CMWD Standard Drawing 901.
12. Joint bonding at flanges, valves, and couplings shall be per CMWD Standard Drawing 902.
13. Pipe cathodic test station shall be installed out of the vehicle traveled area as directed in the field by the Owner. In dirt road and agricultural area install two guard posts near cathodic test station as directed by the owner in field.
14. Crossing of New Pipeline Above the Existing Utility:
    a. Clear vertical distance between new pipeline and existing utility below shall be as shown on the Drawings, but in no case, it shall be less than 6 inches.
    b. If the vertical clearance is between 6 inches and 12 inches, construct per CMWD Standard Drawing 1101.
15. Crossing of New Pipeline Below the Existing Utility:
    a. Clear vertical distance between new pipeline and existing utility above shall be as shown on the Drawings, but in no case, it shall be less than 6 inches.
    b. Construct per CMWD Standard Drawing 1103, except where Note 15.c or 15.d are applicable.
    c. If the existing utility other than CMP drain is larger than 12 inches in diameter or the trench width is more than 4' the existing utility shall be supported per CMWD Standard Drawing1102.
    d. If the existing utility is a box culvert, it shall be supported using a detail similar to CMWD Standard Drawing1102 with I–beam(s) supporting the bottom of the box connected to two chains to support the box culvert.

D. MISCELLANEOUS:

1. Color of all paint shall be submitted for approval by the District prior to painting.
2. Guard post shall be painted using premium enamel with yellow school bus color. Paint shall be PlastiKote Enamel PTK–T29 or approved equal.
3. Locations of all guard posts shown on the Drawings are approximate. Exact locations shall be determined in field as approved by the Owner.

E. DEMOLITION AND ABANDONMENT:

1. Demolish existing facilities as shown on the Drawings.
2. Demolish existing facilities interfering with new construction and replace with new in kind unless otherwise shown and as approved by the Owner. Contractor shall record sizes, locations, and features of existing facilities that are required to be replaced with new prior to start of demolition.
3. All voids created by removal of existing belowground facilities shall be filled using 95% compacted On–Site Select Fill Material or Imported Fill Material. In lieu of soil fill material, 2–sack cement–sand slurry may be used as approved by the Owner.
4. Existing pipes to be abandoned in place shall be filled with 2–sack cement–sand slurry and cut ends shall be sealed using 12" thick brick and mortar or concrete.
5. All voids created in concrete or masonry structures by removal of anchors or similar items shall be filled using non–shrink grout. Color of grout shall match the existing adjacent finished surface.

F. WORK AREA:

1. Work Area inside private properties shall be within the Calleguas permanent and temporary easement areas as depicted on the Drawings. Work Area along public right of way shall be in accordance with General Condition 1.6 for required Work as shown on the Drawings. Work Area within Calleguas owned properties shall be as shown on the Drawings.
2. Work Area shown on the Drawings are approximate and may not show all work area, including area required for traffic controls.
3. Vehicular access to existing facilities to remain in operation shall not be blocked.
4. Work Area may be used for construction activities and temporary staging and storage purposes if General Notes B.4 and B.5 are complied with.
5. Unless otherwise shown, Work Area shall be restored to the original condition.
6. Existing facilities and vegetation shall not be removed unless otherwise noted.

AGENCY/SERVICE CONTACT INFORMATION

AT&T Telephone (Telephone)	22311 Brookhurst St. Huntington Beach, CA 92646	(714) 963–7964
Calleguas Municipal Water District (Water, Owner)	2100 Olsen Road Thousand Oaks, CA 91360	(805) 526–9323
City of Camarillo	601 Carmen Drive, Camarillo CA 93010	(805) 383–5340
Southern California Edison (Electric)	3589 Foothill Drive Thousand Oaks, CA 91361	(805) 494–7038
Southern California Gas Company (Gas)–Distribution Department	9400 Oakdale Ave. Chatsworth, CA 91311	(818) 701–3228
Southern California Gas Company (Gas)–Transmission Department	9400 Oakdale Ave. Chatsworth, CA 91311	(818) 701–4546
Time Warner Cable (Cable TV)	2525 Knoll Drive Ventura, CA 93003	(805) 732–9353
Frontier	201 Flynn Road Camarillo, CA 93012–8058	(800) 921–8108
Ventura County Transportation Department Permits	800 S. Victoria Ave. Ventura, CA 93009–1600	(805) 654–2055
Ventura County Sheriff Department	2101 Olsen Road, Thousand Oaks, CA	(805) 494–8200
Ventura County Watershed Protection District (Storm Drain)	800 S. Victoria Ave. Ventura, CA 93009–1600	(805) 654–2018
Dig Alert	DIGALERT	811

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER — AMAR SHAH — No. 46198 — Exp. 12-31-26 — CIVIL — STATE OF CALIFORNIA

CAUTION 0 1" — THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: 03-16-2026 — FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198
REVIEWED: 03-16-2026 — CLIENT SIGNATURE
DESIGNED: VT/AMS | DRAWN: NV/VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

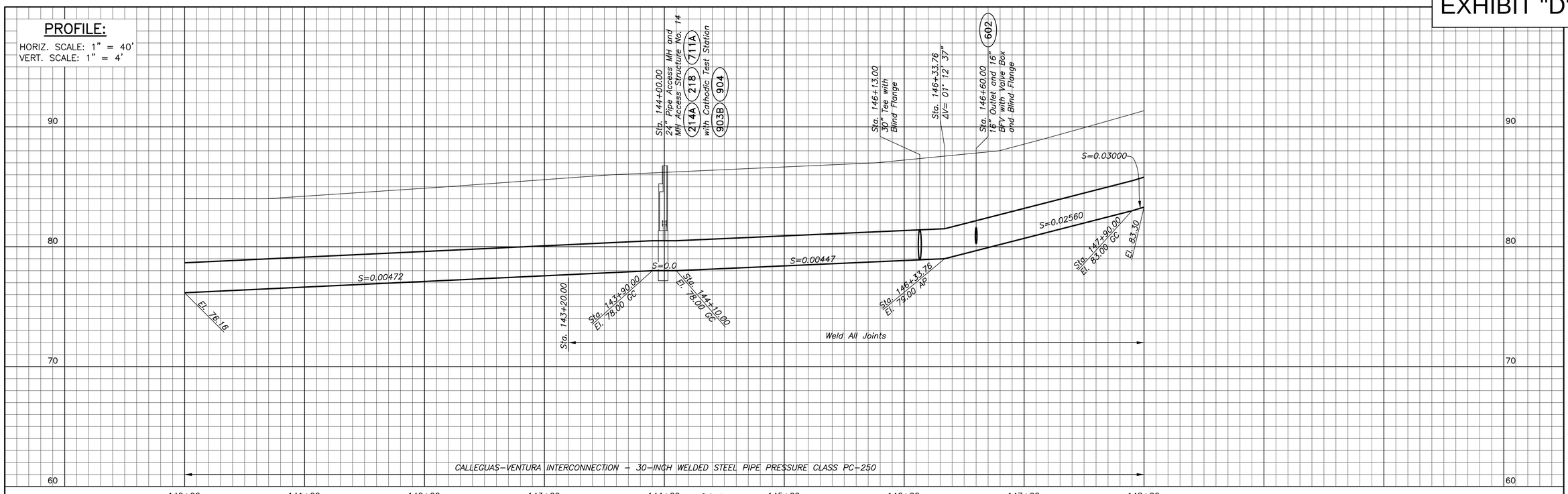
GENERAL NOTES AND AGENCY CONTACT INFORMATION

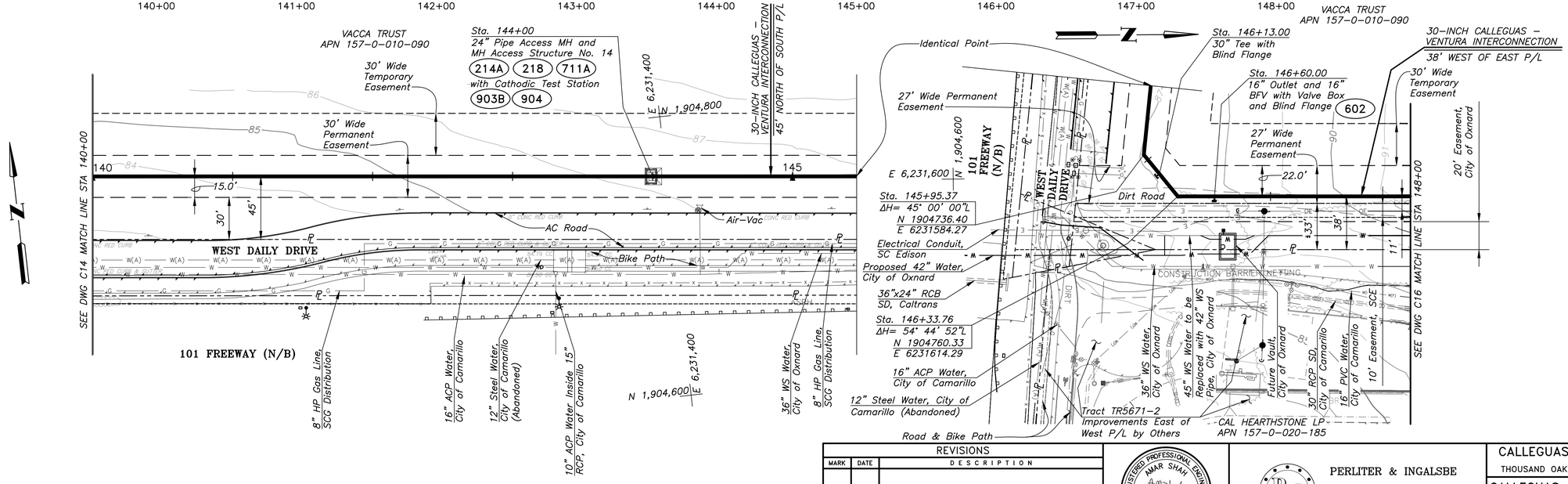
DATE	PROJECT NO.	SHEET 06 OF 121 SHEETS	DWG.
MARCH 2026	562		A6

EXHIBIT "D"

PROFILE:

HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'





PLAN

40 0 40 80 120 FEET

SCALE: 1 IN. = 40 FT.

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
AMAR SHAH
No. 46198
Exp. 12–31–26
CIVIL
STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: 03–16–2026
FOR THE CONSULTING ENGINEERS R.C.E. NO. 46198
REVIEWED: 03–16–2026
CLIENT SIGNATURE
DESIGNED: AMS/VT DRAWN: VT CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

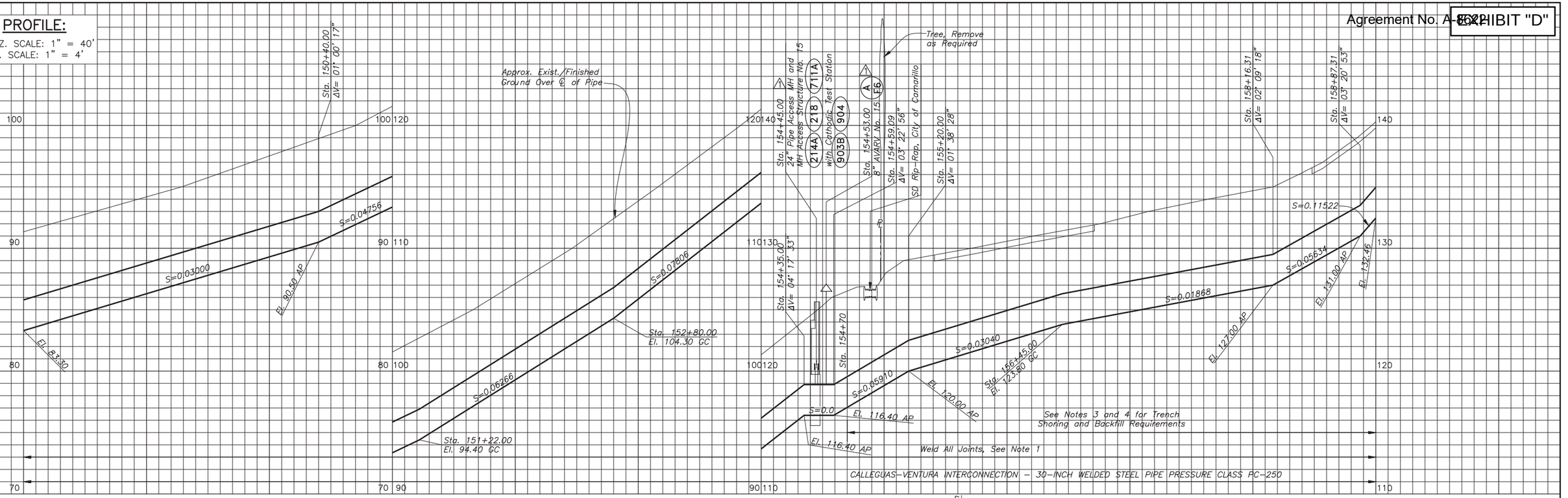
CALLEGUAS – VENTURA INTERCONNECTION

PLAN AND PROFILE
PIPE STA 140+00 TO STA 148+00

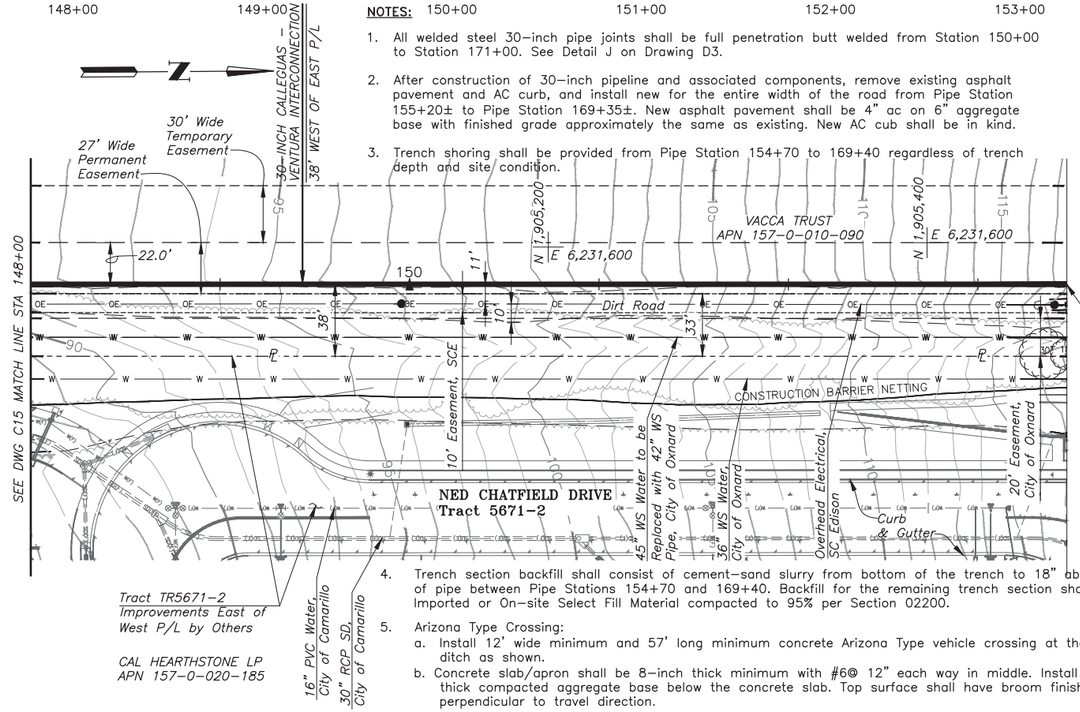
DATE	PROJECT NO.	SHEET 25 OF 121 SHEETS	DWG.
MARCH 2026	562		C15

PROFILE:

HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



PLAN

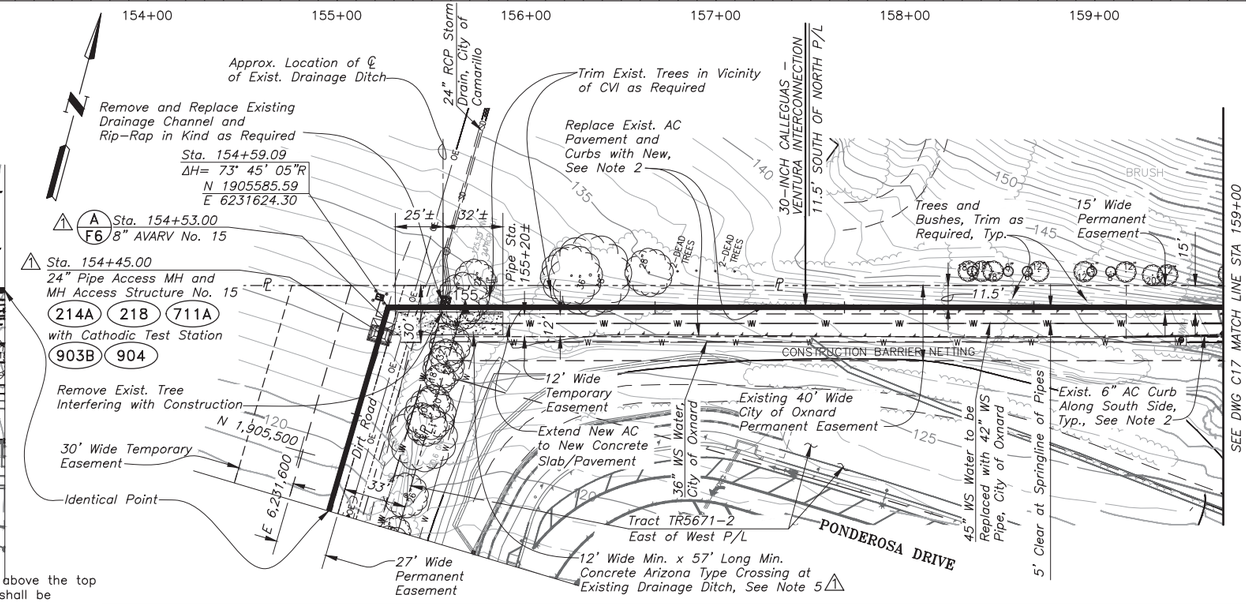


40 0 40 80 120 FEET

SCALE: 1 IN. = 40 FT.

NOTES:

1. All welded steel 30–inch pipe joints shall be full penetration butt welded from Station 150+00 to Station 171+00. See Detail J on Drawing D3.
2. After construction of 30–inch pipeline and associated components, remove existing asphalt pavement and AC curb, and install new for the entire width of the road from Pipe Station 155+20± to Pipe Station 169+35±. New asphalt pavement shall be 4" ac on 6" aggregate base with finished grade approximately the same as existing. New AC cub shall be in kind.
3. Trench shoring shall be provided from Pipe Station 154+70 to 169+40 regardless of trench depth and site condition.
4. Trench section backfill shall consist of cement–sand slurry from bottom of the trench to 18" above the top of pipe between Pipe Stations 154+70 and 169+40. Backfill for the remaining trench section shall be Imported or On–site Select Fill Material compacted to 95% per Section 02200.
5. Arizona Type Crossing:
   a. Install 12' wide minimum and 57' long minimum concrete Arizona Type vehicle crossing at the existing ditch as shown.
   b. Concrete slab/apron shall be 8–inch thick minimum with #6@ 12" each way in middle. Install 6–inch thick compacted aggregate base below the concrete slab. Top surface shall have broom finish perpendicular to travel direction.
   c. Provide a control joint approximately in middle along longitudinal direction and at approximately 10' on center in transverse direction. Provide Construction joint(s) if needed. All control and construction joints shall have polyethylene joint sealant.
   d. Elevations of top of concrete slab shall be approximately the same as existing and as approved by the Owner in field. Provide gradual descend from west end to east toward center line of the ditch and then gradual ascend to east end. The maximum grade shall not exceed 8 percent on either approach slope. Extend new asphalt concrete to the new concrete slab (Arizona Type crossing) at east end.
   e. Perform required earthwork as needed.



REVISIONS		
MARK	DATE	DESCRIPTION
1	4/27	a. Revision to locations for MH concrete access structure No.15 and AVARV No. 15. b. Addition of Arizona Type concrete crossing at existing drainage ditch.

REISSUE
DATE: APRIL 27, 2026

REGISTERED PROFESSIONAL ENGINEER
AMAR SHAH
No. 46198
Exp. 12–31–26
CIVIL
STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: 03–16–2026
FOR THE CONSULTING ENGINEERS R.C.E. NO. 46198
REVIEWED: 03–16–2026
CLIENT SIGNATURE
DESIGNED: AMS/VT DRAWN: VT CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

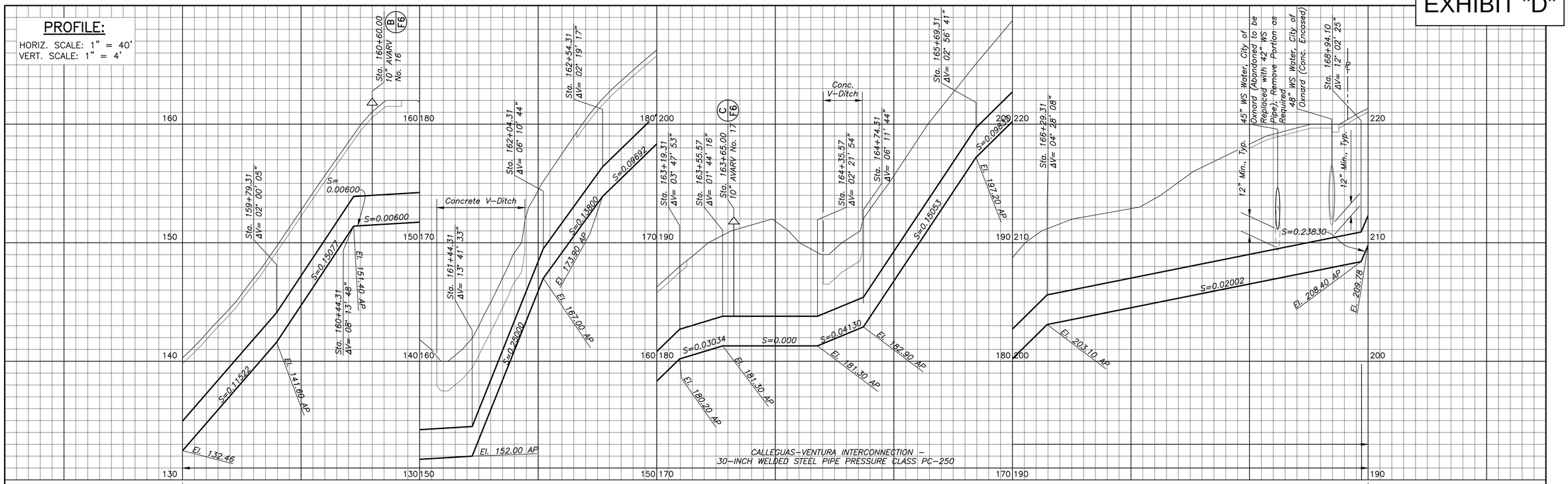
PLAN AND PROFILE
PIPE STA 148+00 TO STA 159+00

DATE	PROJECT NO.	SHEET 26 OF 121 SHEETS	DWG.
MARCH 2026	562		C16

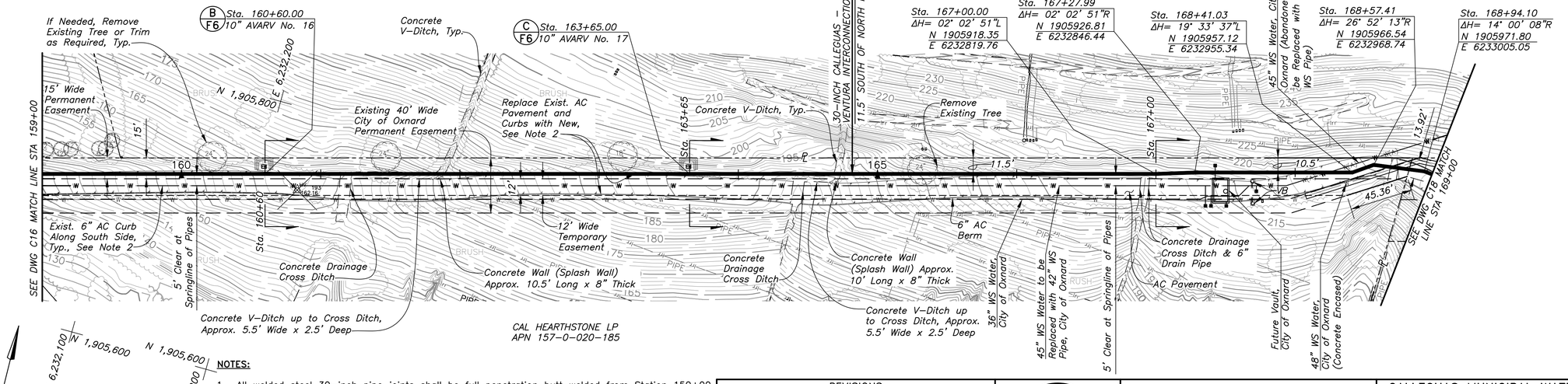
EXHIBIT "D"

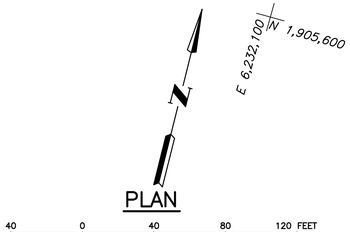
PROFILE:

HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



See Notes 3 and 4 for Trench Shoring and Backfill Requirements. Weld all Joints, See Note 1





NOTES:

1. All welded steel 30-inch pipe joints shall be full penetration butt welded from Station 150+00 to Station 171+00. See Detail J on Drawing D3.
2. After construction of 30-inch pipeline and associated components, remove existing asphalt pavement and AC curb, and install new for the entire width of the road from Pipe Station 155+20± to Pipe Station 169+35±. New asphalt pavement shall be 4" ac on 6" aggregate base with finished grade approximately the same as existing. New AC cub shall be in kind.
3. Trench shoring shall be provided from Pipe Station 154+70 to 169+40 regardless of trench depth and site condition.
4. Trench section backfill shall consist of cement-sand slurry from bottom of the trench to 18" above the top of pipe between Pipe Stations 154+70 and 169+40. Backfill for the remaining trench section shall be Imported or On-site Select Fill Material compacted to 95% per Section 02200.

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
AMAR SHAH
No. 46198
Exp. 12-31-26
CIVIL
STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

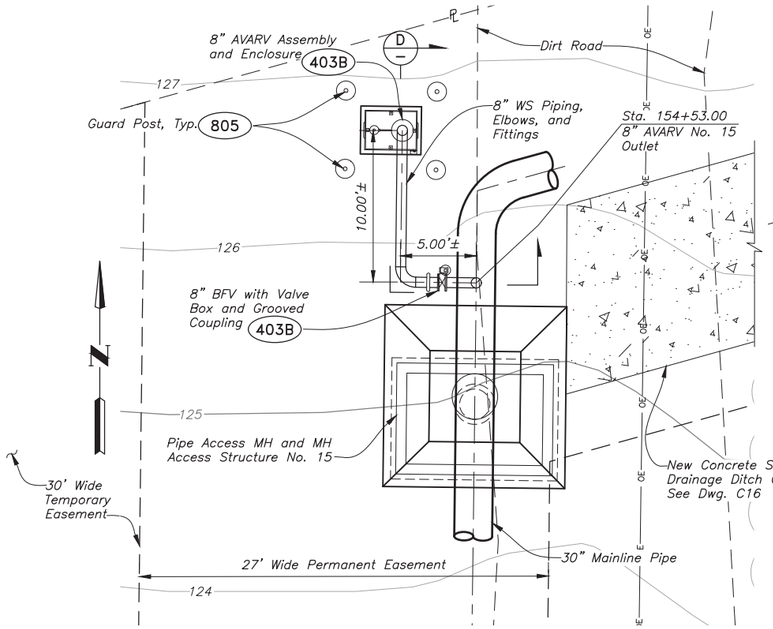
SUBMITTED: 03-16-2026
FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198
REVIEWED: 03-16-2026
CLIENT SIGNATURE
DESIGNED: AMS/VT | DRAWN: VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

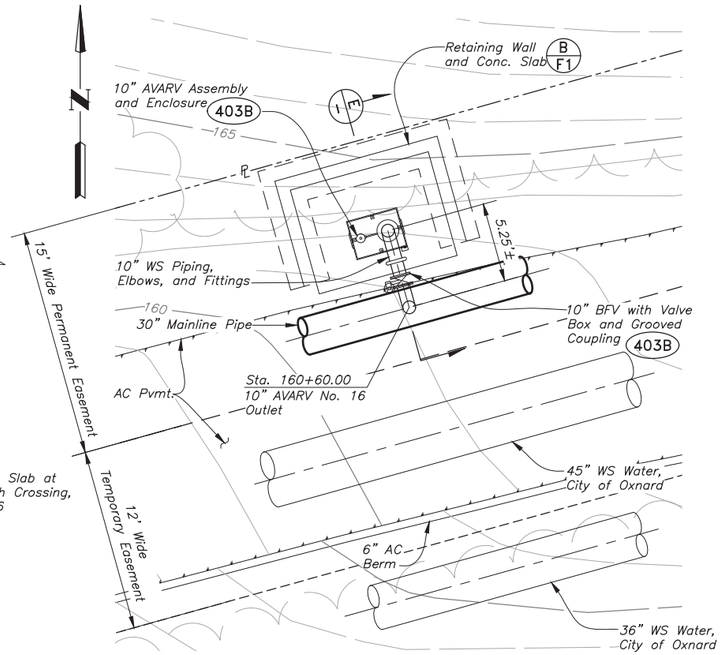
PLAN AND PROFILE
PIPE STA 159+00 TO STA 169+00

DATE	PROJECT NO.	SHEET 27 OF 121 SHEETS	DWG.
MARCH 2026	562		C17



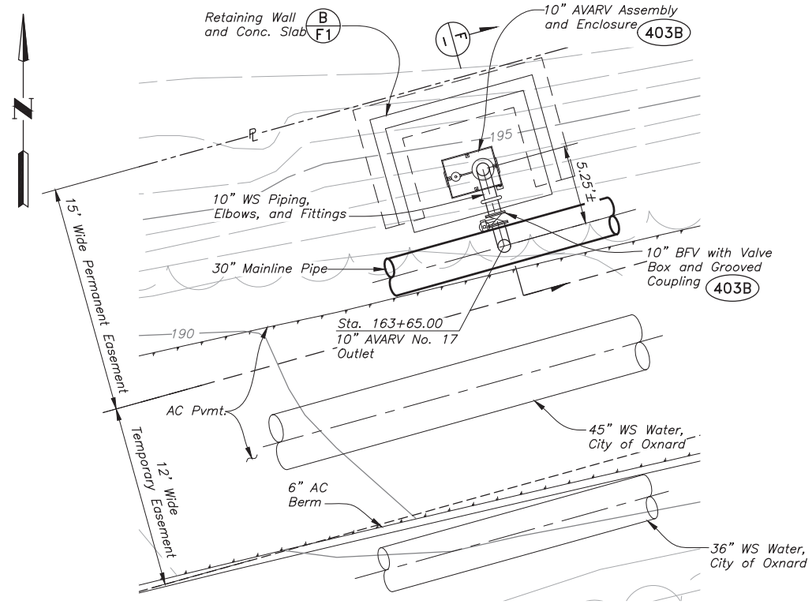
AVARV NO. 15 PLAN (A / C16) ⚠1

SCALE: 1 IN = 5 FT



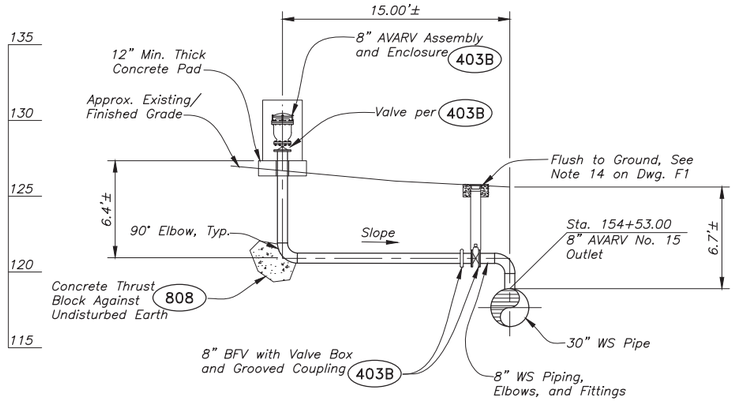
AVARV NO. 16 PLAN (B / C17)

SCALE: 1 IN = 5 FT



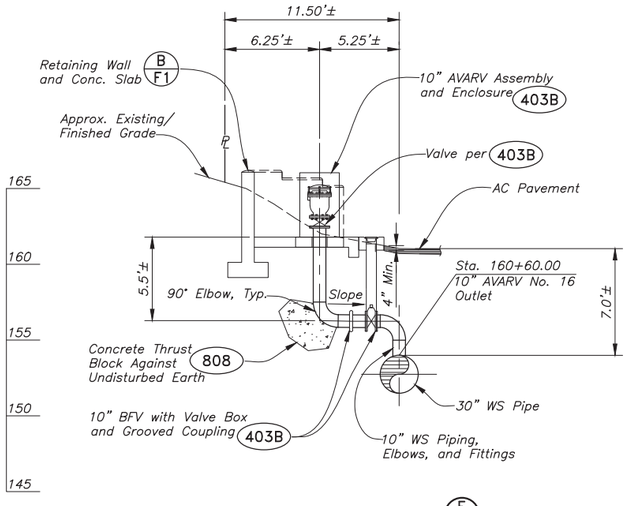
AVARV NO. 17 PLAN (C / C17)

SCALE: 1 IN = 5 FT



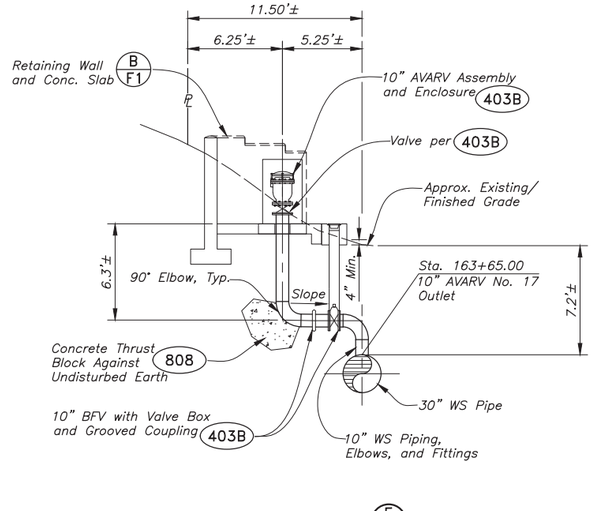
AVARV NO. 15 SECTION (D / –) ⚠

SCALE: 1 IN = 5 FT



AVARV NO. 16 SECTION (E / –)

SCALE: 1 IN = 5 FT



AVARV NO. 17 SECTION (F / –)

SCALE: 1 IN = 5 FT

REVISIONS		
MARK	DATE	DESCRIPTION
⚠1	4/27	a. Revision to locations for MH concrete access structure No.15 and AVARV No. 15. b. Addition of Arizona Type concrete crossing at existing drainage ditch.

REISSUE
DATE: APRIL 27, 2026

REGISTERED PROFESSIONAL ENGINEER — AMAR SHAH — No. 46198 — Exp. 12-31-26 — CIVIL — STATE OF CALIFORNIA

CAUTION 0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

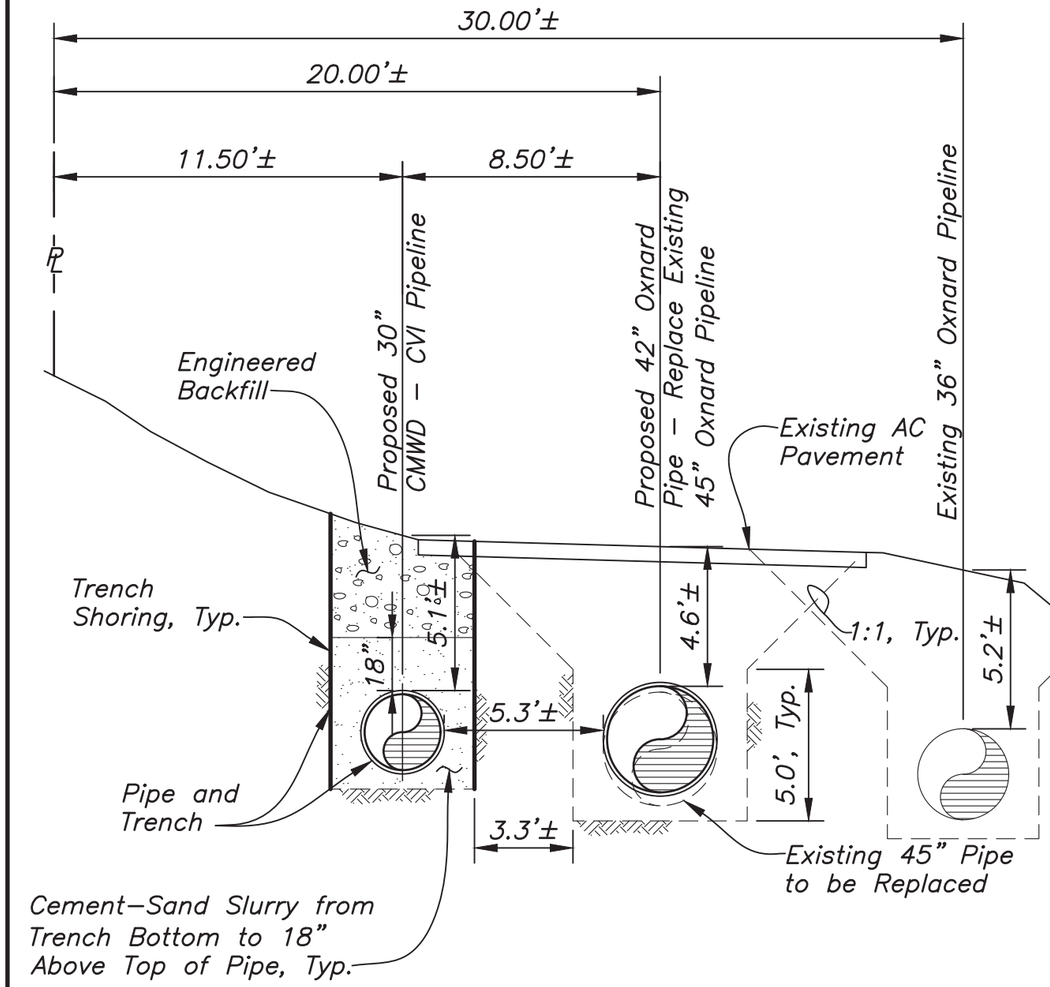
SUBMITTED: 03-16-2026 — FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198
REVIEWED: 03-16-2026 — CLIENT SIGNATURE
DESIGNED: VT/AMS | DRAWN: VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

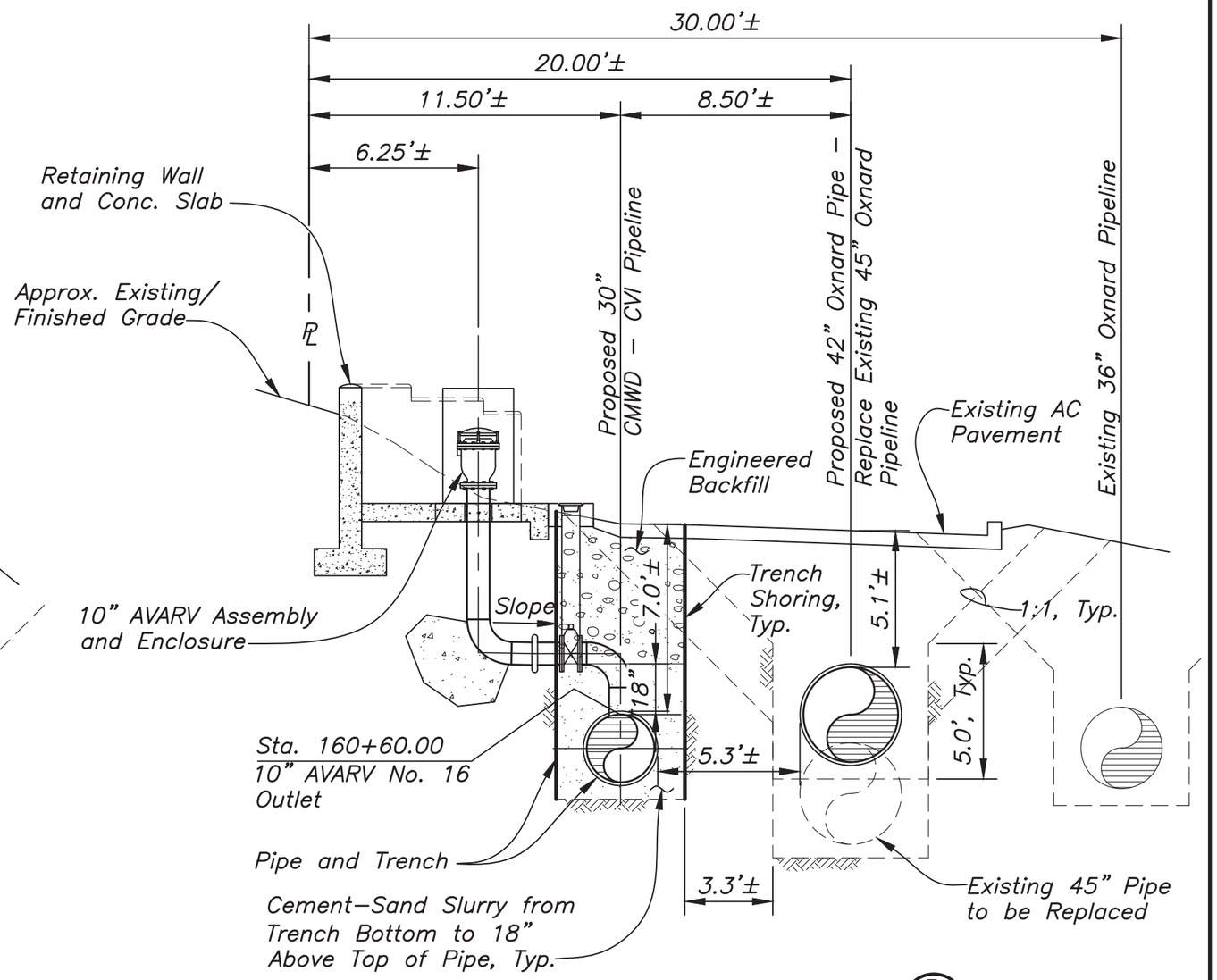
AVARV NOS. 15 THROUGH 17 DETAILS

DATE	PROJECT NO.	SHEET 47 OF 121 SHEETS	DWG.
MARCH 2026	562		F6



PIPE SECTION AT STA 157+00± (A)

SCALE: 1 IN = 5 FT



PIPE SECTION AT STA 160+60± (B)

SCALE: 1 IN = 5 FT

0 5 FEET

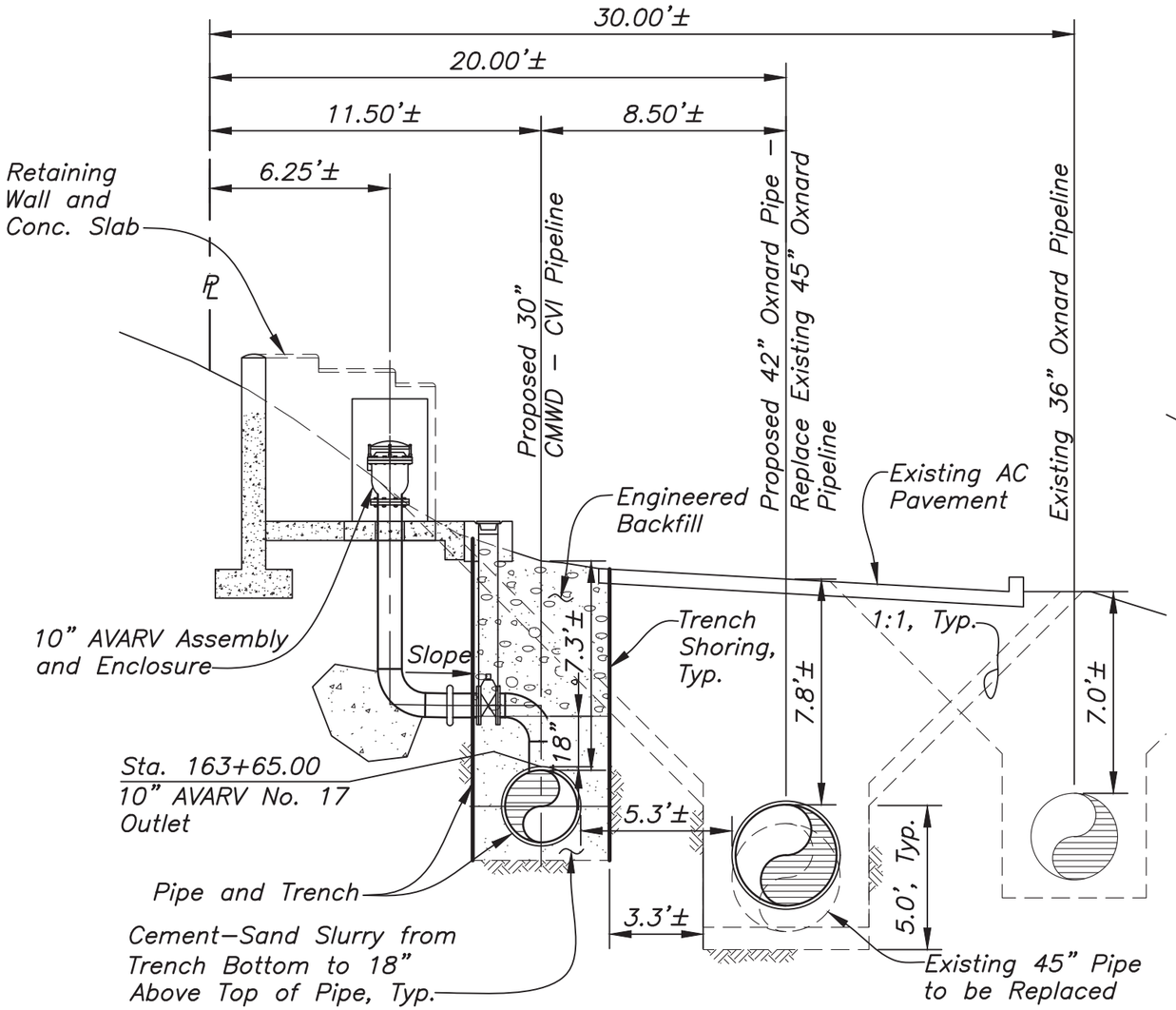
NOTES:

1. Information for 42" new Oxnard Pipe is taken from 75% complete design plans provided by City of Oxnard.

CALLEGUAS MUNICIPAL WATER DISTRICT
Calleguas – Ventura Interconnection
Proposed Pipeline Sections within Oxnard Easement
At Tract TR5671–2 Approximate Sta. 157+00 and 160+60

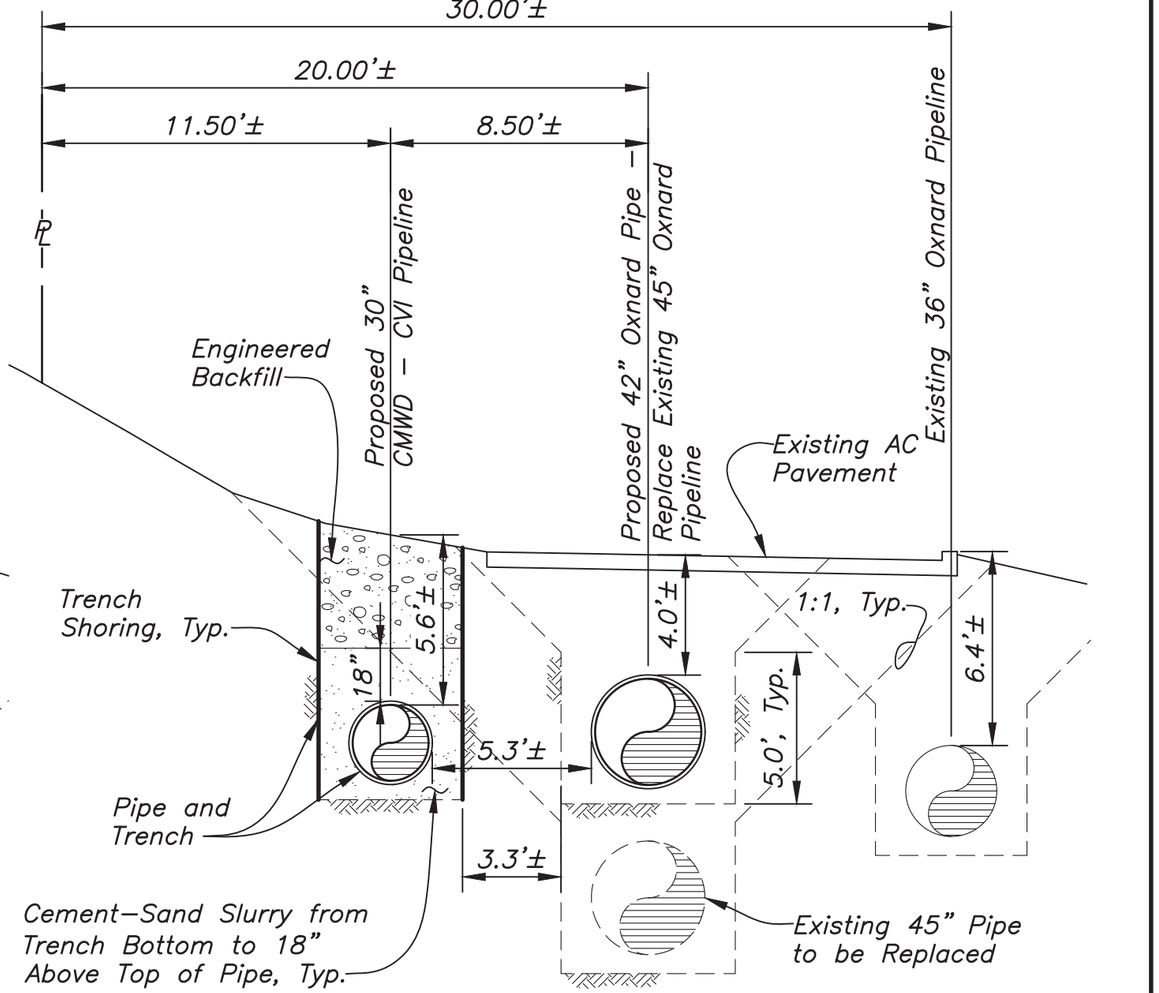
Prepared By:

Perliter & Ingalsbe **Revised – February 24, 2026**



PIPE SECTION AT STA 163+65± (C)

SCALE: 1 IN = 5 FT



PIPE SECTION AT STA 167+00± (D)

SCALE: 1 IN = 5 FT

0 5 FEET

NOTES:

1. Information for 42" new Oxnard Pipe is taken from 75% complete design plans provided by City of Oxnard.

CALLEGUAS MUNICIPAL WATER DISTRICT
Calleguas – Ventura Interconnection
Proposed Pipeline Sections within Oxnard Easement
At Tract TR5671–2 Approximate Sta. 163+65 and 167+00

Prepared By:

Perliter & Ingalsbe **Revised – February 24, 2026**

PARCEL NO.: 157-0-270-015
EXCLUSIVE EASEMENT OWNER: City of Oxnard
PROJECT: Calleguas Municipal Water District, Calleguas - Ventura Interconnection (Project No. 562)
CMWD PARCEL NO.: 6308

EASEMENT TRANSFER AGREEMENT

THIS AGREEMENT dated _____, 2026, is made and entered into by and between

City of Oxnard, a municipal corporation,

hereinafter collectively referred to as "City", and

Calleguas Municipal Water District

hereinafter called "District."

An Assignment of Easement ("Assignment") covering the property rights particularly described therein, has been executed concurrently with this Agreement and delivered to District representatives. A copy of said Assignment is labeled "Exhibit 1" and is attached hereto and incorporated herein by this reference.

In consideration of which, and other considerations hereinafter set forth, it is mutually agreed as follows:

1. The parties have herein set forth the whole of their agreement. The performance of this Agreement constitutes the entire consideration for said Assignment and shall relieve the District of all further obligation or claims on this account, or on account of the location, grade or construction of the proposed public improvement.

2. The District shall:

A. PAYMENT - Pay to the order of the City the sum of **$6,200** as consideration in full for the real property interests being conveyed in the referenced Assignment, for the loss, replacement and moving of any improvements, severance damages and for entering into this Agreement. Said sum shall be paid by District directly to City within 30 days after the Assignment has been recorded.

B. MISCELLANEOUS COSTS - Pay any and all transactional closing costs and recording fees incurred in this transaction.

C. CONSTRUCTION - Shall construct improvements consistent with Plans and documents reviewed and accepted by the City. Construction of District improvements outlined in attached Exhibit A shall not interfere with the City's access and ability to perform routine,

emergency, or replacement operations in the future.

D. RESTORATION OF PROPERTY – After completion of construction use, restore the surface of the Temporary Construction Easement area identified in Exhibit 1 to a better condition than that which existed prior to District's use, including repaving the asphalt concrete access road.

E. INDEMNIFICATION - Indemnify and hold harmless City from any and all claims, damages, costs, judgments, or liability caused by District or its officers, employees or agents specifically arising from District's project construction and restoration work on City's Exclusive Permanent Easement Area, identified in the attached "Exhibit 1" or as a direct result of District's operation of District facilities on City's Exclusive Permanent Easement Area.

F. RECORDATION OF INSTRUMENT - Accept the Assignment herein referenced and cause the same to be recorded in the office of the Ventura County Recorder.

3. The City:

A. REPRESENTATION - Warrants there are no known oral or written leases on all or any portion of the City's Exclusive Permanent Easement Area in the referenced Assignment.

4. The Parties agree:

A. ARTICLE HEADINGS - Article headings in this Agreement are for convenience only and are not intended to be used in interpreting or construing the terms, covenants and conditions of this Agreement.

B. COMPLETE UNDERSTANDING - This Agreement constitutes the entire understanding between the parties with respect to the subject matter hereof, superseding all negotiations, prior discussions, and preliminary agreements or understandings, written or oral. This Agreement may not be amended except in writing by the parties hereto or their successors or assigns.

C. DISTRICT APPROVAL - This Agreement is subject to and conditioned upon approval and ratification by the Calleguas Municipal Water District. This Agreement is not binding upon the District until executed by the appropriate District official(s) acting in their authorized capacity.

No Obligation Other Than Those Set Forth Herein Will Be Recognized.

CITY:
City of Oxnard, a municipal corporation

_____ _____
Luis Mc Arthur, Mayor Date

ATTEST:

_____ _____
Lourdes A. López, City Clerk Date

APPROVED AS TO FORM:

_____ _____
Stephen M. Fischer, City Attorney Date

DISTRICT:
Calleguas Municipal Water District

By: _____ Date:_____
Raul Avila, President, Board of Directors

By: _____ Date:_____
Kristine McCaffrey, General Manager

EXHIBIT 1

Recorded at request of and
When recorded return to:

Calleguas Municipal Water District
c/o Hamner, Jewell & Associates
Government Real Estate Services
3183 Duncan Road, Suite E
San Luis Obispo, CA 93401

Space above this line for Recorder's Use

A.P. No. 157-0-270-015
CMWD Parcel No. 6308

No fee pursuant to Government Code § 6103 No Documentary Transfer Tax per R&T Code § 11922 No Recording Fee per Government Code § 27383

Calleguas Municipal Water District

ASSIGNMENT OF EASEMENT

Calleguas - Ventura Interconnection (Project No. 562)

Helen M. Pearson, Dorothy E. James and Robert E. Pearson ("Vendor"), executed a Contract and Grant of Easement ("Easement Deed") granting an exclusive permanent easement to the City of Oxnard, a municipal corporation ("City"). The Easement Deed was recorded in Book 2702, Page 258-266 on December 31, 1964, in the County Recorder's Office of the County of Ventura, a copy of which is attached as Exhibit "A".

This Assignment of Easement ("Assignment") is being executed between the City and Calleguas Municipal Water District ("District") to transfer certain easement rights through the City's exclusive easement area ("City's Exclusive Permanent Easement Area"), described in the attached Easement Deed as Parcel 2202-B. The granting of the new easement rights to the District shall have no effect whatsoever on the rights and easements held by the City. Further, the District's new easement rights will be subservient and secondary to the City's rights.

NOW THEREFOR FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

CITY OF OXNARD, A MUNICIPAL CORPORATION ("CITY")

hereby GRANTS, ASSIGNS, and TRANSFERS to

CALLEGUAS MUNICIPAL WATER DISTRICT ("DISTRICT")

the following interests in real property:

Permanent Easement

A Permanent Easement in gross to survey, install, construct, reconstruct, enlarge, lay, alter, operate, patrol, remove, replace, and maintain a water or wastewater conduit, consisting of one or more underground water or wastewater pipelines and related facilities. These related facilities may include but are not limited to markers, air valves, manholes, valves, meters, surge control devices, test stations, buried communication devices, buried electrical conduits and devises, pull boxes, and all related incidents, fixtures, and appurtenances. The markers, test stations, pull boxes, blow off valves, air release valves, manholes, other related facilities, and turnouts may be located above ground or partially above ground. The facilities shall be consistent with the construction drawings for the Calleguas – Ventura Interconnection project as reviewed and agreed to by the City. Construction of improvements shall be consistent with plans and documents reviewed and accepted by the City. Construction of District improvements outlined in attached Exhibit "D" shall not interfere with the City's access and ability to perform routine, emergency, or replacement operations in the future. District shall have the right of ingress and egress for personnel, vehicles, and construction equipment to, from, and along the easement area at any time. This easement shall be in, over, on, through, within, under, and across the Easement Area of the City's Exclusive Permanent Easement Area. The "Easement Area" which comprises the District's new Permanent Easement is described and depicted in Exhibit "B", attached hereto and incorporated by reference herein. And;

A Temporary Construction Easement

A Temporary Construction Easement for the purposes of facilitating construction of District Facilities, including the right to place equipment and vehicles, pile earth thereon, and utilize said Temporary Construction Easement for all other related activities and purposes in, on, over, under, through, and across that certain portion of the Real Property which is described and depicted in Exhibit "C", attached hereto and incorporated by reference herein ("Temporary Construction Easement"). Said Temporary Construction Easement shall commence ninety (90) days after issuance by District of a Notice of Commencement of Construction, which shall be issued to City by U.S. Mail, and shall automatically terminate upon completion of construction of District Facilities and restoration of the Temporary Construction Easement Area, or one (1) year after the effective date of the Notice of Commencement of Construction, whichever occurs first; however, District shall have the right to extend the Temporary Construction Easement term for a maximum of three (3) extensions of three (3) months each if District determines that additional time beyond the one year period is necessary for construction completion. In such case, District shall have the unilateral right to extend the Temporary Construction Easement period through construction completion and agrees to compensate City **Five Hundred Dollars ($500)** for each three-month extension term exercised. Payment for any such extension(s) shall be paid by District to City concurrent with District's written notice to City of District's intent to exercise such extension provisions. In any event, this Temporary Construction Easement shall terminate on or before December 31, 2029.

GRANTOR:

City of Oxnard, a municipal corporation

Luis Mc Arthur, Mayor Date

ATTEST:

Lourdes A. López, City Clerk Date

APPROVED AS TO FORM:

Stephen M. Fischer, City Attorney Date

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____

On _____ before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signatures(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)

CERTIFICATE OF ACCEPTANCE
(Government Code §27281)

This is to certify that the interest in real property conveyed by this easement deed dated _____, from the City of Oxnard, a municipal corporation, is hereby accepted by order of the Board of Directors of Calleguas Municipal Water District on _____, pursuant to authority conferred by Ordinance No. 18, which the Calleguas Municipal Water District Board of Directors adopted on July 21, 2021, and the grantee consents to the recordation thereof by its duly authorized officers.

Dated:_____

CALLEGUAS MUNICIPAL WATER DISTRICT

By: _____
Raul Avila, President, Board of Directors

By: _____
Kristine McCaffrey, General Manager

STATE OF CALIFORNIA)

S S

COUNTY OF VENTURA)

I, _____, Clerk of the Board of Directors of Calleguas Municipal Water District, DO HEREBY CERTIFY that the attached and foregoing is a full, true and correct copy of Ordinance No. 18 of said Board, and the same has not been amended or repealed.

By: _____
Clerk of the Board

Dated: _____

RECORDED AT REQUEST OF
TITLE INSURANCE & TRUST CO.
AT 20 MIN. PAST 11 A M.
OFFICIAL RECORDS VENTURA COUNTY
DEC 31 1964
BOOK 2702 PAGE 258
Robert L. Hanson RECORDER

94252

BOOK 2702 PAGE 258

CONTRACT AND GRANT OF EASEMENT

FREE - 9

This contract is made and entered into this 1st day of December, 1964, by and between the CITY OF OXNARD, a municipal corporation, hereinafter referred to as City, and HELEN M. PEARSON, DOROTHY E. JAMES and ROBERT E. PEARSON, hereinafter referred to as Vendor.

In consideration of the sum of $7,287.00, receipt of which is hereby acknowledged by Vendor, and of the mutual covenants herein contained, it is agreed as follows:

1. Vendor hereby grants unto City, its successors and assigns, the exclusive right, privilege and easement to enter upon and to survey, construct, reconstruct, lay, relay, increase the size of, operate, maintain, inspect and remove at any time, structures, buildings, a road, street or alley, storm drains and facilities, sanitary sewers, and utilities, including but not limited to a water main or conduit and water mains or conduits branching therefrom, with all fixtures, devices and appurtenances used or useful in the operation of said road, street or alley, water main or conduit, storm drains and facilities, sanitary sewers or other utilities, and to remove objects interfering therewith, at any and all points within, under, over, upon, through and across the following described land, situate in the County of Ventura, State of California:

Parcel 2202-B (Permanent)

That portion of Lots 2 and 5 of Fractional Section 28, Township 2 North, Range 21 West, San Bernardino Meridian, in the county of Ventura, state of California, according to the official plat of said land filed in the District Land Office on July 10, 1873, described as a whole as follows:

Beginning at a 1-1/4 inch iron pipe marked with a metal tag stamped "SGB-LS 1842" set at the Northwest corner of said Lot 5; thence along the Northerly line of said Fractional Section 28,

1st - North 74° 26' 30" East 1388.66 feet; thence,

2nd - South 56° 56' 56" West 99.81 feet to an intersection with a line that is parallel with and distant Southeasterly 30.00 feet, measured at right angles, from the Northerly line of said Fractional Section 28; thence along said parallel line,

3rd - South 74° 26' 30" West 1302.20 feet to the Westerly line of said Lot 5; thence along said Westerly line,

4th - North 0° 40' 03" East 31.25 feet to the point of beginning.

Parcel 2202-B (Slope)

That portion of Lots 2 and 5 of Fractional Section 28, Township 2 North, Range 21 West, San Bernardino meridian, in the county of Ventura, state of California, according to the official plat of said land filed in the District Land Office on July 10, 1873, described as follows:

Commencing at a point on the Northerly line of said Fractional Section 28, from which a 1-1/2 inch iron pipe marked with a metal tag stamped "SGB-LS 1842" set at the Northwest corner of said Lot 5 bears along said Northerly line South 74° 26' 30" West 1388.66 feet; thence South 56° 56' 56" West 54.22 feet to the true point of beginning; thence,

1st - South 39° 41' 00" West 46.84 feet; thence,

2nd - South 74° 26' 30" West 51.54 feet; thence,

3rd - South 15° 33' 30" East 35.00 feet; thence,

4th - South 74° 26' 30" West 80.00 feet; thence,

5th - North 15° 33' 30" West 30.00 feet; thence,

6th - South 74° 26' 30" West 180.00 feet; thence,

7th - South 15° 33' 30" East 45.00 feet; thence,

8th - South 74° 26' 30" West 80.00 feet; thence,

9th - North 15° 33' 30" West 48.00 feet; thence,

10th - South 74° 26' 30" West 240.00 feet; thence,

11th - South 15° 33' 30" East 20.00 feet; thence,

12th - South 74° 26' 30" West 85.00 feet; thence,

13th - North 15° 33' 30" West 20.00 feet; thence,

14th - South 74° 26' 30" West 80.00 feet; thence,

15th - South 15° 33' 30" East 5.00 feet; thence,

16th - South 74° 26' 30" West 85.00 feet; thence,

17th - North 15° 33' 30" West 10.00 feet; thence,

18th - South 74° 26' 30" West 155.00 feet; thence,

19th - North 15° 33' 30" West 5.00 feet; thence,

Description: Ventura,CA Document - Book Page 2702.258 Page: 2 of 9
Order: 5461 Comment:

20th - South 74° 26' 30" West 125.00 feet; thence,

21st - North 15° 33' 30" West 5.00 feet to an intersection with a line which is parallel with and distant Southeasterly 30.00 feet, measured at right angles, from the Northerly line of said Fractional Section 28; thence along said parallel line,

22nd - North 74° 26' 30" East 1156.54 feet to an intersection with a line that bears South 56° 56' 56" West and which passes through the true point of beginning; thence along said line,

23rd - North 56° 56' 56" East 45.59 feet to the true point of beginning.

2. Vendor also hereby grants unto City, its successors or assigns, the temporary right, privilege and easement to enter upon and use the below described property for the placing or piling thereon of earth, materials and machinery and for other purposes useful or necessary in connection with the construction of a water main and conduit, access road and storm drainage facilities on the property hereinabove described:

Parcel 2202-B (Temporary)

That portion of Lots 2 and 5 of Fractional Section 28, Township 2 North, Range 21 West, San Bernardino Meridian, in the county of Ventura, state of California, according to the official plat of said land filed in the District Land Office on July 10, 1873, described as a whole as follows:

Beginning at a point on the Northerly line of said Fraction Section 28 from which a 1-1/2 inch iron pipe marked with a metal tag stamped "SGB-LS 1842" set at the Northwest corner of said Lot 5, bears along said Northerly line South 74° 26' 30" West 1388.66 feet; thence,

1st - South 56° 56' 56" West 54.22 feet; thence,

2nd - South 39° 41' 00" West 46.84 feet; thence,

3rd - South 74° 26' 30" West 51.54 feet; thence,

4th - South 15° 33' 30" East 35.00 feet; thence,

5th - South 74° 26' 30" West 80.00 feet; thence,

6th - North 15° 33' 30" West 30.00 feet; thence,

7th - South 74° 26' 30" West 180.00 feet; thence,

8th - South 15° 33' 30" East 45.00 feet; thence,

9th - South 74° 26' 30" West 80.00 feet; thence,

10th - North 15° 33' 30" West 48.00 feet; thence,

11th - South 74° 26' 30" West 240.00 feet; thence,

12th - South 15° 33' 30" East 20.00 feet; thence,

13th - South 74° 26' 30" West 85.00 feet; thence,

Description: Ventura,CA Document - Book Page 2702.258 Page: 3 of 9
Order: 5461 Comment:

14th - North 15° 33' 30" West 20.00 feet; thence,

15th - South 74° 26' 30" West 80.00 feet; thence,

16th - South 15° 33' 30" East 5.00 feet; thence,

17th - South 74° 26' 30" West 85.00 feet; thence,

18th - South 15° 33' 30" East 50.00 feet; thence,

19th - North 74° 26' 30" East 957.54 feet; thence,

20th - North 30° 54' 30" East 138.72 feet; thence,

21st - North 75° 54' 30" East 234.75 feet; thence,

22nd - North 3° 02' 30" East 11.04 feet; to the Northerly line of said Fractional Section 28; thence along said Northerly line,

23rd - South 74° 26' 30" West 324.57 feet to the true point of beginning.

Parcel 2202-C (Temporary)

That portion of Lots 2 and 5 of Fractional Section 28, Township 2 North, Range 21 West, San Bernardino Meridian, in the county of Ventura, state of California, according to the official plat of said land filed in the District Land Office on July 10, 1873, described as a whole as follows:

Commencing at a point on the Northerly line of said Fractional Section 28 from which a 1-1/2 inch iron pipe marked with a metal tag stamped "SGB-LS 1842" set at the Northwest corner of said Lot 5 bears along said Northerly line South 74° 26' 30" West 1388.66 feet; thence South [illegible]; South 56° 56' 56" West 54.22 feet; thence South 39° 41' 00" West 46.84 feet; thence South 74° 26' 30" West 51.54 feet; thence South 15° 33' 30" East 35.00 feet; thence South 74° 26' 30" West 80.00 feet; thence, North 15° 33' 30" West 30.00 feet; thence South 74° 26' 30" West 180.00 feet; thence, South 15° 33' 30" East 45.00 feet; thence South 74° 26' 30" West 80.00 feet; thence North 15° 33' 30" West 48.00 feet; thence South 74° 26' 30" West 240.00 feet; thence South 15° 33' 30" East 20.00 feet; thence, South 74° 26' 30" West 85.00 feet; thence North 15° 33' 30" West 20.00 feet; thence South 74° 26' 30" West 80.00 feet; thence South 15° 33' 30" East 5.00 feet; thence South 74° 26' 30" West 85.00 feet; thence North 15° 33' 30" West 10.00 feet; thence, South 74° 26' 30" West 155.00 feet; to the true point of beginning; thence,

1st - North 15° 33' 30" West 5.00 feet; thence,

2nd - South 74° 26' 30" West 125.00 feet; thence,

3rd - North 15° 33' 30" West 5.00 feet to an intersection with a line which is parallel with and distant Southeasterly 30.00 feet; measured at right angles, from the Northerly line of said Fractional Section 27; thence along said parallel line,

4th - South 74° 26' 30" West 145.66 feet to the Westerly line of said Lot 5; thence along said Westerly line,

5th - South 0° 40' 03" West 10.41 feet to an intersection with a line which has a bearing of South 74° 26' 30" West and which passes through the true point of beginning; thence along said line,

6th - North 74° 26' 30" East 273.57 feet to the point of beginning.

Description: Ventura,CA Document - Book Page 2702.258 Page: 4 of 9
Order: 5461 Comment:

EXHIBIT A

The temporary right, privilege and easement shall terminate upon completion of construction and installation of the water main, access road and storm drainage facilities and acceptance thereof by the City, or on August 1, 1965, whichever date first occurs.

3. The Vendor reserves unto himself, his heirs, executors, administrators, successors and assigns all oil, oil rights, minerals, mineral rights, natural gas, natural gas rights and other hydrocarbons by whatsoever name known that may be within or under the parcel of land described in Paragraph One hereof, without, however, any right of entry on the surface of said property, on the subsurface thereof to a depth of five hundred feet measured vertically from said surface.

4. The Vendor agrees that it will not use nor will it grant to any other association, corporation, governmental agency, person or utility company, the right, privilege or easement to use the property described in Paragraph One hereof, except for the drilling and exploration for oil, gas and minerals as herein provided. The Vendor shall not erect any structures upon or dig or drill any well through the surface of, or remove earth or other material from the property described in Paragraph One herein. Provided, however, the Vendor shall have the right to use any access road constructed by the City on its easement for ingress and egress to her adjoining property so long as said property is used for agricultural purposes only.

5. The City shall have the right to grant to any association, corporation, governmental agency, person or utility company the right, privilege or easement to use the property described in Paragraph One hereof for any of the purposes described in said Paragraph One. The City agrees that it will sell said right, privilege or easement for not more than the fair market value of comparable, unencumbered land, as determined at the time of such sale. The grant of such right, privilege and easement shall be upon such terms and conditions as shall not interfere with or endanger any of the structures or facilities of the City within said property.

Description: Ventura,CA Document - Book Page 2702.258 Page: 5 of 9
Order: 5461 Comment:

EXHIBIT A

6. The City agrees to restore the land described in Paragraph Two hereof to the same condition, as nearly as practicable, as it was in prior to the commencement of construction of the water main, storm drainage facilities and access road.

Upon completion of the construction by the City of any structure or facility on the property described in Paragraph One hereof, the City shall restore the premises to the same condition, as nearly as practicable and as may be consistent with the design and plans of said structure or facility, as they were in prior to the commencement of the construction thereof.

7. The Vendor agrees to accept the sum paid hereunder in full payment for the loss or damage to any crops, trees, shrubs, pasturage rights or improvements located within the property described in Paragraph One and Two hereof.

8. This agreement shall be binding upon and inure to the benefit of the heirs, assigns, executors, personal representatives and successors of the parties hereto.

CITY OF OXNARD

By: _____
R. F. Howlett, Mayor

Attest:

_____
Ethel Dale, City Clerk

VENDOR:

_____

_____

_____

_____

Description: Ventura,CA Document - Book Page 2702.258 Page: 6 of 9
Order: 5461 Comment:

EXHIBIT A

BOOK 2702 PAGE 264

RECORDER'S MEMO: Legibility of writing, Typing or Printing UNSATISFACTORY in Portions of this document when received.

STATE OF CALIFORNIA)
COUNTY OF Ventura) ss

On November 8, 1964 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Helen M. Pearson, Robert E. Pearson and Dorothy E. James

_____, known to me to be the person s whose name s are subscribed to the within instrument and acknowledged that they executed the same.

WITNESS my hand and official seal.

Thomas R. Ferguson
Notary Public in and for said County and State.

(SEAL)

THOMAS R. FERGUSON
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
VENTURA COUNTY

EXHIBIT A

BOOK 2702 PAGE 265

STATE OF CALIFORNIA)
) ss.
COUNTY OF VENTURA)

On December 10, 1964, before me the undersigned, a Notary Public in and for said County and State, personally appeared Robert F. Howlett, known to me to be the Mayor and Ethel Dale, known to me to be the City Clerk of the City of Oxnard, and known to me to be the persons who executed the within instrument on behalf of the City of Oxnard, and acknowledged to me that the City of Oxnard executed the within instrument pursuant to Resolution #3568.

WITNESS my hand and official seal.

Helen M. Lee
Notary Public in and for said County and State

(SEAL)

My commission expires Sept. 17, 1967.

EXHIBIT A

BOOK 2702 PAGE 266

CERTIFICATE OF ACCEPTANCE

This is to certify that the interest in real property conveyed by the Contract and Grant of Easement dated December 1, 1964 from Helen M. Pearson, Dorothy E. James and Robert E. Pearson to CITY OF OXNARD, a political corporation and governmental agency, is hereby accepted and pursuant to City Council Resolution 1939, recorded in book 1591, Official Records of Ventura County at page 273, the City Council consents to recordation thereof by its duly authorized officer.

DATED December 21, 1964.

By _____
R. F. Howlett, Mayor

END OF RECORDED DOCUMENT

EXHIBIT "B"

LEGAL DESCRIPTION FOR
PERMANENT EASEMENT LYING WITHIN LOT 6 TRACT 5671-2 170MR91
APN 157-0-270-015

THAT PORTION OF LOT 6 TRACT 5671-2 IN THE CITY OF CAMARILLO, COUNTY OF VENTURA, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 170, PAGE 91 THROUGH 99 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF LOT 6;

THENCE NORTH 74°26'45" EAST 1382.32 FEET ALONG THE NORTHERLY LINE OF LOT 6 TO THE NORTHEAST CORNER OF LOT 6;
THENCE SOUTH 00°39'51" WEST 13.92 FEET ALONG THE EASTERLY LINE OF LOT 6;
THENCE SOUTH 56°57'14" WEST 5.44 FEET TO A POINT WHICH IS 15.00 FEET AT RIGHT ANGLES TO THE NORTHERLY LINE OF SAID LOT 6;
THENCE PARALLEL WITH AND DISTANT SOUTHERLY 15.00 FEET WITH THE NORTHERLY LINE OF LOT 6, SOUTH 74°26'45" WEST 1377.62 FEET TO THE WESTERLY LINE OF LOT 6;

THENCE NORTH 00°41'40" EAST 15.62 FEET ALONG THE WEST LINE OF LOT 6 TO THE NORTHWEST CORNER OF LOT 6;

PARCEL CONTAINS 0.476 ACRES, OR 20,731 SQUARE FEET, MORE OR LESS.

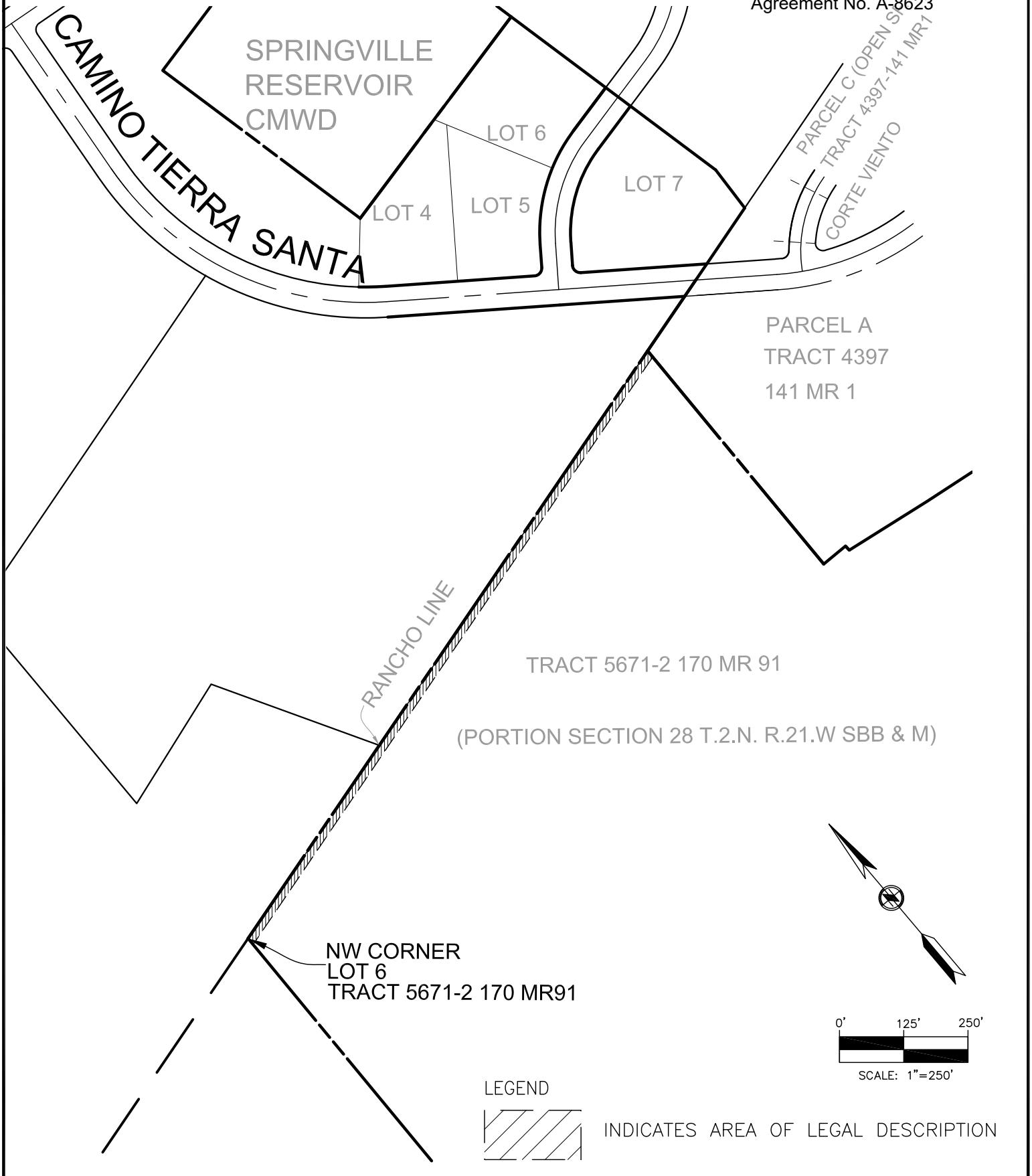
EXHIBIT B SHEETS 2 THROUGH 3 OF 3 IS INCLUDED HEREIN AND MADE A PART HEREOF.

LICENSED LAND SURVEYOR
GREGORY D. HINDSON
NO. 5670
STATE OF CALIFORNIA

3/12/26

GREGORY D. HINDSON
CALIFORNIA LICENSED PROFESSIONAL LAND SURVEYOR, PLS 5670
FOR AND ON BEHALF OF THE MOLLENHAUER GROUP

Agreement No. A-8623



G:\Projects\Survey\LA21300-LA21399\LA21363_CVI_Calleguas-Ventura Interconnection Project 562_P&I\Acad Drawings\PERM ESMT EXHIBIT.dwg Date:03/10/26 02:07p mkhudave

MOLLENHAUER GROUP
213 624 2661 TEL
818 937 9899 TEL
919 W. GLENOAKS BLVD 2ND FL
GLENDALE CALIFORNIA 91202
WWW.MOLLENHAUERGROUP.COM
CIVIL ENGINEERING
SURVEYING+MAPPING
LAND DEVELOPMENT

EXHIBIT "B"

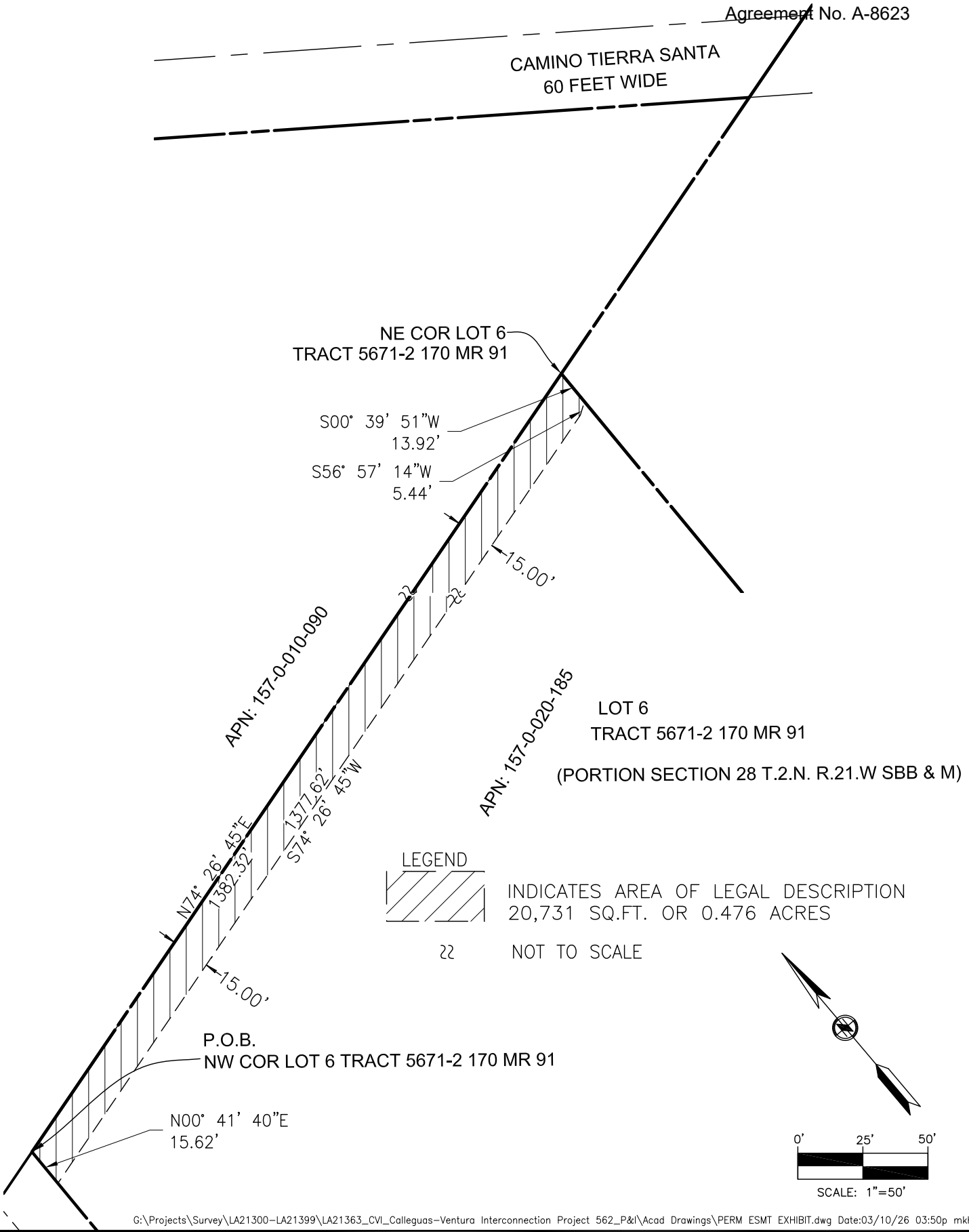
PERMANENT EASEMENT
APN: 157-0-270-015

PREPARED FOR:

CALLEGUAS MUNICIPAL WATER DISTRICT

DATE:	MARCH, 2026
JOB #	LA21363
DRAWN	MK
SCALE	1"=250'

SHEET 2 OF 3



G:\Projects\Survey\LA21300-LA21399\LA21363_CVI_Calleguas-Ventura Interconnection Project 562_P&I\Acad Drawings\PERM ESMT EXHIBIT.dwg Date:03/10/26 03:50p mkhudave

MOLLENHAUER GROUP
213 624 2661 TEL
818 937 9899 TEL
919 W. GLENOAKS BLVD 2ND FL
GLENDALE CALIFORNIA 91202
WWW.MOLLENHAUERGROUP.COM
CIVIL ENGINEERING
SURVEYING+MAPPING
LAND DEVELOPMENT

EXHIBIT "B"

PERMANENT EASEMENT
APN: 157-0-270-015

PREPARED FOR:

CALLEGUAS MUNICIPAL WATER DISTRICT

DATE:	MARCH, 2026
JOB #	LA21363
DRAWN	MK
SCALE	1"=50'

SHEET 3 OF 3

EXHIBIT "C"

LEGAL DESCRIPTION FOR
TEMPORARY EASEMENT LYING WITHIN LOT 6 TRACT 5671-2 170MR91
APN 157-0-270-015

THAT PORTION OF LOT 6 TRACT 5671-2 IN THE CITY OF CAMARILLO, COUNTY OF VENTURA, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 170, PAGE 91 THROUGH 99 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF LOT 6;

THENCE SOUTH 00°41'40" WEST 15.62 FEET ALONG THE EASTERLY LINE OF LOT 6 TO THE **TRUE POINT OF BEGINNING,**

THENCE NORTH 74°26'45" WEST 1377.62 FEET ALONG A LINE WHICH IS PARALLEL WITH AND 15.00 FEET SOUTHERLY OF THE NORTHERLY LINE OF LOT 6;

THENCE SOUTH 56°57'14" WEST 39.92 FEET TO A POINT WHICH IS 27.00 FEET AT RIGHT ANGLES TO THE NORTHERLY LINE OF SAID LOT 6;

THENCE PARALLEL WITH AND DISTANT SOUTHERLY 27.00 FEET WITH THE NORTHERLY LINE OF LOT 6, SOUTH 74°26'45" WEST 1343.04 FEET TO THE WESTERLY LINE OF LOT 6;

THENCE NORTH 00°41'40" EAST 12.50 FEET TO THE **TRUE POINT OF BEGINNING,**

PARCEL CONTAINS 0.375 ACRES, OR 16,324 SQUARE FEET, MORE OR LESS.

EXHIBIT C SHEETS 2 THROUGH 3 OF 3 IS INCLUDED HEREIN AND MADE A PART HEREOF.

LICENSED LAND SURVEYOR
GREGORY D. HINDSON
NO. 5670
STATE OF CALIFORNIA

3/12/26

GREGORY D. HINDSON
CALIFORNIA LICENSED PROFESSIONAL LAND SURVEYOR, PLS 5670
FOR AND ON BEHALF OF THE MOLLENHAUER GROUP

Agreement No. A-8623



LEGEND

INDICATES AREA OF LEGAL DESCRIPTION

G:\Projects\Survey\LA21300-LA21399\LA21363_CVI_Calleguas-Ventura Interconnection Project 562_P&I\Acad Drawings\TEMP ESMT EXHIBIT.dwg Date:03/10/26 02:03p mkhudave

MOLLENHAUER GROUP
213 624 2661 TEL
818 937 9899 TEL
919 W. GLENOAKS BLVD 2ND FL
GLENDALE CALIFORNIA 91202
WWW.MOLLENHAUERGROUP.COM
CIVIL ENGINEERING
SURVEYING+MAPPING
LAND DEVELOPMENT

EXHIBIT "C"

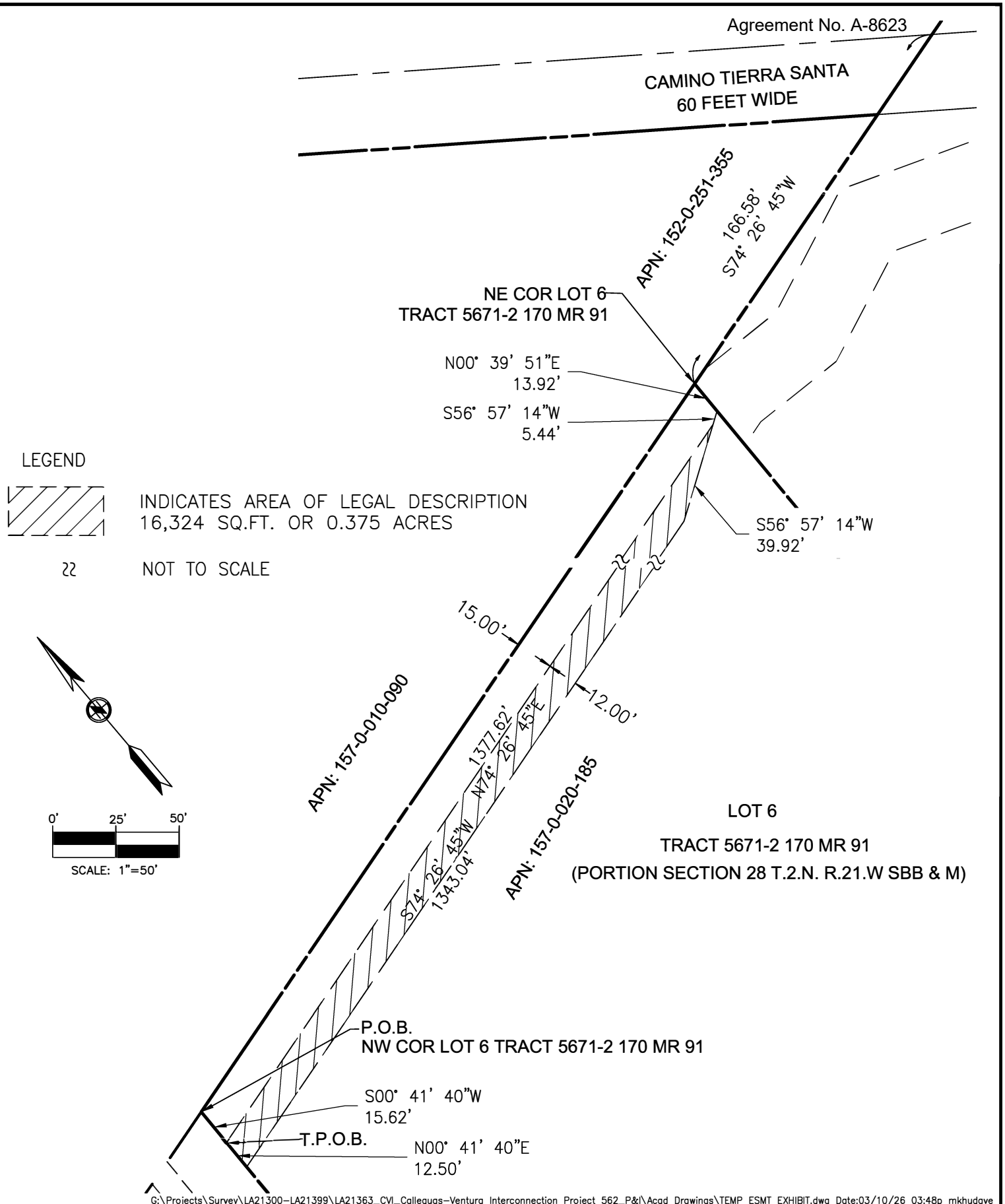
TEMPORARY EASEMENT
APN: 157-0-270-015

PREPARED FOR:

CALLEGUAS MUNICIPAL WATER DISTRICT

DATE:	MARCH, 2026
JOB #	LA21363
DRAWN	MK
SCALE	1"=250'

SHEET 2 OF 3



G:\Projects\Survey\LA21300-LA21399\LA21363_CVI_Calleguas-Ventura Interconnection Project 562_P&I\Acad Drawings\TEMP ESMT EXHIBIT.dwg Date:03/10/26 03:48p mkhudave

MOLLENHAUER GROUP
213 624 2661 TEL
818 937 9899 TEL
919 W. GLENOAKS BLVD 2ND FL
GLENDALE CALIFORNIA 91202
WWW.MOLLENHAUERGROUP.COM
CIVIL ENGINEERING
SURVEYING+MAPPING
LAND DEVELOPMENT

EXHIBIT "C"

TEMPORARY EASEMENT
APN: 157-0-270-015

PREPARED FOR:

CALLEGUAS MUNICIPAL WATER DISTRICT

DATE:	MARCH, 2026
JOB #	LA21363
DRAWN	MK
SCALE	1"=50'

SHEET 3 OF 3

EXHIBIT "D"

CALLEGUAS MUNICIPAL WATER DISTRICT

T H O U S A N D O A K S, C A L I F O R N I A

CALLEGUAS
MUNICIPAL WATER DISTRICT

CALLEGUAS – VENTURA INTERCONNECTION

PROJECT NO. 562

BOARD OF DIRECTORS

RAUL AVILA, PRESIDENT
THIBAULT ROBERT, VICE PRESIDENT
REDDY PAKALA, SECRETARY
JACQUE McMILLAN, TREASURER
SCOTT H. QUADY , DIRECTOR

★ ★ ★ ★ ★ ★ ★ ★

KRISTINE McCAFFREY, GENERAL MANAGER
IAN PRICHARD, DEPUTY GENERAL MANAGER
FERNANDO BAEZ, MANAGER OF ENGINEERING
JAY LUKIEWSKI, SENIOR PROJECT MANAGER

P E R L I T E R & I N G A L S B E
C O N S U L T I N G E N G I N E E R S
G L E N D A L E, C A L I F O R N I A

REGISTERED PROFESSIONAL ENGINEER
AMAR SHAH
No. 46198
Exp. 12-31-26
CIVIL
STATE OF CALIFORNIA

COVER SHEET, PROJECT NO. 562, SHEET 01 OF 121, DWG. A1, DATE: MARCH, 2026

EXHIBIT "D"

INDEX TO DRAWINGS

SHT. NO.	DWG. NO.	TITLE
GENERAL		
01	A1	COVER SHEET
02	A2	INDEX TO DRAWINGS
03	A3	PROJECT LOCATION AND VICINITY MAP
04	A4	GENERAL ABBREVIATIONS, SYMBOLS AND LEGEND
05	A5	SURVEY ABBREVIATIONS, SYMBOLS, LEGEND AND CONTROL POINTS
06	A6	GENERAL NOTES AND AGENCY CONTACT INFORMATION
PIPELINE KEY PLAN AND PROFILES		
07	B1	KEY PLAN AND PROFILE PIPE STA 1+04.77 TO STA 50+00
08	B2	KEY PLAN AND PROFILE PIPE STA 50+00 TO 101+00
09	B3	KEY PLAN AND PROFILE PIPE STA 101+00 TO 148+00
10	B4	KEY PLAN AND PROFILE PIPE STA 148+00 TO STA 188+41.77 AND BRANCH B1 PIPE STA 1+00 TO STA 5+26.31
PIPELINE PLAN AND PROFILES		
11	C1	PLAN AND PROFILE PIPE STA 1+04.77 TO STA 10+00
12	C2	PLAN AND PROFILE PIPE STA 10+00 TO STA 20+00
13	C3	PLAN AND PROFILE PIPE STA 20+00 TO STA 30+00
14	C4	PLAN AND PROFILE PIPE STA 30+00 TO STA 40+00
15	C5	PLAN AND PROFILE PIPE STA 40+00 TO STA 50+00
16	C6	PLAN AND PROFILE PIPE STA 50+00 TO STA 60+00
17	C7	PLAN AND PROFILE PIPE STA 60+00 TO STA 70+00
18	C8	PLAN AND PROFILE PIPE STA 70+00 TO STA 80+00
19	C9	PLAN AND PROFILE PIPE STA 80+00 TO STA 90+00
20	C10	PLAN AND PROFILE PIPE STA 90+00 TO STA 101+00
21	C11	PLAN AND PROFILE PIPE STA 101+00 TO STA 110+00
22	C12	PLAN AND PROFILE PIPE STA 110+00 TO STA 119+00
23	C13	PLAN AND PROFILE PIPE STA 119+00 TO STA 129+00
24	C14	PLAN AND PROFILE PIPE STA 129+00 TO STA 140+00
25	C15	PLAN AND PROFILE PIPE STA 140+00 TO STA 148+00
26	C16	PLAN AND PROFILE PIPE STA 148+00 TO STA 159+00
27	C17	PLAN AND PROFILE PIPE STA 159+00 TO STA 169+00
28	C18	PLAN AND PROFILE PIPE STA 169+00 TO STA 175+00
29	C19	PLAN AND PROFILE PIPE STA 175+00 TO STA 181+00
30	C20	PLAN AND PROFILE PIPE STA 181+00 TO STA 188+41.77
31	C21	BRANCH B1 PLAN AND PROFILE PIPE STA 1+00 TO STA 5+26.31
CASING CROSSINGS		
32	D1	CASING NO. 1 – BEARDSLEY ROAD AND CHANNEL CROSSING PLAN AND PROFILE
33	D2	CASING NO. 2 – LAS POSAS ESTATES DRAIN AND WEST PONDEROSA DRIVE PLAN AND PROFILE
34	D3	STEEL CASINGS AND MISC DETAILS
BLOW-OFF DETAILS		
35	E1	BLOW-OFF NO. 1 DETAILS
36	E2	BLOW-OFF NO. 2 DETAILS
37	E3	BLOW-OFF NO. 3 DETAILS
38	E4	BLOW-OFF NO. 4 DETAILS
39	E5	BLOW-OFF NO. 5 DETAILS
40	E6	BLOW-OFF NO. 6 DETAILS
41	E7	BLOW-OFF NO. 7 DETAILS
AVARV DETAILS		
42	F1	MAIN AND BRANCH LINE AVARV SCHEDULE, NOTES, AND MISC. DETAILS
43	F2	AVARV NOS. 1 THRUGH 4 DETAILS
44	F3	AVARV NOS. 5 THRUGH 8 DETAILS
45	F4	AVARV NOS. 9 THROUGH 11 DETAILS
46	F5	AVARV NOS. 12 THROUGH 14 DETAILS
47	F6	AVARV NOS. 15 THROUGH 17 DETAILS
48	F7	AVARV NOS. 18 THROUGH 21 DETAILS
49	F8	AVARV NOS. 22 THROUGH 24 DETAILS

SHT. NO.	DWG. NO.	TITLE
VAULT DETAILS		
50	G1	VAULT NO. 1 SITE LAYOUT PLAN
51	G2	VAULT NO. 2 SITE LAYOUT PLAN
52	G3	VAULT NO. 3 SITE LAYOUT PLAN
53	G4	VAULT NO. 1 – PIPING PLAN AND PLAN AT ROOF TOP
54	G5	VAULT NO. 1 – PIPING SECTIONS
55	G6	VAULT NO. 2 – PIPING PLAN AND PLAN AT ROOF TOP
56	G7	VAULT NO. 2 – PIPING SECTONS
57	G8	VAULT NO. 3 – PIPING PLAN AND PLAN AT ROOF TOP
58	G9	VAULT NO. 3 – PIPING SECTIONS
59	G10	VAULT NO. 3 – PIPING SECTION AND SPRINGVILLE RESERVOIR CONNECTION DETAILS
60	G11	VAULT NO. 1 STRUCTURAL DETAILS
61	G12	VAULT NO. 2 STRUCTURAL DETAILS
62	G13	VAULT NO. 3 STRUCTURAL DETAILS I
63	G14	VAULT NO. 3 STRUCTURAL DETAILS II
TYPICAL AND MISCELLANEOUS DETAILS		
64	H1	MAINLINE PIPE CONNECTION TO EXISTING 30–INCH VENTURA PIPE
65	H2	BRANCH B1 CONNECTION TO EXISTING 39–INCH CMWD PIPELINE – PLANS
66	H3	BRANCH B1 CONNECTION TO EXISTING 39–INCH CMWD PIPELINE – SECTIONS
67	H4	TYPICAL STRUCTURAL DETAILS I
68	H5	TYPICAL STRUCTURAL DETAILS II
69	H6	TYPICAL PIPING AND MISCELLANEOUS DETAILS I
70	H7	TYPICAL AND MISCELLANEOUS DETAILS II
71	H8	EXISTING SEWER AND CLEANOUT REPLACEMENT DETAIL
72	H9	RETAINING WALL AND PERIMETER CONCRETE SLAB AT VAULT NO. 2 DETAILS
73	H10	CONCRETE WALKWAY AND STEPS
ROW PLANS		
74	J1	RIGHT–OF–WAY PLAN PIPE STA 1+04.77 TO STA 20+00
75	J2	RIGHT–OF–WAY PLAN PIPE STA 20+00 TO STA 40+00
76	J3	RIGHT–OF–WAY PLAN PIPE STA 40+00 TO STA 60+00
77	J4	RIGHT–OF–WAY PLAN PIPE STA 60+00 TO STA 80+00
78	J5	RIGHT–OF–WAY PLAN PIPE STA 80+00 TO 101+00
79	J6	RIGHT–OF–WAY PLAN PIPE STA 101+00 TO STA 119+00
80	J7	RIGHT–OF–WAY PLAN PIPE STA 119+00 TO STA 140+00
81	J8	RIGHT–OF–WAY PLAN PIPE STA 140+00 TO STA 159+00
82	J9	RIGHT–OF–WAY PLAN PIPE STA 159+00 TO 176+00 AND BRANCH B1 PIPE STA 1+00 TO STA 5+26.31
83	J10	RIGHT–OF–WAY PLAN PIPE STA 176+00 TO 188+41.77
PHOTO PLANS		
84	K1	PHOTO PLAN PIPE STA 1+04.77 TO STA 20+00
85	K2	PHOTO PLAN PIPE STA 20+00 TO 40+00
86	K3	PHOTO PLAN PIPE STA 40+00 TO 60+00
87	K4	PHOTO PLAN PIPE STA 60+00 TO STA 80+00
88	K5	PHOTO PLAN PIPE STA 80+00 TO STA 101+00
89	K6	PHOTO PLAN PIPE STA 101+00 TO STA 119+00
90	K7	PHOTO PLAN PIPE STA 119+00 TO STA 140+00
91	K8	PHOTO PLAN PIPE STA 140+00 TO STA 159+00
92	K9	PHOTO PLAN PIPE STA 159+00 TO STA 176+00 AND BRANCH B1 PIPE STA 1+00 TO STA 5+26.31
93	K10	PHOTO PLAN PIPE STA 176+00 TO STA 188+41.77

SHT. NO.	DWG. NO.	TITLE
STREET STRIPING PLANS		
94	L1	STREET STRIPING PLAN PIPE STA 171+00± TO STA 180+50± AND BRANCH B1 PIPE STA 1+00 TO STA 3+80±
AC IMPROVEMENT AND SLURRY SEAL PLANS		
95	M1	EXIST. AC AND CONC. COMPONENTS IMPROVEMENT PIPE STA 121+75 TO STA 124+55
96	M2	SLURRY SEAL PLAN – PIPE STA 171+50 TO STA 181+10 AND BRANCH B1 PIPE STA 1+00 TO STA 5+26.31
ELECTRICAL PLANS		
97	N1	ELECTRICAL SYMBOLS, LEGEND, AND NOTES
98	N2	ELECTRICAL ABBREVIATIONS, ADDITIONAL SYMBOLS AND LIGHTING FIXTURE SCHEDULE
99	N3	VAULT NO. 2 ELECTRICAL PLAN
100	N4	VAULT NO. 2 POWER AND COMMUNICATION SITE CONDUITS PLAN – I
101	N5	VAULT NO. 2 POWER AND COMMUNICATION CONDUITS PLAN – II
102	N6	CVI VAULT NO. 2 SITE CONDUIT SCHEDULES AND MODIFICATIONS TO EXIST. 120/240V PANEL "A" AT SPRINGVILLE HYDRO STATION
103	N7	ELECTRICAL CONDUIT PLAN AT EXISTING STRAINER VAULT NO. 2
104	N8	VAULT NO. 3 ELECTRICAL PLAN
105	N9	VAULT NO. 3 SITE ELECTRICAL & COMMUNICATIONS CONDUITS PLAN AND CONDUIT SCHEDULE
106	N10	MOD. TO EXIST. LOAD CENTER LOAD SCHEDULE AND EXISTING POWER AND CONTROL CABINETS PLAN & ELEVATION
TRAFFIC CONTROL PLANS		
107	P1	TEMPORARY TRAFFIC CONTROL NOTES, SIGN AND STRIPING LEGEND
108	P2	TEMPORARY TRAFFIC CONTROL KEY LAYOUT PLAN PIPE STA 121+30 TO STA 124+90
109	P3	TEMPORARY TRAFFIC CONTROL KEY LAYOUT PLAN PIPE STA 170+85 TO STA 180+75 AND BRANCH B1 PIPE
110	P4	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 121+30 TO STA 124+64
111	P5	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 124+64 TO STA 124+90
112	P6	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 170+85 TO STA 171+25
113	P7	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 171+25 TO STA 172+25
114	P8	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 172+25 TO STA 174+15
115	P9	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 174+15 TO STA 174+56
116	P10	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 174+56 TO STA 174+85
117	P11	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 174+85 TO STA 177+85
118	P12	TEMPORARY TRAFFIC CONTROL PLAN PIPE STA 177+85 TO STA 180+75
119	P13	TEMPORARY TRAFFIC CONTROL PLAN BRANCH B1 PIPE STA 1+00 TO 1+75
120	P14	TEMPORARY TRAFFIC CONTROL PLAN BRANCH B1 PIPE STA 1+75 TO STA 2+60 AND STA. 4+95 TO 5+26.31
121	P15	TEMPORARY TRAFFIC CONTROL PLAN BRANCH B1 STA 2+60 TO STA 4+95

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER – AMAR SHAH – No. 46198 – Exp. 12–31–26 – CIVIL – STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: FOR THE CONSULTING ENGINEERS 03–16–2026 R.C.E. NO. 46198
REVIEWED: CLIENT SIGNATURE 03–16–2026
DESIGNED: VT/AMS | DRAWN: NV/VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

INDEX TO DRAWINGS

DATE	PROJECT NO.	SHEET 02 OF 121 SHEETS	DWG.
MARCH 2026	562		A2

EXHIBIT "D"

GENERAL ABBREVIATIONS

AB	AGGREGATE BASE, ANCHOR BOLT
AC	ASPHALT CONCRETE
ACP	ASBESTOS CONCRETE PIPE
AC PVMT	ASPHALT CONCRETE PAVEMENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AGG	AGGREGATE
ALT	ALTERNATE, ALTERNATIVE
ALUM	ALUMINUM
AP	ANGLE POINT
APPRO	APPROXIMATE
APPROV	APPROVED
APPROX	APPROXIMATELY
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ARHM	ASPHALT RUBBER HOT MIX
ASSY	ASSEMBLY
AVARV	AIR VACUUM AND AIR RELEASE VALVE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BEGIN CURVE
BDRY	BOUNDARY
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BM	BENCH MARK, BEAM
BO	BLOW-OFF
BOP	BOTTOM OF PIPE
BOT, BTM	BOTTOM
BTWN	BETWEEN
BVC	BEGINNING VERTICAL CURVE
BVCE	BEGINNING VERTICAL CURVE ELEVATION
BVCS	BEGINNING VERTICAL CURVE STATION
BW	BARBED WIRE
B/W	BOTH WAYS
C	CONDUIT
C & G	CURB AND GUTTER
CATV	CABLE TELEVISION
CB	CATCH BASIN
C/C	CENTER TO CENTER
CF	CURB FACE
CFS	CUBIC FEET PER SECOND
CHKD	CHECKED
CI	CAST IRON
CIW	CONTROL INTERCONNECTING WIRING
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
CL	CLASS
CLF	CHAIN LINK FENCE
C/L, ℄	CENTERLINE
C/O	CLEAN OUT
CLR, CL	CLEAR
CMC	CEMENT MORTAR COATING
CML&C	CEMENT MORTAR LINED & COATED
CML&P	CEMENT MORTAR LINED & PAINTED
CMP	CORRUGATED METAL PIPE
CMWD	CALLEGUAS MUNICIPAL WATER DISTRICT
COMM	COMMUNICATION
COMP	COMPACTION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT, CONT'D	CONTINUED OR CONTINUOUS
CPLG	COUPLING
CP	CONTROL POINT
CPT	CONE PENETRATION TEST
CR	CROWN
CTF	CUT TO FIT
CTOC	CENTER TO CENTER
CTS	CATHODIC TEST STATION
CU	CUBIC
Cu	COPPER
CY	CUBIC YARD
D	DEPTH
DB	DIRECT BURIED, DRAINAGE BOX
DBL	DOUBLE
DG	DECOMPOSED GRANITE
DH	DRILL HOLE
DI	DRAIN INLET
DIA	DIAMETER
DIAG	DIAGONAL
DIP	DUCTILE IRON PIPE
DIR	DIRECTION
DISTR	DISTRIBUTION
DMH	DRAIN MANHOLE
DR	DRIVE
DTL	DETAIL
DWG	DRAWING
DWY	DRIVEWAY

E	EAST, ELECTRICAL
(E)	EXISTING
EA	EACH
EC	END CURVE
ECC	ECCENTRIC
EF	EACH FACE
EG	EXISTING GRADE
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
ELECT	ELECTRICAL, ELECTRONIC
ELL	ELBOW
EM	EDISON METER, EMERGENCY
EOP	EDGE OF PAVEMENT
EQPT	EQUIPMENT
EQUIV	EQUIVALENT
ESMT	EASEMENT
EVC	END VERTICAL CURVE
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EXIST, EXST	EXISTING
EXP	EXPANSION
FAB	FABRICATE
FAC	FACILITY
FF	FINISHED FLOOR
FD	FOUND
FDN	FOUNDATION
FDR	FEEDER
FG	FINISHED GRADE
FGR	FINISHED GRADE OVER ROOF
FH	FIRE HYDRANT
FIN	FINISHED
FL, ℄ FL	FLOWLINE, FLOOR
FLEX	FLEXIBLE
FLG	FLANGE
FM	FORCE MAIN
FP	FINISHED PAVEMENT
FS	FINISHED SURFACE
FT	FEET, FOOT
FTG	FOOTING
FUT	FUTURE
FXF	FIXED BY FIXED
G	GAS (PROPANE), GROUND
GA	GAGE, GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GRADE CHANGE
GEN	GENERATOR
GM	GAS METER
GN	GENERAL NOTE
GP	GUY POLE, GUARD POST
GPM	GALLONS PER MINUTE
GR	GUARD RAIL
GRTG	GRATING
GV	GATE VALVE
GRVD	GROOVED
H	HEIGHT
HB	HORIZONTAL BEND, HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HH	HAND HOLE
HOR, HORIZ	HORIZONTAL
HP	HIGH PRESSURE, HIGH POINT, HORSE POWER
HR	HANDRAIL
HW	HEADWALL
HWL	HIGH WATER LEVEL
IB	IRRIGATION BOX
ICV	IRRIGATION CONTROL VALVE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IM	IRRIGATION METER
IN	INCH
INDIC	INDICATE
INSUL	INSULATED
INT, INTERMED	INTERMEDIATE
INVT, INV	INVERT
IP	IRON PIPE
IRR	IRRIGATION
J, JCT	JUNCTION BOX
JT	JOINT
LAT	LATERAL
LF	LINEAL FEET
LT	LEFT
LG	LONG
LGTH	LENGTH
LONGIT	LONGITUDINAL
LP	LOW POINT, LIGHT POLE
LPF	LAS POSAS FEEDER
LV	LOW VOLTAGE

MAN	MANUAL
MAX	MAXIMUM
MC	MORTAR COATED
MFR	MANUFACTURER
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MH	MANHOLE, MOUNTING HEIGHT
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
ML	MORTAR LINED
ML&C	MORTAR LINED AND COATED
MODIF	MODIFICATION
MON	MONUMENT
MPF	MOORPARK FEEDER
MTL	MATERIAL
MTR	METER
MV	MEDIUM VOLTAGE
N	NORTH
(N)	NEW
NC	NORMALLY CLOSED
NG	NATURAL GAS
NO OR #	NUMBER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OFCI	OWNER-FURNISHED CONTRACTOR INSTALLED
OH	OVERHEAD
OPER	OPERATOR
OR	OFFICIAL RECORD
OSR	OXNARD SANTA ROSA
OVERFL, OF	OVERFLOW
OVHD, O/H	OVERHEAD
OW	OZONATED WATER
P	PUMP
P & I	PERLITER & INGALSBE
PB	PULLBOX
PC	POINT OF CURVATURE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
PE	PLAIN END, POLYETHYLENE
PEM	POLYETHYLENE MEDIUM (PRESSURE)
PEN	PENETRATION
PERF	PERFORATED
PERI	PERIMETER
PERM	PERMANENT
PI	POINT OF INTERSECTION
PL	PLATE
PME	PAD MOUNTED EQUIPMENT
PMH	PETROLEUM MANHOLE
PO	PUSH ON
POC	POINT ON CURVE
PP	POWER POLE
PRESS	PRESSURE
PRS	PRESSURE REGULATING STATION
PRV	PRESSURE RELIEF VALVE
PROV	PROVIDE
PTS	POINTS
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PW	PLANT WATER, POTABLE WATER
PWR	POWER
PWS	PETROLEUM LINE WARNING SIGN
QT	QUANTITY
R	RIGHT, RADIUS
R/W, ROW	RIGHT OF WAY
RC	REINFORCED CONCRETE
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDCR	REDUCER
REG	REGULATING
REQD	REQUIRED
RES	RESERVOIR
RESIL	RESILIENT
REV	REVISION, REVERSE
RS	RUBBER SEATED
RT, R	RIGHT
RW	RETAINING WALL
S	SOUTH
S TO D	SLOPE TO DRAIN
SAN	SANITARY SEWER
SCCP	STEEL CYLINDER CONCRETE PIPE
SCE	SOUTHERN CALIFORNIA EDISON
SCG	SOUTHERN CALIFORNIA GAS
SCH	SCHEDULE

SD	STORM DRAIN
SEC	SECTION
SERV	SERVICE
SHT	SHEET
SIM	SIMILAR
SL	SLOPE, STREET LIGHT
SLPB	STREET LIGHT PULLBOX
SMH	SEWER MANHOLE
SP	SPACE
SPECS	SPECIFICATIONS
SPPWC	STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
SQ	SQUARE
SR	SHORT RADIUS, SANTA ROSA
SS, SST	STAINLESS STEEL
SSPWC	STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
SSW	SANITARY SEWER
ST	START, STREET
STA	STATION
STD	STANDARD
STD DWG	STANDARD DRAWING
STL	STEEL
STRUCT	STRUCTURE
SUSP	SUSPENDED
SW	SIDEWALK
SWBD	SWITCHBOARD
SYMM.	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TBD	TO BE DETERMINED
TBR	TO BE REMOVED
TC, TOC	TOP OF CURB/CONCRETE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEL	TELEPHONE
TEMP	TEMPORARY
TG	TOP OF GRATING
THD	THREADED
THK	THICK
TMH	TELEPHONE MANHOLE
TOS	TOE OF SLOPE
TOW	TOP OF WALL
TRANS	TRANSITION
TP	TOP OF PAVEMENT
TR	TREE, TOP OF ROOF
TTF	TOP OF TRENCH FLOOR
TYP	TYPICAL
UG	UNDERGROUND
UNC	UNIFIED COARSE THREAD
UNO	UNLESS NOTED OTHERWISE
UW	UTILITY WATER
V	VALVE, VERTICAL
VAR	VARIES
VARV	VACUUM AND AIR RELEASE VALVE
VB	VERTICAL BEND
VC	VERTICAL CURVE
VCJ	VERTICAL CONTROL JOINT
VCP	VITRIFIED CLAY PIPE
VCSSM	VENTURA COUNTY STANDARD SURVEY MONUMENT
VCWPD	VENTURA COUNTY WATERSHED PROTECTION DISTRICT
VER,VERT	VERTICAL
VFI	VACUUM FAULT INTERRUPTER
VIC	VICTAULIC (GROOVED) COUPLING
VLT	VAULT
W	WEST, WATER
W/	WITH
W/O	WITHOUT
WCJ	WALL CONSTRUCTION JOINT
WL	WATERLINE
WM	WATER METER
WMH	WATER MANHOLE
WSEL	WATER SURFACE ELEVATION
WS	WELDED STEEL
WSP	WELDED STEEL PIPE
WT	WEIGHT
WV	WATER VALVE
WW	WASTEWATER
WWM	WELDED WIRE MESH
WWS	WATER LINE WARNING SIGN
XFMR	TRANSFORMER

GENERAL SYMBOLS AND LEGEND

- Centerline
- Property Line
- 540 — Existing Contour
- 540 — Existing Contour to be Changed
- 540 — New Contour
- x — x — x — Chain Link Fence, Gate
- Guard Rail
- Handrail
- xxx — xxx — Temporary Privacy/Protection Fence
- Temporary Sound Wall
- Metal Fence, Gate
- W — Waterline
- WS — CMWD Water Supply Line
- T — Telephone Line
- E — Electrical Line
- G — Gas Line
- CTV — Cable TV
- SS — Sanitary Sewer Line
- SD — Storm Drain
- OE/T — Overhead Electric and Telephone
- Bush Line
- WAB — WAB — Work Area Boundary
- A — Section Line
- GP — Guard Post
- PP — Power Pole
- MH — Manhole
- Water Valve
- FE — Fire Extinguisher
- WM — Water Meter
- Street Light, Light Post
- T — Tracer Wire Terminal Post
- New Slope
- Existing Slope
- Sign
- Control Point
- Tree/Shrub, 10" Diameter of Trunk Where Shown
- Fire Hydrant
- Sandbags
- CP5 — Temporary Benchmark
- Gravel/Granular Material
- Concrete
- Undisturbed Earth
- A.C. Pavement
- Available Staging and Storage Area
- Permanent Easement
- Temporary Easement

NOTES:

1. Additional symbols and legend pertaining to survey work are shown on Dwg. A5.
2. Some abbreviations may not be used in this Contract.

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER — AMAR SHAH — No. 46198 Exp. 12-31-26 — CIVIL — STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: A.M.Shah 03-16-2026
FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198

REVIEWED: 03-16-2026
CLIENT SIGNATURE

DESIGNED: VT/AMS | DRAWN: NV/VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

GENERAL ABBREVIATIONS, SYMBOLS AND LEGEND

DATE	PROJECT NO.	SHEET 04 OF 121 SHEETS	DWG.
MARCH 2026	562		A4

EXHIBIT "D"

SURVEY GENERAL ABBREVIATIONS

AC	ASPHALT CONCRETE
AD	AREA DRAIN
AG	ANCHOR GUY
AL	AREA LIGHT
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BOTT	BOTTOM
BW	BACK OF WALK
CB	CATCH BASIN
CL	CHAIN LINK
CMP	CORRUGATED METAL PIPE
CMWD MH	CALLEGUAS MWD MANHOLE
CO	CLEAN OUT
CONC	CONCRETE
CP	CONTROL POINT
DIA	DIAMETER
DSY	DOUBLE SOLID YELLOW
DY	DOUBLE YELLOW
EC	EDGE OF CONCRETE
EG	EDGE OF GUTTER
ELEC	ELECTRICAL
ELEV	ELEVATION
ER	ELECTRIC RISER
ES	EDGE OF STEPS
FF	FINISH FLOOR
FL	FLOW LINE
FS	FINISHED SURFACE
GB	GRADE BREAK
GM	GAS METER
GND	GROUND
GP	GUARD POST
INV	INVERT
IP	IRON PIPE
IPB	IRRIGATION PULL BOX
IRR	IRRIGATION
MG	MOLLENHOUER GROUP (DESIGN SURVEYOR)
NAD	NATIONAL AMERICAN DATUM
NAVD	NATIONAL AMERICAN VERTICAL DATUM
(P)	PAINT LINE
RD	ROOF DRAIN
SSM	SURVEY SUB-SURFACE MONUMENT
SW	SINGLE WHITE
TSCB	TRAFFIC SIGNAL CONTROL BOX
TC	TOP OF CURB
TOP	TOP OF SLOPE
TOE	TOE OF SLOPE
TG	TOP OF GRATE
TS	TRAFFIC SIGNAL
TYP	TYPICAL
TW	TOP OF WALL
UR	UNKNOWN RISER
WR	WATER RISER

SURVEY GENERAL SYMBOLS AND LEGEND

BUILDING LINE
BUILDING LINE OVERHANG
EDGE OF ASPHALT
FLOW LINE
WALL/CURB
TOP OF SLOPE
TOE OF SLOPE
OHP — OVERHEAD POWER
DSY(P) — DOUBLE SOLID YELLOW PAINT LINE
SW(P) — SOLID WHITE PAINT LINE
W — WATER LINE
FENCE LINE
WROUGHT IRON FENCE
GUARD RAIL
CO — CLEAN OUT
AD — AREA DRAIN
AL — AREA LIGHT
WATER VALVE
GAS VALVE
ANCHOR GUY
POWER POLE WITH STREET LIGHT
STREET LIGHT AND TRAFFIC LIGHT
TRAFFIC LIGHT
POWER POLE

PIV — POST INDICATOR VALVE
IRRIGATION VALVE
IRRIGATION PULLBOX
IPB
MH — MANHOLE
PB — UNKNOWN PULL BOX
FH — FIRE HYDRANT
BFP — BACKFLOW PREVENTER
SIGN
GP — GUARD POST
CP1 — CONTROL POINT
CONCRETE SURFACE
WV — WATER PIPE VAULT
WM — WATER METER
CROSS WALK POLE
E — ELECTRICAL MANHOLE
T — TELEPHONE MANHOLE
TS — TRAFFIC SIGNAL PULL BOX
PALM TREE WITH TRUNK DIAMETER
12" — TREE WITH TRUNK DIAMETER
DRIVE ARROW

NOTES:

1. Additional general symbols and legend are shown on Dwg. A4.
2. Some abbreviations may not be used in this Contract.

CONTROL LIST
(MODIFIED NAD 83 – ZONE 5 STATE PLANE COORDINATES)

CONTROL POINTS	NORTH	EAST	ELEVATION	DESCRIPTION
CP 4	1914747.6500'	6224313.1400'	103.650'	(MG CONTROL) MG SPIKE & WASHER
CP 100	1911351.6800'	6221399.7400'	90.450'	SSM SANTA CLARA & CENTRAL
CP 103	1907889.1100'	6225493.6600'	82.890'	SSM CENTRAL & BEARDSLEY
CP 172	1908147.5200'	6227422.2100'	85.010'	(MG CONTROL) PLASTIC CAP & REBAR
CP 182	1909764.9600'	6225986.9900'	87.180'	(MG CONTROL) PLASTIC CAP & REBAR
CP 186	1911808.7100'	6225323.9800'	91.700'	(MG CONTROL) PLASTIC CAP & REBAR
CP 193	1905741.7100'	6232228.6500'	162.160'	(MG CONTROL) MG SPIKE & WASHER
CP 196	1905889.0000'	6232766.0400'	211.030'	(MG CONTROL) MG SPIKE & WASHER
CP 219	1905262.0700'	6228547.5900'	82.170'	(MG CONTROL) MG SPIKE & WASHER
CP 224	1905724.7300'	6228084.9100'	74.980'	CALTRANS SPIKE & WASHER
CP 232	1911890.1540'	6225262.6090'	90.371'	(MG CONTROL) PLASTIC CAP & REBAR
CP 236	1912841.3380'	6224937.9370'	93.240'	(MG CONTROL) PLASTIC CAP & REBAR
CP 240	1914091.4360'	6224512.9480'	98.606'	(MG CONTROL) PLASTIC CAP & REBAR
CP 242	1914623.5700'	6224332.0090'	102.103'	(MG CONTROL) PLASTIC CAP & REBAR
CP 250	1906181.8100'	6232939.4500'	265.900'	2 INCH IP RCE 32981 ZAMORA & CAMINO TIERRA SANTA
CP 298	1906021.2170'	6233130.9890'	247.740'	(MG CONTROL) MG SPIKE & WASHER
CP 315	1905863.3730'	6227984.4340'	76.680'	(MG CONTROL) MG SPIKE & WASHER
CP 410	1910573.8350'	6225722.8100'	88.460'	(MG CONTROL) PLASTIC CAP & REBAR
CP 421	1914611.9100'	6224368.0300'	101.330'	(MG CONTROL) PLASTIC CAP & REBAR
CP 502	1907506.2200'	6228192.3600'	84.850'	(MG CONTROL) MG SPIKE & WASHER
CP 504	1908740.2000'	6226747.1700'	85.790'	(MG CONTROL) PLASTIC CAP & REBAR
CP 505	1908842.2900'	6226281.3000'	87.980'	(MG CONTROL) MG SPIKE & WASHER
CP 506	1907559.9400'	6228217.5700'	86.700'	(MG CONTROL) MG SPIKE & WASHER
CP 516	1904681.4360'	6231590.6670'	84.740'	CHIS + ELEC BOX FOOTING
CP 526	1906424.1750'	6233206.9340'	290.190'	(MG CONTROL) MG SPIKE & WASHER
CP 527	1906644.2710'	6233205.1550'	303.680'	(MG CONTROL) MG SPIKE & WASHER
CP 532	1906736.0780'	6228197.5070'	80.118'	(MG CONTROL) PLASTIC CAP & REBAR
CP 533	1906495.6870'	6228069.2410'	83.774'	(MG CONTROL) PLASTIC CAP & REBAR
CP 539	1909069.9730'	6226279.3940'	86.143'	SCRIBED+

SURVEY

BASIS OF BEARINGS / VERTICAL DATUM:

BENCHMARK: 96-1 AUX 1 1976

VENTURA COUNTY BRASS DISK SET IN TOP OF CURB AT THE NORTHEASTERLY CORNER OF LAS POSAS ROAD AND US HIGHWAY 101 OVERPASS, 43.0 FEET EAST FROM MIDDLE OF LAS POSAS ROAD, 17.5 FEET SOUTH FROM THE NORTH END OF THE WEST SIDEWALK.

ELEVATION: 122.975 FEET (NAVD 88)

HORIZONTAL DATUM:

NORTH AMERICAN DATUM 1983 (NAD 83)
CALIFORNIA – ZONE 5
ESTABLISHED USING TRIMBLE R-10 RECEIVERS AND SMART NET SOFTWARE

AERIAL PHOTOGRAPHY: FROM FEBRUARY 16, 2023

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER — AMAR SHAH — No. 46198 Exp. 12-31-26 — CIVIL — STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: 03-16-2026 — FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198
REVIEWED: 03-16-2026 — CLIENT SIGNATURE
DESIGNED: VT/AMS | DRAWN: VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

SURVEY ABBREVIATIONS, SYMBOLS, LEGEND AND CONTROL POINTS

DATE	PROJECT NO.	SHEET 05 OF 121 SHEETS	DWG.
MARCH 2026	562		A5

EXHIBIT "D"

GENERAL NOTES

A. GENERAL:

1. Reference to "Std Dwgs" shall mean Calleguas MWD Standard Drawings, included in an Appendix to the Specifications, unless noted otherwise.
2. See Specifications for index list and copies of Calleguas MWD Standard Drawings.
3. Reference letters and numbers shown in circles are detail identification symbols as described below.

REFERENCE SYMBOL	IDENTIFICATION/DESCRIPTION
F / C2	Detail F on Drawing C2 or as referenced on Drawing C2.
B / –	Detail B on the Same Drawing/Sheet.
704	Calleguas MWD Standard Drawing 704.

4. Drawings may not show all or any existing vegetation for clarity.
5. Unless noted otherwise, all work shown in these documents is new and to be performed under this Contract.
6. All profile elevations are expressed in feet above Mean Sea Level (MSL). Horizontal distances are in feet and/or in inches.
7. Temporary benchmarks shown may have been destroyed or damaged.
8. Owner's yard is located at 2100 Olsen Road, Thousand Oaks, CA 91360.

B. EXISTING FACILITIES:

1. Available record data are included in the Specifications.
2. The District does not warrant nor guarantee the accuracy of locations and grades for existing facilities and utilities, including structures, main lines, service lines and laterals as shown on these Drawings or on the record drawings included in the Specifications.
3. The details and dimensions of the existing facilities have been taken from existing records. Contractor shall verify all existing facilities, elevations and dimensions in the field prior to fabrication of new materials and/or equipment. Such verification shall include potholing for existing pipe and conduits. See General Condition 5.23 in the Specifications for additional requirements.
4. No equipment which exceeds AASHTO H20 loading may be operated within four (4) feet of the outside face of any existing District facility, including pipelines, vaults and building, unless approved in advance, in writing, by the District.
5. Soil stockpile higher than 4 feet or equivalent material storage over any existing belowground utilities shall not be allowed unless approved in advance, in writing, by the District.
6. Provide temporary supports as required to protect existing facilities, including belowground utilities.
7. Surface features shown on the Drawings may have changed since survey maps and aerial photos were compiled and developed in early 2023. The Contractor shall verify in field existing condition as required and include its impact on procurement and installation of the new components under this project.
8. Not all existing facilities and utilities are shown on the Drawings. Refer to record data for additional information.
9. Existing private farm roads shown on the drawings may not exist or may be modified since survey plans prepared.
10. Existing facilities damaged or removed due to construction operations shall be replaced in kind as accepted by the Owner at no additional cost to the Owner. Refer to Section 02990, Miscellaneous Work, for additional requirements
11. Unless otherwise noted, existing facilities shall be protected in place. If existing facilities interfere with construction operations, they shall be temporarily relocated as accepted by the Owner and restored or replaced in kind as accepted by the Owner. All costs shall be borne by the Contractor.
12. Refer to Special Condition 27 for requirements for taking Preconstruction Videos.

C. PIPING AND TRENCHING:

1. Stations shown are along the centerline of pipeline or on a line normal to the centerline of pipeline.
2. Stationing is based on horizontal measurements of all tangent distances, sub–tangent distances at fabricated bends and true curve lengths where horizontal curves are indicated.
3. Where angles are shown in the pipeline alignment which exceed the permissible deflection of the joints, including bevel joints where applicable, fabricated fittings shall be installed.
4. Unless otherwise shown, wall penetrations for all pipes and conduits shall be constructed in accordance with CMWD Standard Drawing 703C.
5. Unless otherwise noted, pipe trenches shall be in accordance with Section 02220 and CMWD Standard Drawings 301A through 301E.
6. Unless otherwise noted, provide at least 8" extra pipe at each buttstrap connection and for pipe with loose flange for field adjustment. Cut pipe in field as required.
7. Buttstrap steel thickness shall be at least 1.25 times the thickness of thickest steel cylinder in adjoining pipe sections.
8. Filler plate shall be provided as required to make connection between two pieces of pipeline and as approved by the Engineer. Thickness of filler plate shall be as required, but not less than 1/8". Required filler plates shall be available on site prior start of making connection.

GENERAL NOTES (CONT'D)

C. PIPING AND TRENCHING (Continued):

9. Filler rods shall be provided as required to make connection between two pieces of pipeline and as approved by the Engineer. Diameter of filler rod shall be as required, but not less than 1/4". Filler rod shall conform to ASTM A36. For each connection between existing and new pipe pieces, sufficient length of filler rod shall be available on site prior to start of making connection.
10. Unless otherwise noted, pipe closure pieces connecting the existing pipe shall be installed during specified shutdown period of the existing facility and after completion of all other work as specified in Special Conditions Sections 1 and 5.
11. All welded steel pipelines shall have bonding jumpers at rubber gasketed joints per CMWD Standard Drawing 901.
12. Joint bonding at flanges, valves, and couplings shall be per CMWD Standard Drawing 902.
13. Pipe cathodic test station shall be installed out of the vehicle traveled area as directed in the field by the Owner. In dirt road and agricultural area install two guard posts near cathodic test station as directed by the owner in field.
14. Crossing of New Pipeline Above the Existing Utility:
    a. Clear vertical distance between new pipeline and existing utility below shall be as shown on the Drawings, but in no case, it shall be less than 6 inches.
    b. If the vertical clearance is between 6 inches and 12 inches, construct per CMWD Standard Drawing 1101.
15. Crossing of New Pipeline Below the Existing Utility:
    a. Clear vertical distance between new pipeline and existing utility above shall be as shown on the Drawings, but in no case, it shall be less than 6 inches.
    b. Construct per CMWD Standard Drawing 1103, except where Note 15.c or 15.d are applicable.
    c. If the existing utility other than CMP drain is larger than 12 inches in diameter or the trench width is more than 4' the existing utility shall be supported per CMWD Standard Drawing1102.
    d. If the existing utility is a box culvert, it shall be supported using a detail similar to CMWD Standard Drawing1102 with I–beam(s) supporting the bottom of the box connected to two chains to support the box culvert.

D. MISCELLANEOUS:

1. Color of all paint shall be submitted for approval by the District prior to painting.
2. Guard post shall be painted using premium enamel with yellow school bus color. Paint shall be PlastiKote Enamel PTK–T29 or approved equal.
3. Locations of all guard posts shown on the Drawings are approximate. Exact locations shall be determined in field as approved by the Owner.

E. DEMOLITION AND ABANDONMENT:

1. Demolish existing facilities as shown on the Drawings.
2. Demolish existing facilities interfering with new construction and replace with new in kind unless otherwise shown and as approved by the Owner. Contractor shall record sizes, locations, and features of existing facilities that are required to be replaced with new prior to start of demolition.
3. All voids created by removal of existing belowground facilities shall be filled using 95% compacted On–Site Select Fill Material or Imported Fill Material. In lieu of soil fill material, 2–sack cement–sand slurry may be used as approved by the Owner.
4. Existing pipes to be abandoned in place shall be filled with 2–sack cement–sand slurry and cut ends shall be sealed using 12" thick brick and mortar or concrete.
5. All voids created in concrete or masonry structures by removal of anchors or similar items shall be filled using non–shrink grout. Color of grout shall match the existing adjacent finished surface.

F. WORK AREA:

1. Work Area inside private properties shall be within the Calleguas permanent and temporary easement areas as depicted on the Drawings. Work Area along public right of way shall be in accordance with General Condition 1.6 for required Work as shown on the Drawings. Work Area within Calleguas owned properties shall be as shown on the Drawings.
2. Work Area shown on the Drawings are approximate and may not show all work area, including area required for traffic controls.
3. Vehicular access to existing facilities to remain in operation shall not be blocked.
4. Work Area may be used for construction activities and temporary staging and storage purposes if General Notes B.4 and B.5 are complied with.
5. Unless otherwise shown, Work Area shall be restored to the original condition.
6. Existing facilities and vegetation shall not be removed unless otherwise noted.

AGENCY/SERVICE CONTACT INFORMATION

AT&T Telephone (Telephone)	22311 Brookhurst St. Huntington Beach, CA 92646	(714) 963–7964
Calleguas Municipal Water District (Water, Owner)	2100 Olsen Road Thousand Oaks, CA 91360	(805) 526–9323
City of Camarillo	601 Carmen Drive, Camarillo CA 93010	(805) 383–5340
Southern California Edison (Electric)	3589 Foothill Drive Thousand Oaks, CA 91361	(805) 494–7038
Southern California Gas Company (Gas)–Distribution Department	9400 Oakdale Ave. Chatsworth, CA 91311	(818) 701–3228
Southern California Gas Company (Gas)–Transmission Department	9400 Oakdale Ave. Chatsworth, CA 91311	(818) 701–4546
Time Warner Cable (Cable TV)	2525 Knoll Drive Ventura, CA 93003	(805) 732–9353
Frontier	201 Flynn Road Camarillo, CA 93012–8058	(800) 921–8108
Ventura County Transportation Department Permits	800 S. Victoria Ave. Ventura, CA 93009–1600	(805) 654–2055
Ventura County Sheriff Department	2101 Olsen Road, Thousand Oaks, CA	(805) 494–8200
Ventura County Watershed Protection District (Storm Drain)	800 S. Victoria Ave. Ventura, CA 93009–1600	(805) 654–2018
Dig Alert	DIGALERT	811

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER — AMAR SHAH — No. 46198 — Exp. 12-31-26 — CIVIL — STATE OF CALIFORNIA

CAUTION 0 1" — THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: FOR THE CONSULTING ENGINEERS — 03-16-2026 — R.C.E. NO. 46198
REVIEWED: CLIENT SIGNATURE — 03-16-2026
DESIGNED: VT/AMS | DRAWN: NV/VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

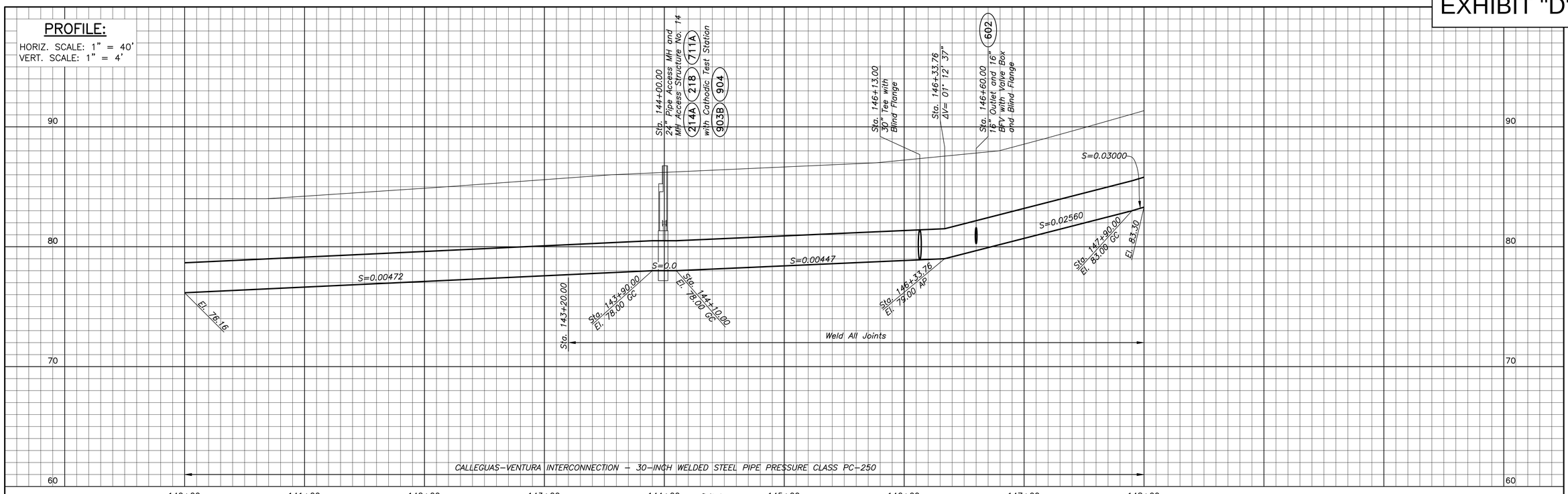
GENERAL NOTES AND AGENCY CONTACT INFORMATION

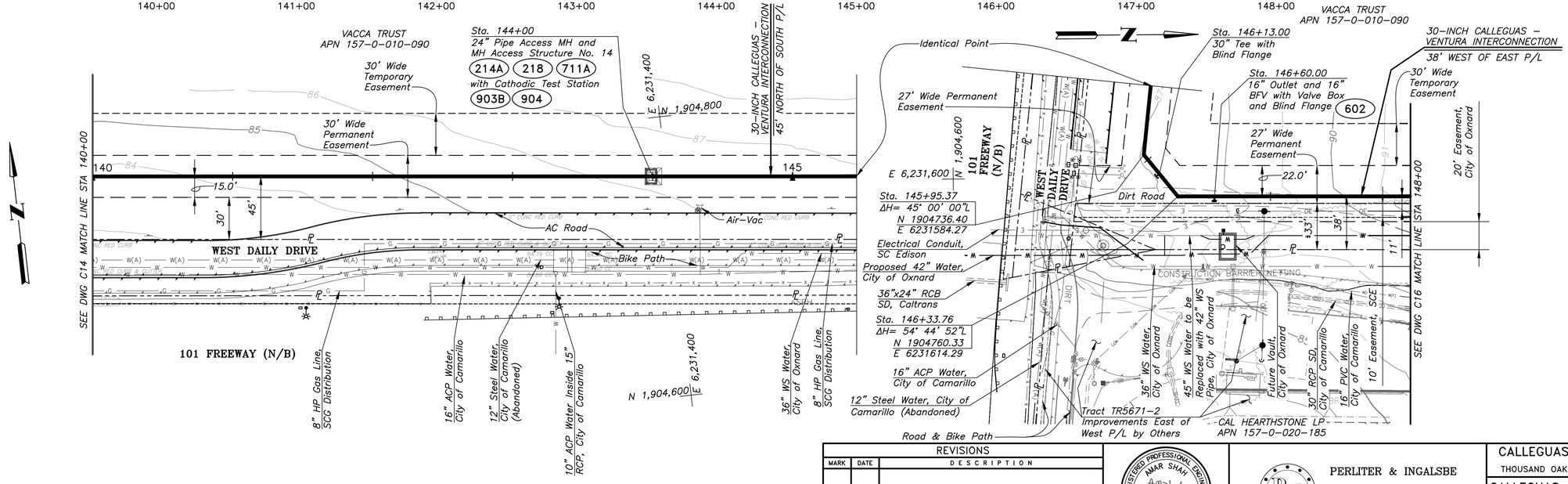
DATE	PROJECT NO.	SHEET 06 OF 121 SHEETS	DWG.
MARCH 2026	562		A6

EXHIBIT "D"

PROFILE:

HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'





PLAN

40 0 40 80 120 FEET

SCALE: 1 IN. = 40 FT.

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
AMAR SHAH
No. 46198
Exp. 12–31–26
CIVIL
STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: 03–16–2026
FOR THE CONSULTING ENGINEERS R.C.E. NO. 46198
REVIEWED: 03–16–2026
CLIENT SIGNATURE
DESIGNED: AMS/VT DRAWN: VT CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

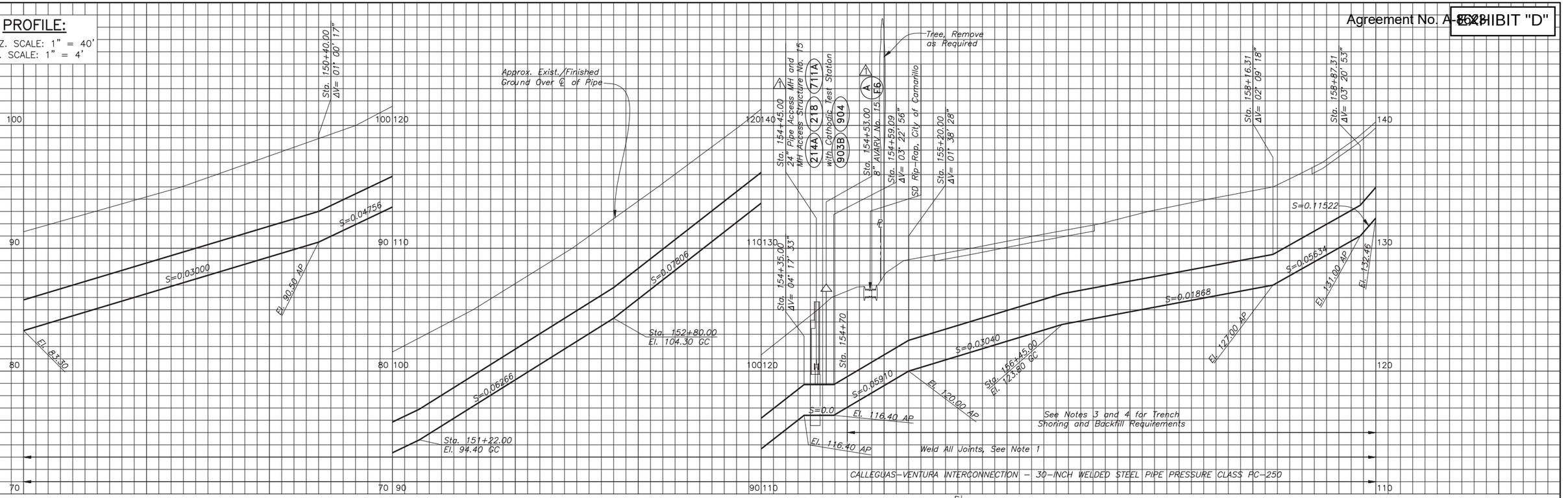
CALLEGUAS – VENTURA INTERCONNECTION

PLAN AND PROFILE
PIPE STA 140+00 TO STA 148+00

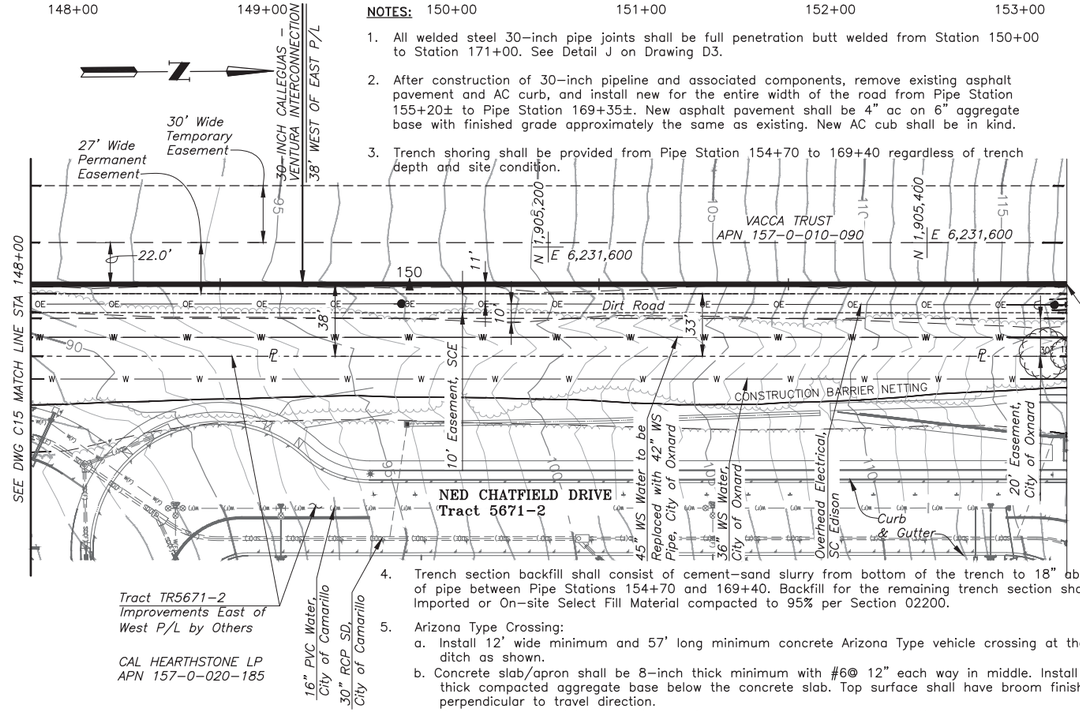
DATE	PROJECT NO.	SHEET 25 OF 121 SHEETS	DWG.
MARCH 2026	562		C15

PROFILE:

HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



PLAN

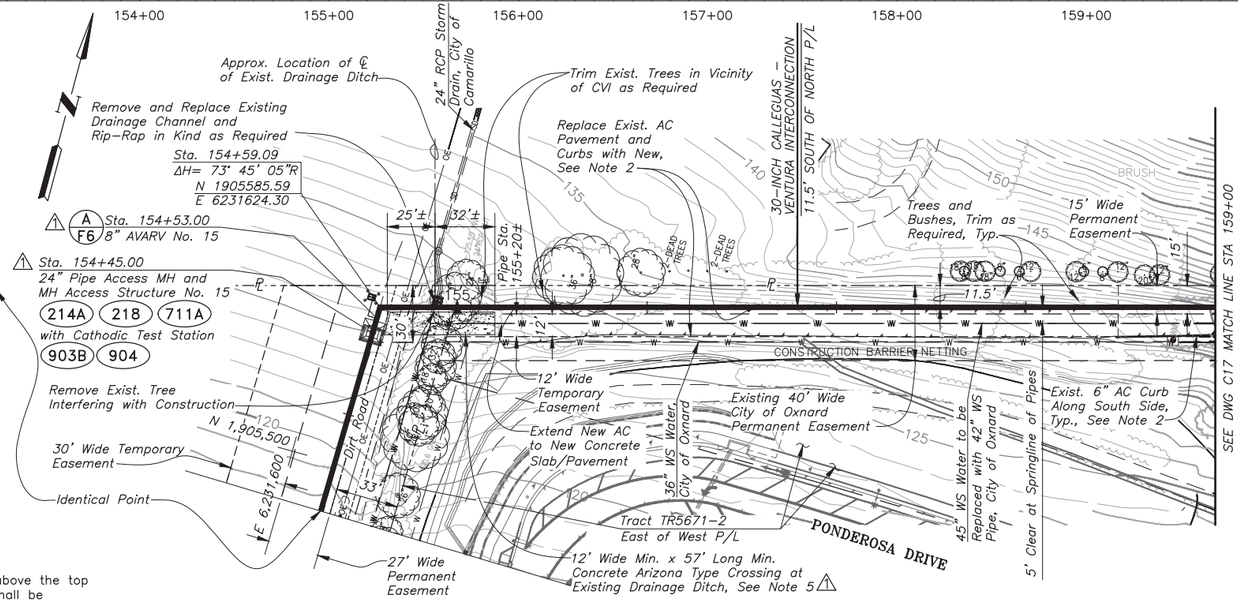


40 0 40 80 120 FEET

SCALE: 1 IN. = 40 FT.

NOTES:

1. All welded steel 30–inch pipe joints shall be full penetration butt welded from Station 150+00 to Station 171+00. See Detail J on Drawing D3.
2. After construction of 30–inch pipeline and associated components, remove existing asphalt pavement and AC curb, and install new for the entire width of the road from Pipe Station 155+20± to Pipe Station 169+35±. New asphalt pavement shall be 4" ac on 6" aggregate base with finished grade approximately the same as existing. New AC cub shall be in kind.
3. Trench shoring shall be provided from Pipe Station 154+70 to 169+40 regardless of trench depth and site condition.
4. Trench section backfill shall consist of cement–sand slurry from bottom of the trench to 18" above the top of pipe between Pipe Stations 154+70 and 169+40. Backfill for the remaining trench section shall be Imported or On–site Select Fill Material compacted to 95% per Section 02200.
5. Arizona Type Crossing:
   a. Install 12' wide minimum and 57' long minimum concrete Arizona Type vehicle crossing at the existing ditch as shown.
   b. Concrete slab/apron shall be 8–inch thick minimum with #6@ 12" each way in middle. Install 6–inch thick compacted aggregate base below the concrete slab. Top surface shall have broom finish perpendicular to travel direction.
   c. Provide a control joint approximately in middle along longitudinal direction and at approximately 10' on center in transverse direction. Provide Construction joint(s) if needed. All control and construction joints shall have polyethylene joint sealant.
   d. Elevations of top of concrete slab shall be approximately the same as existing and as approved by the Owner in field. Provide gradual descend from west end to east toward center line of the ditch and then gradual ascend to east end. The maximum grade shall not exceed 8 percent on either approach slope. Extend new asphalt concrete to the new concrete slab (Arizona Type crossing) at east end.
   e. Perform required earthwork as needed.



REVISIONS		
MARK	DATE	DESCRIPTION
1	4/27	a. Revision to locations for MH concrete access structure No.15 and AVARV No. 15. b. Addition of Arizona Type concrete crossing at existing drainage ditch.

REISSUE
DATE: APRIL 27, 2026

REGISTERED PROFESSIONAL ENGINEER
AMAR SHAH
No. 46198
Exp. 12–31–26
CIVIL
STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

SUBMITTED: 03–16–2026
FOR THE CONSULTING ENGINEERS R.C.E. NO. 46198
REVIEWED: 03–16–2026
CLIENT SIGNATURE
DESIGNED: AMS/VT DRAWN: VT CHECKED: AMS

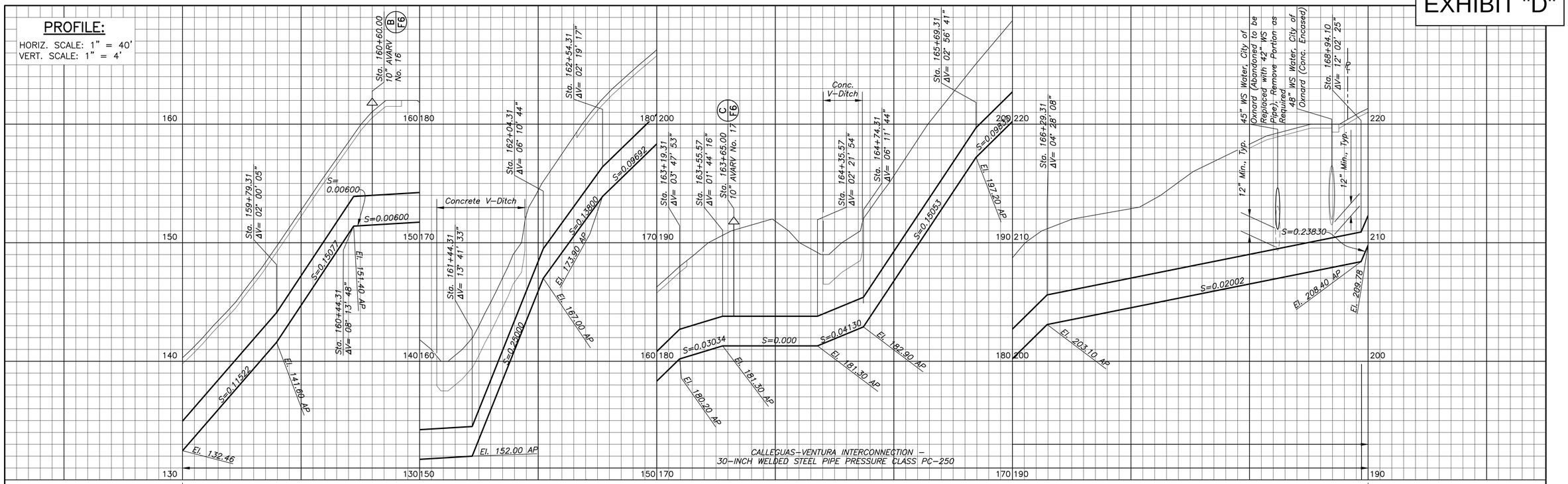
CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA
CALLEGUAS – VENTURA INTERCONNECTION
PLAN AND PROFILE
PIPE STA 148+00 TO STA 159+00

DATE	PROJECT NO.	SHEET 26 OF 121 SHEETS	DWG.
MARCH 2026	562		C16

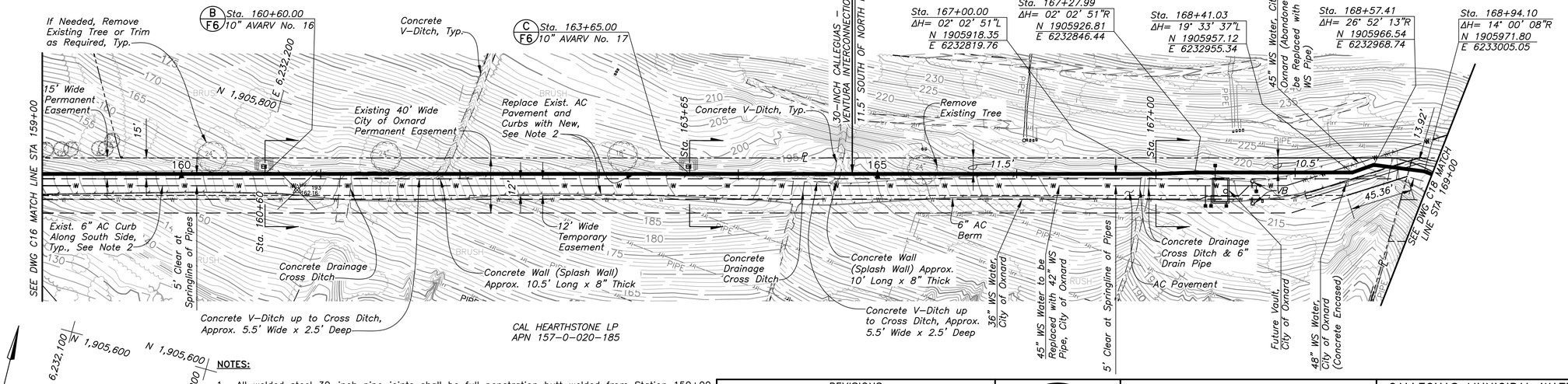
EXHIBIT "D"

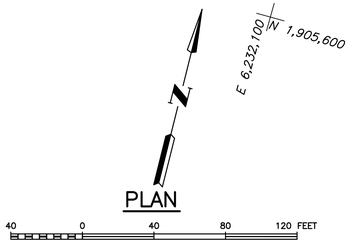
PROFILE:

HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



See Notes 3 and 4 for Trench Shoring and Backfill Requirements. Weld all Joints, See Note 1





NOTES:

1. All welded steel 30–inch pipe joints shall be full penetration butt welded from Station 150+00 to Station 171+00. See Detail J on Drawing D3.
2. After construction of 30–inch pipeline and associated components, remove existing asphalt pavement and AC curb, and install new for the entire width of the road from Pipe Station 155+20± to Pipe Station 169+35±. New asphalt pavement shall be 4" ac on 6" aggregate base with finished grade approximately the same as existing. New AC cub shall be in kind.
3. Trench shoring shall be provided from Pipe Station 154+70 to 169+40 regardless of trench depth and site condition.
4. Trench section backfill shall consist of cement–sand slurry from bottom of the trench to 18" above the top of pipe between Pipe Stations 154+70 and 169+40. Backfill for the remaining trench section shall be Imported or On–site Select Fill Material compacted to 95% per Section 02200.

REVISIONS		
MARK	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER – AMAR SHAH – No. 46198 – Exp. 12–31–26 – CIVIL – STATE OF CALIFORNIA

CAUTION
0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

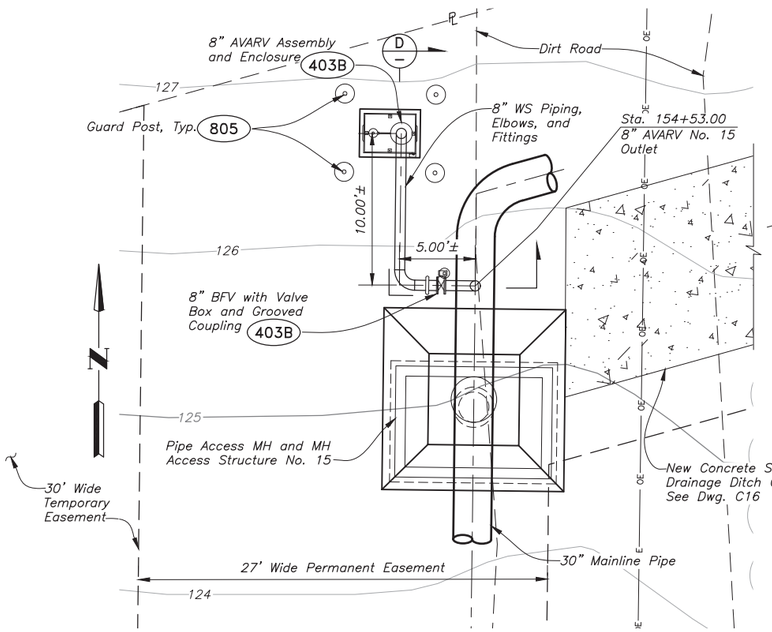
SUBMITTED: 03–16–2026 — FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198
REVIEWED: 03–16–2026 — CLIENT SIGNATURE
DESIGNED: AMS/VT | DRAWN: VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

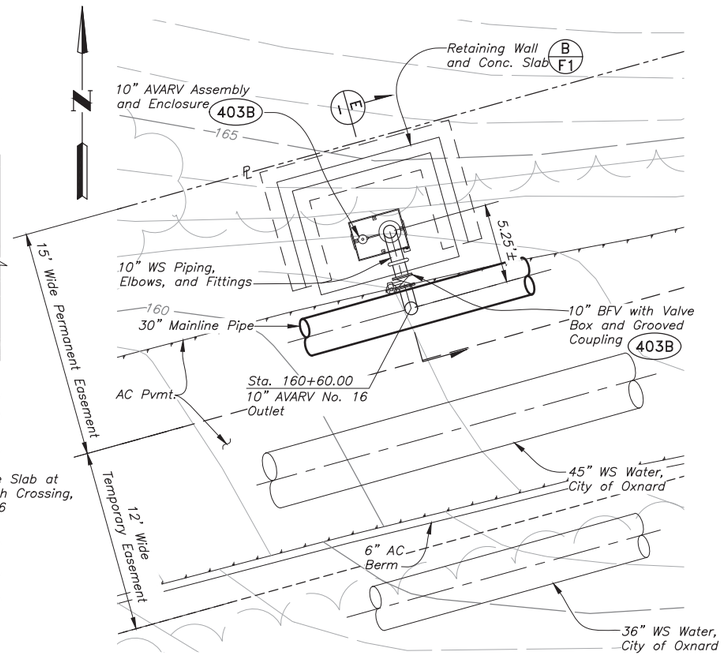
PLAN AND PROFILE
PIPE STA 159+00 TO STA 169+00

DATE	PROJECT NO.	SHEET 27 OF 121 SHEETS	DWG.
MARCH 2026	562		C17



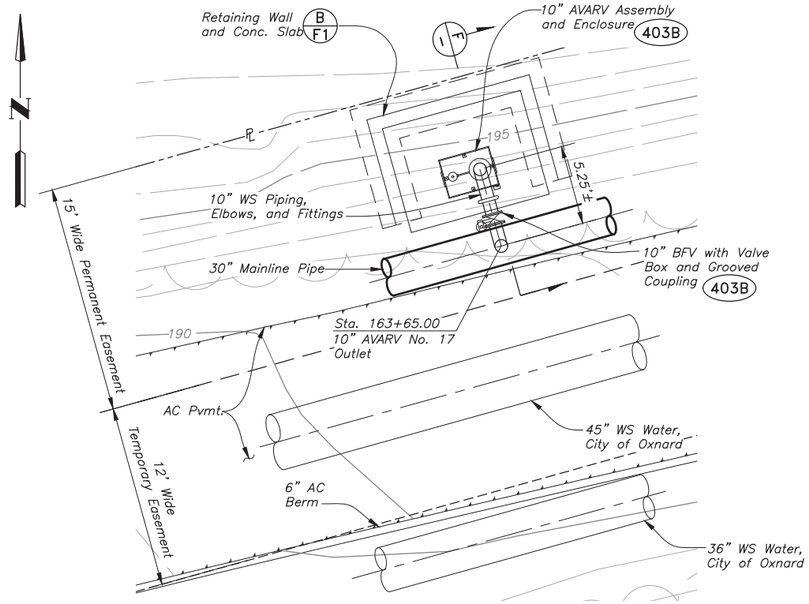
AVARV NO. 15 PLAN (A / C16) ⚠1

SCALE: 1 IN = 5 FT



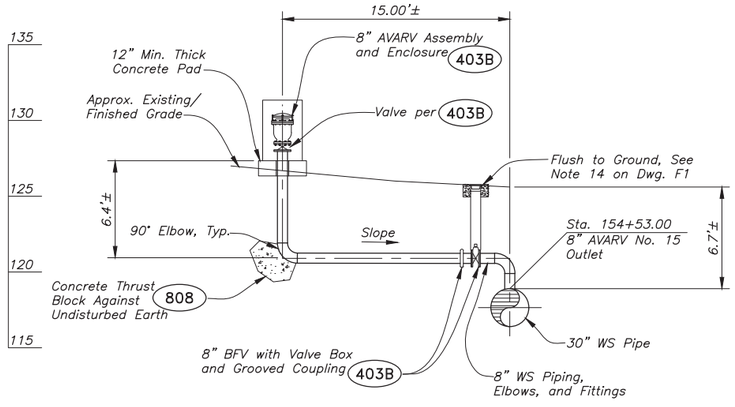
AVARV NO. 16 PLAN (B / C17)

SCALE: 1 IN = 5 FT



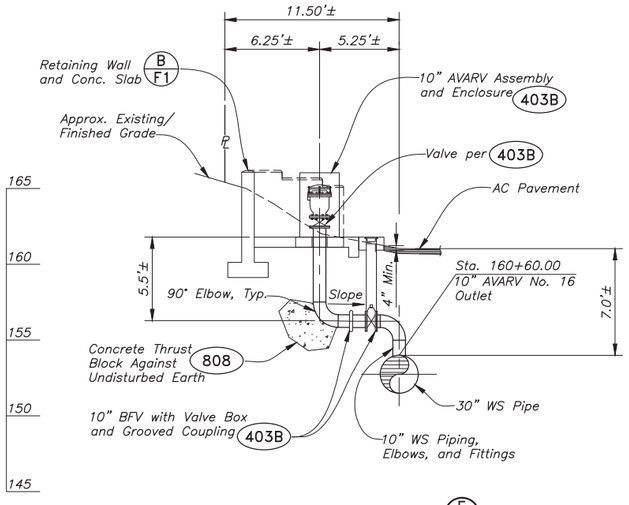
AVARV NO. 17 PLAN (C / C17)

SCALE: 1 IN = 5 FT



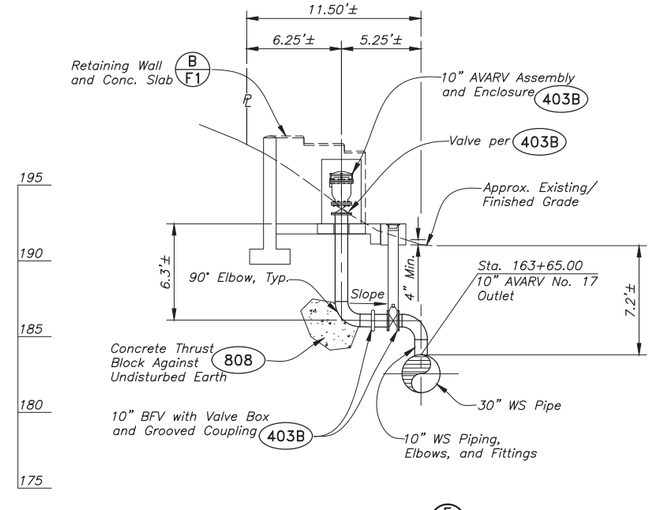
AVARV NO. 15 SECTION (D / –) ⚠

SCALE: 1 IN = 5 FT



AVARV NO. 16 SECTION (E / –)

SCALE: 1 IN = 5 FT



AVARV NO. 17 SECTION (F / –)

SCALE: 1 IN = 5 FT

REVISIONS		
MARK	DATE	DESCRIPTION
⚠1	4/27	a. Revision to locations for MH concrete access structure No.15 and AVARV No. 15. b. Addition of Arizona Type concrete crossing at existing drainage ditch.

REISSUE
DATE: APRIL 27, 2026

REGISTERED PROFESSIONAL ENGINEER — AMAR SHAH — No. 46198 — Exp. 12-31-26 — CIVIL — STATE OF CALIFORNIA

CAUTION 0 1"
THIS DRAWING IS TO SCALE ONLY IF BAR MEASURES 1 INCH

PERLITER & INGALSBE
CONSULTING ENGINEERS
GLENDALE, CALIFORNIA

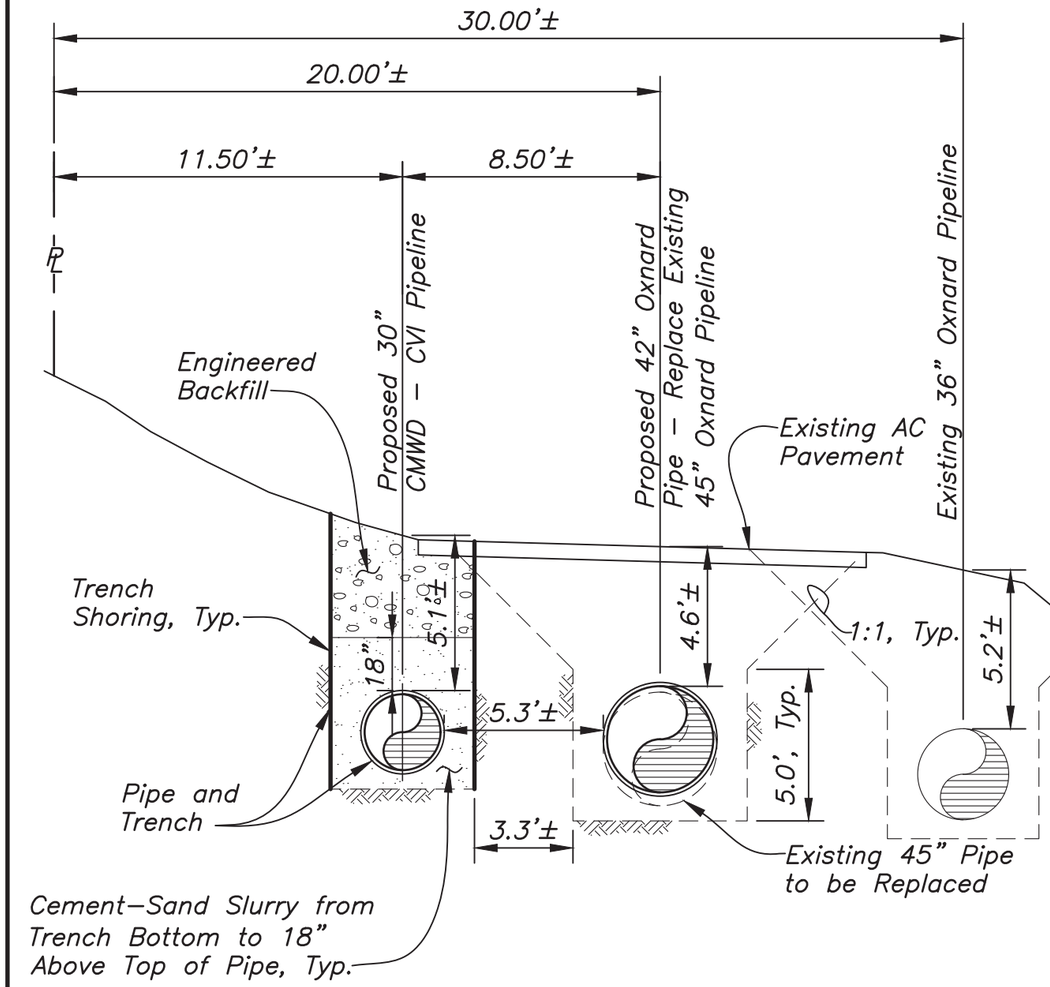
SUBMITTED: 03-16-2026 — FOR THE CONSULTING ENGINEERS — R.C.E. NO. 46198
REVIEWED: 03-16-2026 — CLIENT SIGNATURE
DESIGNED: VT/AMS | DRAWN: VT | CHECKED: AMS

CALLEGUAS MUNICIPAL WATER DISTRICT
THOUSAND OAKS, CALIFORNIA

CALLEGUAS – VENTURA INTERCONNECTION

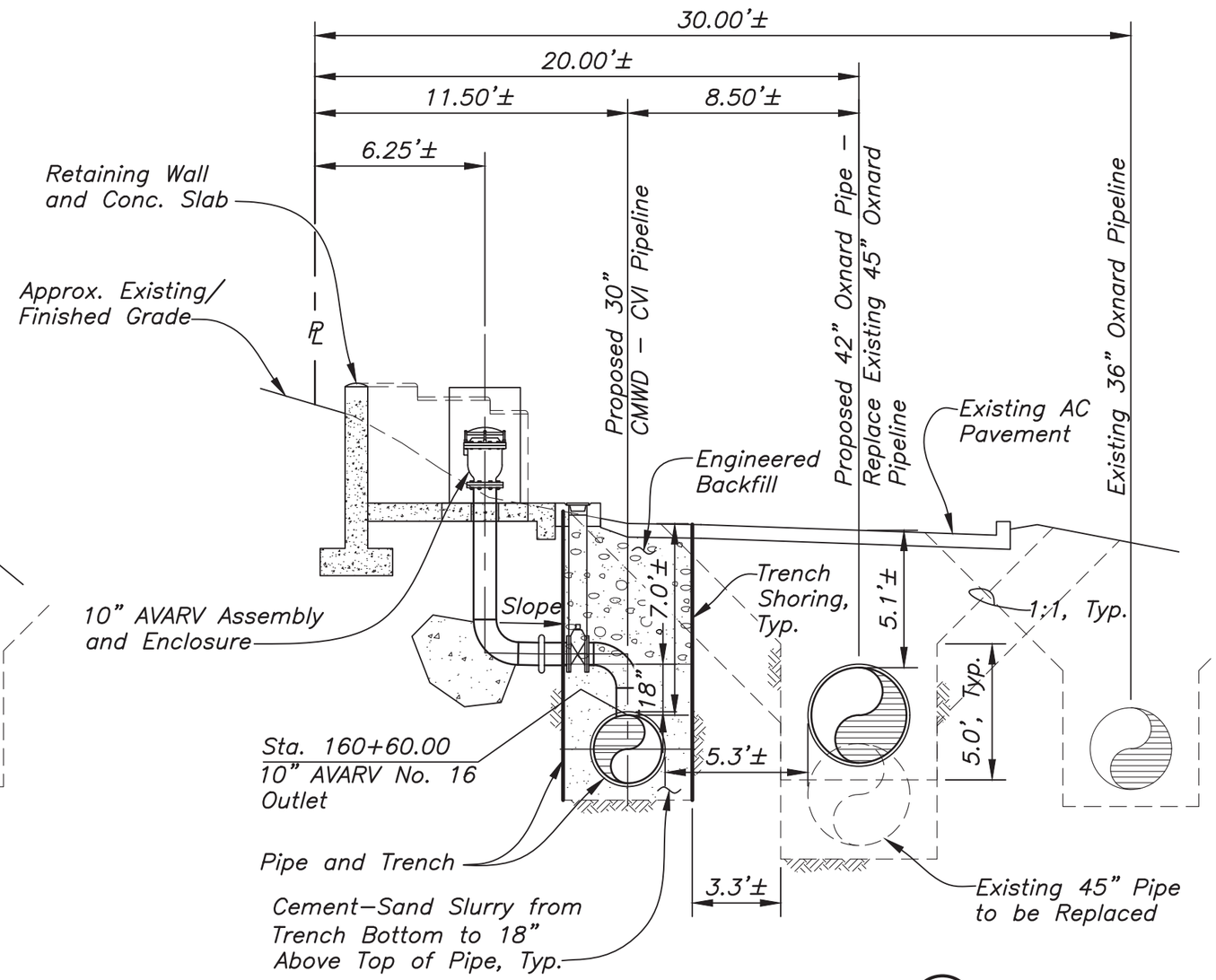
AVARV NOS. 15 THROUGH 17 DETAILS

DATE	PROJECT NO.	SHEET 47 OF 121 SHEETS	DWG.
MARCH 2026	562		F6



PIPE SECTION AT STA 157+00± (A)

SCALE: 1 IN = 5 FT



PIPE SECTION AT STA 160+60± (B)

SCALE: 1 IN = 5 FT

NOTES:

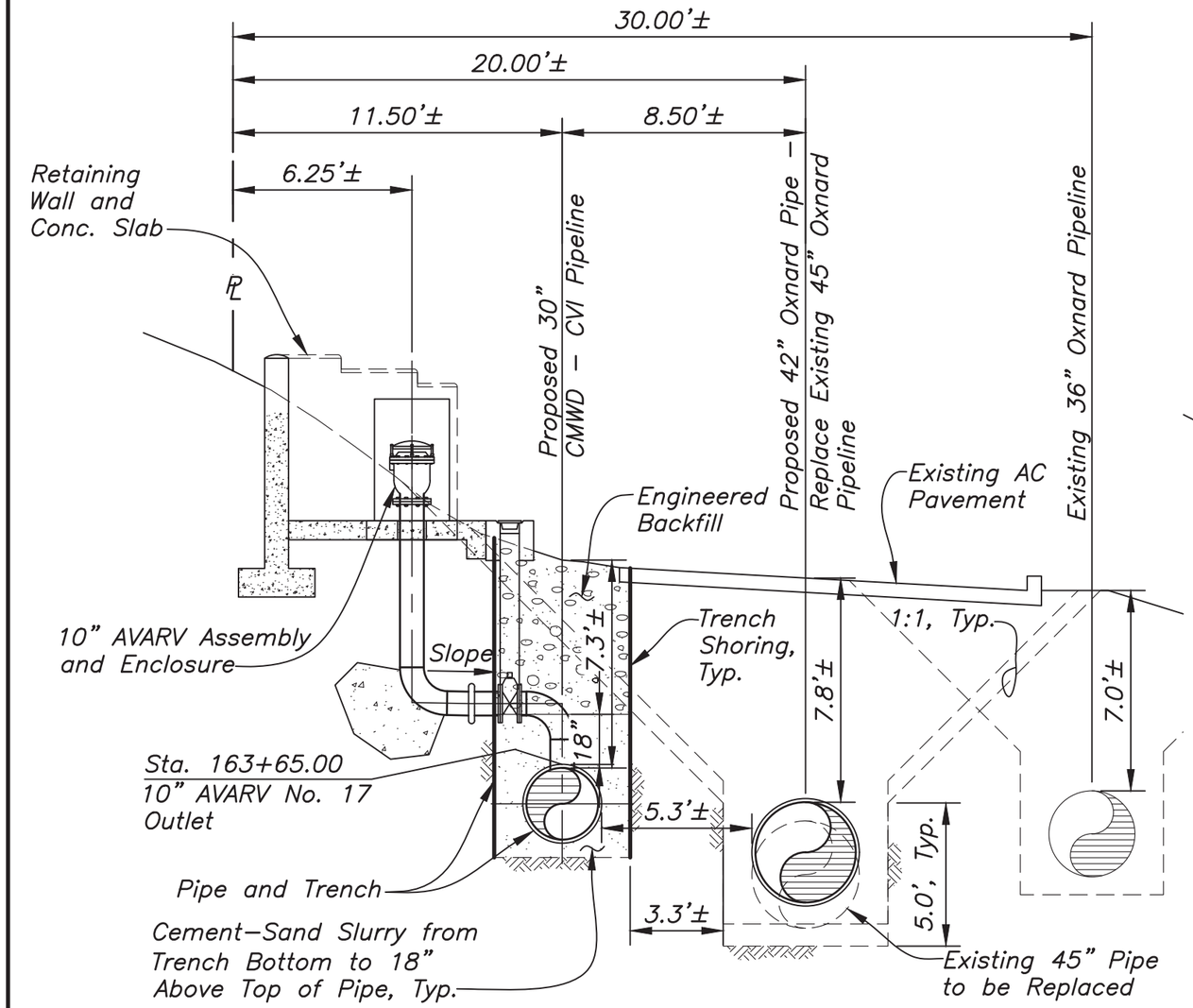
1. Information for 42" new Oxnard Pipe is taken from 75% complete design plans provided by City of Oxnard.

0 5 FEET

CALLEGUAS MUNICIPAL WATER DISTRICT
Calleguas – Ventura Interconnection
Proposed Pipeline Sections within Oxnard Easement
At Tract TR5671–2 Approximate Sta. 157+00 and 160+60

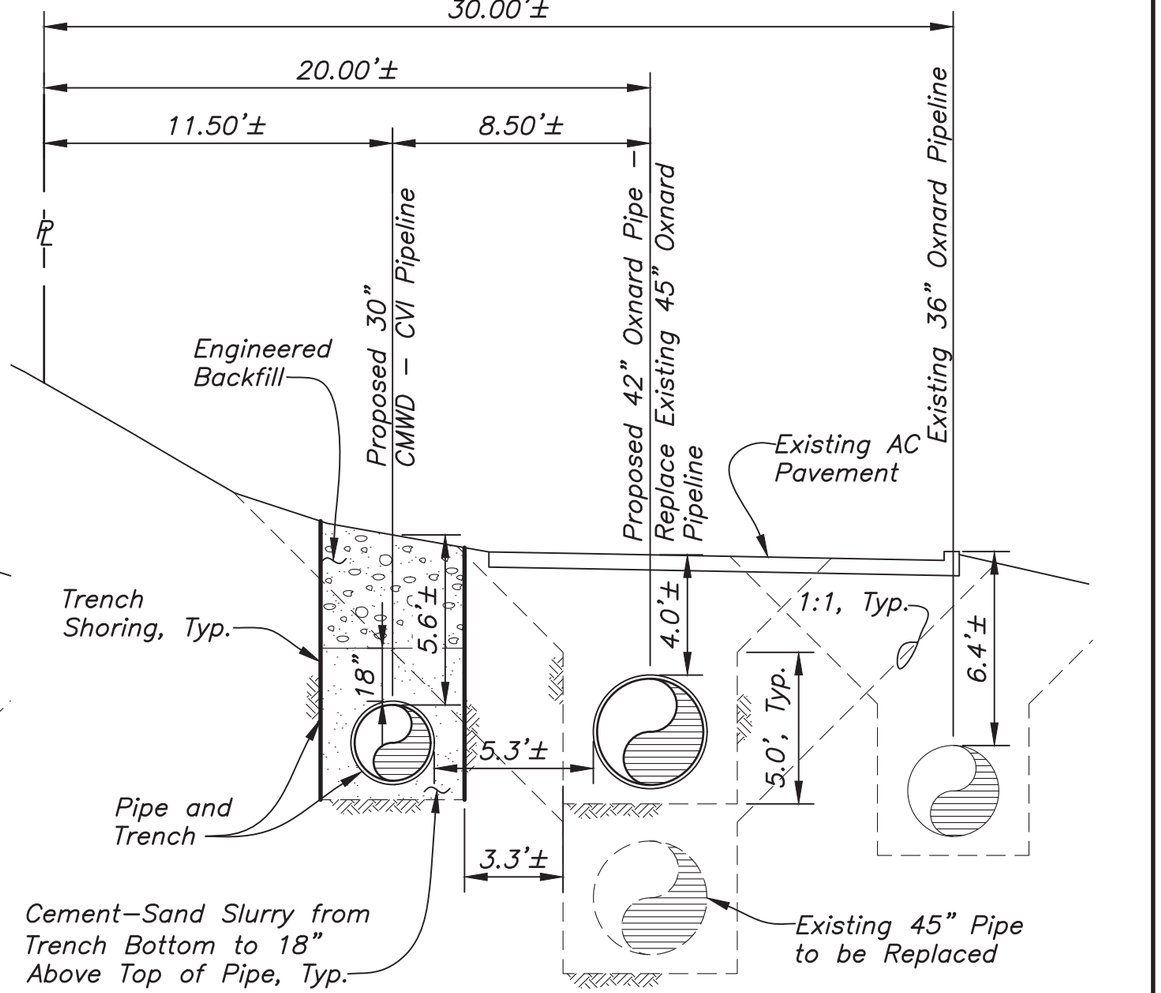
Prepared By:

Perliter & Ingalsbe **Revised – February 24, 2026**



PIPE SECTION AT STA 163+65± (C)

SCALE: 1 IN = 5 FT



PIPE SECTION AT STA 167+00± (D)

SCALE: 1 IN = 5 FT

0 5 FEET

NOTES:

1. Information for 42" new Oxnard Pipe is taken from 75% complete design plans provided by City of Oxnard.

CALLEGUAS MUNICIPAL WATER DISTRICT
Calleguas – Ventura Interconnection
Proposed Pipeline Sections within Oxnard Easement
At Tract TR5671–2 Approximate Sta. 163+65 and 167+00

Prepared By:

Perliter & Ingalsbe **Revised – February 24, 2026**

Assignment of Easements to Calleguas Municipal Water District for the Calleguas – Ventura Interconnection (APN: 157-0-270-015).

Public Works and Transportation Committee, May 26, 2026

City Council, June 16, 2026

Michael L. Wolfe
Public Works Director

CITY OF OXNARD CALIFORNIA

RECOMMENDATION

That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute the Easement Assignment Deed (A-8622) and Easement Transfer Agreement (A-8623) with Calleguas Municipal Water District for APN 157-0-270-015.

RECOMMENDATION

That the City Council approve and authorize the Mayor to execute the Easement Assignment Deed (A-8622) and Easement Transfer Agreement (A-8623) with Calleguas Municipal Water District for APN 157-0-270-015.

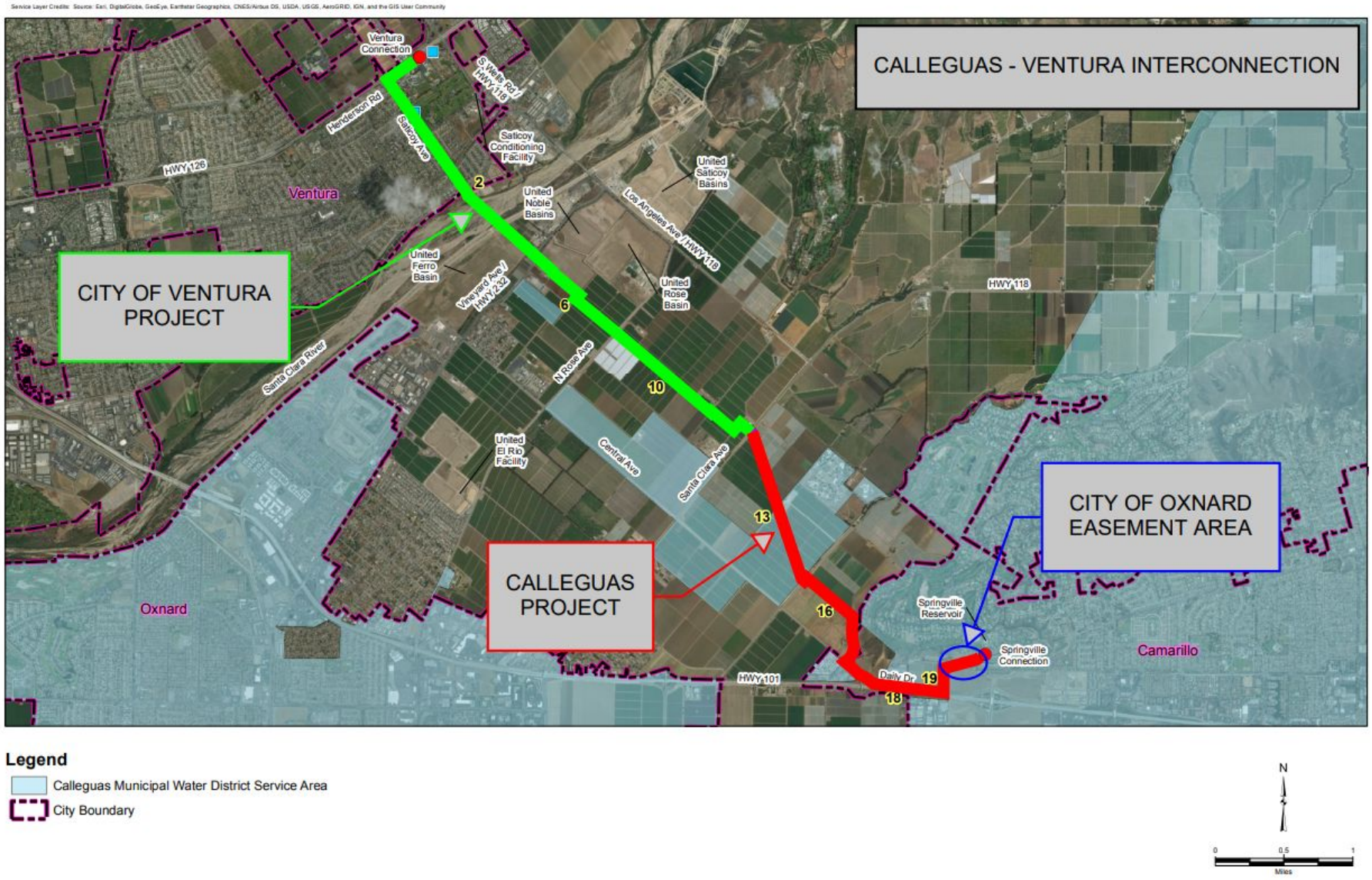
BACKGROUND

- Calleguas-Ventura Interconnection to link their water systems together.
- The project will construct a bi-directional flow pipeline to increase water reliability to Ventura County, and specifically the City of Oxnard.
- A portion of the Calleguas pipeline (Springville area of Camarillo) is proposed to be routed through an existing City of Oxnard easement.
- Calleguas is requesting a permanent easement for the pipeline and temporary construction easement to facilitate its construction from the City.

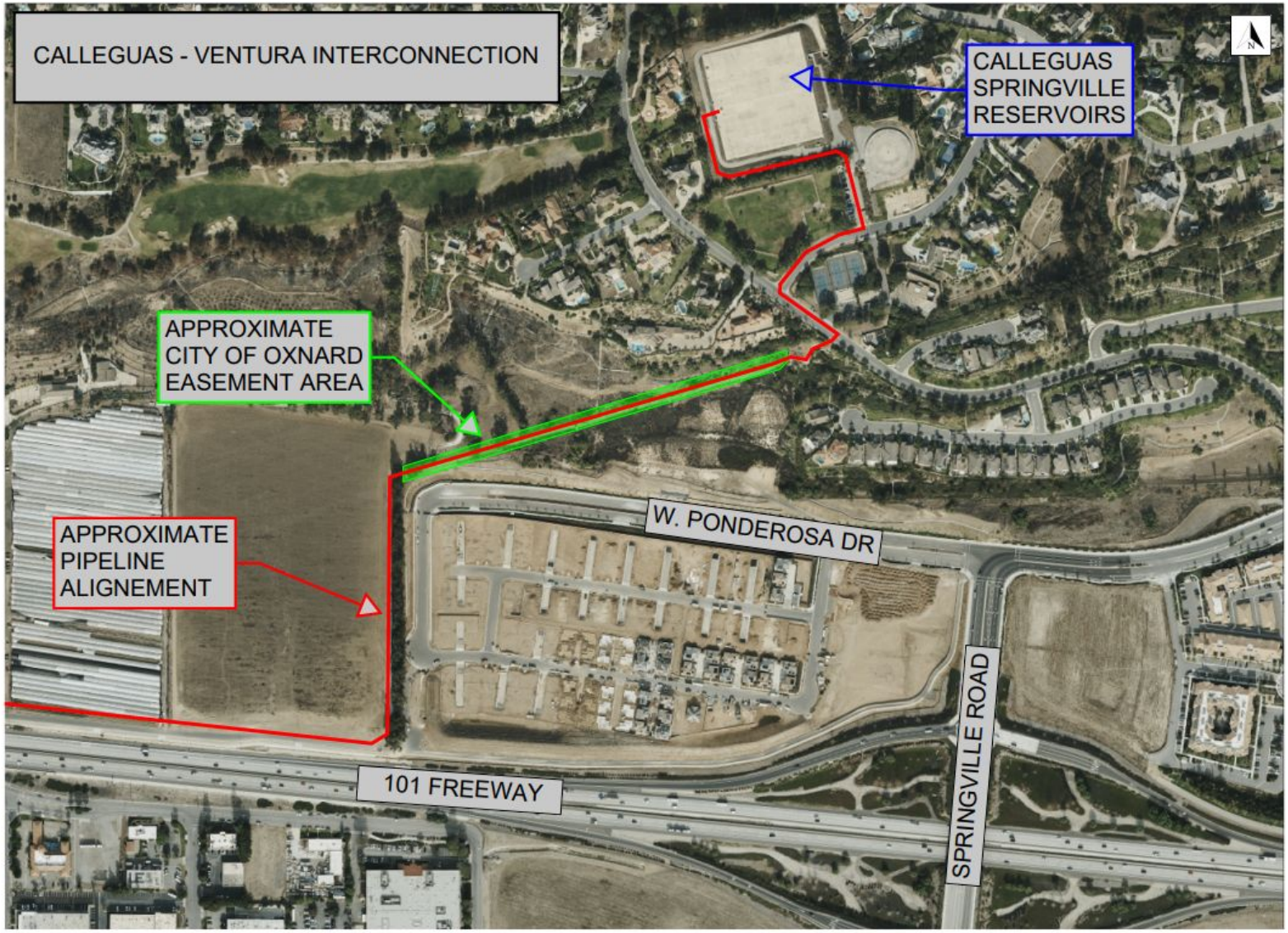
BACKGROUND - DISCUSSION

- The Calleguas-Ventura Interconnection
  - Allow Ventura and United Water Conservation District to receive delivery of their State Water Project allocations by wheeling it through the Metropolitan Water District of Southern California and Calleguas' systems.
  - Provide a means for Calleguas to receive up to 14.7 cubic feet per second of potable water from Ventura during an outage of imported supplies.
- This additional water could be critical under outage conditions, particularly in a lengthy outage if Calleguas' stored water is depleted.

BACKGROUND - DISCUSSION



BACKGROUND - DISCUSSION



BACKGROUND - DISCUSSION

- Calleguas is requesting a permanent easement for the new pipeline and a temporary easement for construction purposes, located within the City's easement.

- The requested permanent easement is located on the less desirable sloped portion of the City's easement, and the temporary construction easement is located along the existing access road.

BACKGROUND - DISCUSSION

The Calleguas - Ventura Interconnection will provide several benefits to the City of Oxnard, including:

- Alternative Water supply.
- Alternative / Emergency City of Oxnard 30” connection.
- Existing access road paving.

FINANCIAL IMPACT

- This item does not require an expenditure of City funds
- The appraised value of the permanent and temporary easements is based on the land use designation of the underlining parcel, which is Open Space.
- The calculated value: $1,199.79.
    - However, Calleguas is providing an additional $5,000 for a total of $6,200 (rounded).
- Maintenance costs resulting from the repaved access road will have no new increases to the Public Works operating budget and there will be less maintenance needs when compared to the existing deteriorated access road.

CITY OF OXNARD CALIFORNIA

End of Presentation

CITY OF OXNARD CALIFORNIA

PUBLIC WORKS AND TRANSPORTATION COMMITTEE AGENDA REPORT

REPORTS
AGENDA ITEM NO. D.2

DATE: May 26, 2026

TO: Public Works and Transportation Committee

FROM: Michael Wolfe, Public Works Director, (805) 385-8055, michael.wolfe@oxnard.org

SUBJECT: 2025 Urban Water Management Plan and Water Shortage Contingency Plan.

RECOMMENDATION

That the Public Works and Transportation Committee:

1. Recommend that the City Council receive a presentation and receive public comment regarding the City of Oxnard's 2025 Urban Water Management Plan and Water Shortage Contingency Plan;
2. Recommend that the City Council hold a Public Hearing on the 2025 Urban Water Management Plan and Water Shortage Contingency Plan; and
3. Recommend that the City Council adopt a resolution to approve the 2025 Urban Water Management Plan and Water Shortage Contingency Plan and authorize City staff to file the plans with the State of California.

(Presentation will be live upon consultant's request.)

BACKGROUND

The City is subject to the provisions of the California Urban Water Management Planning Act, which requires urban water purveyors providing water to more than 3,000 customers or supplying more than 3,000 Acre Feet of water annually to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The purpose of the UWMP is to ensure that urban water suppliers give careful consideration to water demands, water supplies, water conservation, alternative water supplies, reliability of water supplies, water quality, and have a water shortage contingency plan in place. UWMPs must describe how projected (i.e., estimated) demands will be met through time, in various types of hydrologic conditions. Additionally, the California Department of Water Resources (CDWR) requires water suppliers to adopt and submit UWMPs in order to be eligible for certain grants, loans, and assistance that it administers.

Please note that the 2020 UWMP assumed a 2025 water demand for the City of Oxnard of 28,819 AF. Actual water demand for Oxnard in 2025 was 23,206 AF. This information is pointed out to show that while UWMPs are good (and State required) planning tools, there are still assumptions, estimates, and projections. Additionally, it should be noted that there has been a reduction in water demand by Oxnard customers, from a high in 2021 of 27,248 AF to a total demand of 23,206 (which includes water transferred to Port Hueneme Water Agency) in 2025. These types of downward trends, despite the addition of new housing and commercial development in Oxnard since 2021, mean there is more time and flexibility to address alternative sources of water and strategies for future water resilience and sustainability.

DISCUSSION

The 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) were prepared in compliance with the California Water Code (§§10610–10657 and §10632) with the assistance of the City's consultant, Water Systems Consulting, Inc. The UWMP evaluates estimated water demands and assumed water supplies through the year 2050 and identifies resource management strategies to manage long-term water supply reliability for the City of Oxnard under normal, single-dry, and multiple-dry year conditions.

As an urban water supplier that receives imported water from the Sacramento-San Joaquin Delta, the City is required to demonstrate consistency with Delta Plan Policy WR P1 related to reducing reliance on the Delta. This analysis is included in Appendix B of the UWMP.

The WSCP has been prepared as a standalone document in accordance with current statutory requirements and is included as Appendix A. The WSCP serves as the City's operational framework for managing water shortages and includes procedures for conducting the Annual Water Supply and Demand Assessment, which has been implemented since 2022. The WSCP outlines staged response actions to address varying levels of water shortage and is designed to support proactive and adaptive management of the City's water system.

Since the adoption of the 2020 UWMP, the regulatory framework governing urban water management has evolved. Senate Bill 606 and Assembly Bill 1668 established long-term water use efficiency standards commonly referred to as "Making Conservation a California Way of Life". These requirements establish water-use objectives based on indoor residential use, outdoor irrigation, commercial and institutional irrigation, and system water loss. The City has incorporated these standards into its demand estimates and water conservation programs and will continue to refine its water use objectives as State guidance is updated.

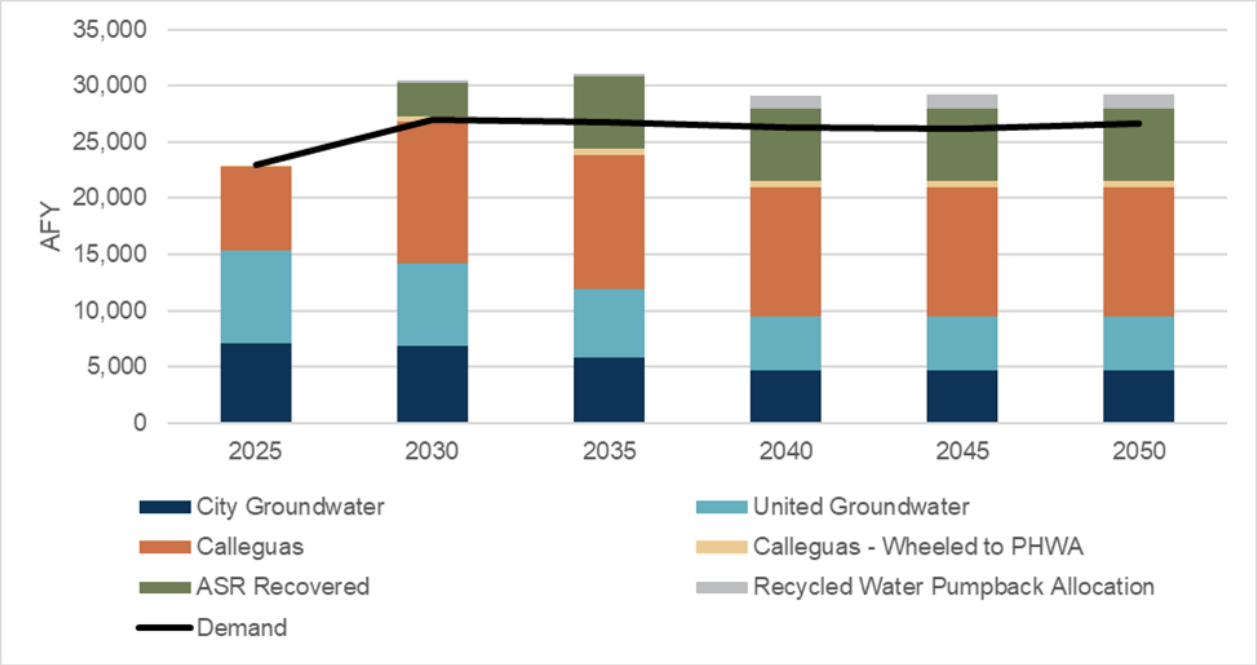
The City maintains a diversified water supply portfolio consisting of local groundwater, groundwater purchases from United Water Conservation District, imported surface water purchased from Calleguas Municipal Water District, and recycled water supplies. Since the 2020 UWMP, the City has continued to invest in water supply reliability through the implementation of advanced water purification and groundwater recharge initiatives, including the Fox Canyon Ground Water Management Agency's (FCGMA) resolution 2023-02 (attached for reference) and resolution 03-04 (attached for reference), and resolution 03-05 (attached for reference) for the Aquifer Storage and Recovery (ASR) pilot project (attached for reference). These efforts are intended to expand local water supplies, improve drought resilience, and reduce dependence on imported water.

Groundwater remains a critical component of the City's water supply, but its availability is subject to increasing regulatory constraints and legal challenges. Groundwater resources within the Oxnard Basin are managed by FCGMA, which has adopted groundwater allocation ordinances, Groundwater Sustainability Plans (GSPs), and a GSP Update in accordance with the Sustainable Groundwater Management Act (SGMA). These plans, included in Appendix F, establish a framework for achieving long-term groundwater sustainability and may result in reduced groundwater pumping over time. As a result, the City must continue to diversify its water supply portfolio to maintain long-term reliability.

The City, like all groundwater pumpers in the Oxnard Sub-basin (and the Pleasant Valley Basin), is subject to a current legal action, called a groundwater basin adjudication ("Adjudication"). As such, there is uncertainty regarding the access and availability of groundwater in the basins going forward. Meaning, while the UWMP contemplates many at-risk scenarios (e.g., multiple dry years), rulings from the Adjudication may impact some of the assumptions and/or water reliability and resiliency strategies going forward.

The UWMP also evaluates water supply reliability under a range of hydrologic conditions and incorporates a drought risk assessment to assess the City's ability to meet demands over a five-year planning horizon. These analyses consider potential reductions in imported supplies, groundwater limitations, and climate variability. The UWMP demonstrates that, with implementation of planned supply and demand management

strategies, the City can meet projected water demands under normal and dry-year conditions as shown in the graph below:



The City has implemented and continues to expand water conservation and demand management programs, including public outreach, rebate programs, and water use efficiency measures. The City has implemented technologies such as advanced metering infrastructure to improve water use monitoring and customer engagement.

Preparation of the UWMP included coordination with regional water agencies, including Calleguas Municipal Water District, United Water Conservation District, the Fox Canyon Groundwater Management Agency, and neighboring jurisdictions. Documentation of agency coordination, outreach, and required notifications is included in Appendix D, and public hearing notices are included in Appendix E.

In conclusion, the 2025 UWMP demonstrates that the City of Oxnard is well-positioned to meet current and future water demands through a combination of diversified supplies, continued conservation, and strategic investments in local water resources. The UWMP reflects measurable progress in reducing water use even as the community grows, while also acknowledging the increasing constraints on groundwater supplies due to regulatory requirements and long-term sustainability goals. By advancing projects such as advanced water purification, groundwater recharge, and Aquifer Storage and Recovery, the City is strengthening its resilience to drought, climate variability, and supply uncertainty. Through proactive planning, regional coordination, and compliance with evolving State efficiency standards, the City remains committed to ensuring a reliable, sustainable, and locally resilient water supply for the Oxnard community through 2050 and beyond.

STRATEGIC PRIORITIES

This agenda item supports the Infrastructure and Natural Resources strategy. The purpose of the Infrastructure and Natural Resources strategy is to preserve and improve our roads, utilities, parks, trees, water supply and natural resources through effective planning, prioritization, and an equitable and efficient use of available funding.

FINANCIAL IMPACT

No direct fiscal impacts to the City's operating budget are expected as a result of this recommended adoption.

Prepared by: Chris Peyton, Water Division Manager

ATTACHMENTS

1. Resolution
2. FCGMA Resolution 03-04
3. FCGMA Resolution 03-05
4. FCGMA Resolution 2023-02
5. Oxnard Subbasin Groundwater Sustainability Plan
6. 2025 Urban Water Management Plan - Public Draft
7. Presentation

RESOLUTION NO. _____

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF OXNARD, CALIFORNIA, ADOPTING THE CITY'S 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the California Urban Water Management Planning Act, Water Code section 10610 *et seq.* (the Act), which the Legislature passed to actively pursue the efficient use of water by requiring urban water suppliers to develop urban water management plans **(UWMPs)** every five years**,** defines an "urban water supplier" as a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually; and

WHEREAS, City of Oxnard (City) is an urban water supplier for purposes of the Act and an urban retail water supplier for the purposes of SBX7-7; and

WHEREAS, the City previously adopted its 2015 and 2020 UWMPs in compliance with State law; and

WHEREAS, the Act requires the City to update and submit its 2025 UWMP to the California Department of Water Resources (DWR); and

WHEREAS, SBX7-7 established water use reduction targets and Senate 606 and Assembly Bill 1668 established long-term water use efficiency standards; and

WHEREAS, the City has incorporated applicable water use efficiency standards into the 2025 UWMP; and

WHEREAS, the City is located within the Oxnard Subbasin, which is subject to the Sustainable Groundwater Management Act (SMGA), and the Basin's Groundwater Sustainability Plan establishes a sustainability goal of 2040; and

WHEREAS, the City's 2025 UWMP has been prepared to be consistent with the Groundwater Sustainability Plan and supports achieving sustainability by 2040; and

WHEREAS, the City evaluated water supply reliability under normal, single dry year, and multiple dry year scenarios; and

WHEREAS, the City prepared the UWMP in accordance with DWR guidance, including applicable UWMP Guidebooks and methodologies; and

WHEREAS, in accordance with Water Code Sections 10608.26 and 10642 and Government Code Section 6066, the City made the draft UWMP available for public review, published two notices of public hearing at least seven days apart on May 28, 2026; and June 4, 2026 and

WHEREAS, the City held a duly noticed public hearing on June 16, 2026, and considered all oral and written comments received; and

WHEREAS, the City Council has reviewed the 2025 UWMP and determined that it complies with the requirements of the Act; and

NOW, THEREFORE, BE IT RESOLVED, DETERMINED AND ORDERED BY THE CITY COUNCIL OF THE CITY OF OXNARD AS FOLLOWS:

1. The City Council hereby adopts the City's 2025 Urban Water Management Plan and Water Shortage Contingency Plan pursuant to Water Code 10632 and 10632.1.
2. The Public Works Director is authorized to make non-substantive edits and finalize the UWMP.
3. The Public Works Director shall file the UWMP with the California Department of Water Resources, the California State Library, and all cities and counties within which the City provides water within 30 days of adoption.
4. The UWMP shall be made available for public inspection within 30 days of filing with DWR.
5. The Public Works Director shall provide the Water Shortage Contingency Plan to all applicable agencies within 60 days of filing.
6. The Public Works Director is authorized to implement the UWMP, Water Shortage Contingency Plan, and conservation programs.
7. The Public Works Director may recommend additional actions necessary to ensure compliance with the Act, SBX7-7, SB 606, AB 1668, and SGMA.

PASSED and ADOPTED THIS ___ day of _____, 2026, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

_____

Luis A. Mc Arthur, Mayor

ATTEST:

_____

Lourdes A. López, City Clerk

APPROVED AS TO FORM:

_____

Stephen M. Fischer, City Attorney

Resolution 2003-4
of the
Fox Canyon Groundwater Management Agency

A RESOLUTION GRANTING CREDITS TO THE CITY OF OXNARD FOR THE INJECTION OF RECYCLED WATER

WHEREAS, the mission of the Fox Canyon Groundwater Management Agency includes the protection and preservation of groundwater resources within the boundary of the Fox Canyon Groundwater Management Agency; and

WHEREAS, the Lower Aquifer System of the South Oxnard Plain is overdrafted aquifer system and is managed by the Fox Canyon Groundwater Management Agency; and

WHEREAS, the City of Oxnard has the intention of injecting water into these aquifers; and

WHEREAS, if not injected, this water would otherwise be lost to the Ocean; and

WHEREAS, injected water will help the depleted aquifer recover lost water levels; and

WHEREAS, the City of Oxnard has agreed to inject this water at locations beneficial to the Fox Canyon Groundwater Management Agency; and

WHEREAS, the Agency has the ability to grant credits for this injected water;

NOW, THEREFORE, IT IS HEREBY PROCLAIMED AND ORDERED that upon approval by the Fox Canyon Groundwater Management Agency of the intended injection location(s), the City of Oxnard shall receive one acre-foot of credit for each acre-foot of water injected. These injection credits shall be redeemable at a location approved by the Agency Coordinator.

On motion by Director Fox, seconded by Director Schwabauer, the foregoing resolution was passed and adopted on December 17, 2003.

Mr. Lynn Maulhardt, Chair, Board of Directors
Fox Canyon Groundwater Management Agency

ATTEST:

by: _____
Kathy Miller, Deputy Clerk of the Board

RESOLUTION 2003-04
OF THE FOX CANYON
GROUNDWATER MANAGEMENT AGENCY

A RESOLUTION GRANTING CREDITS TO THE CITY OF OXNARD FOR THE INJECTION OF RECYCLED WATER

WHEREAS, the mission of the Fox Canyon Groundwater Management Agency includes the protection and preservation of groundwater resources within the boundary of the Fox Canyon Groundwater Management Agency; and

WHEREAS, the Lower Aquifer System of the South Oxnard Plain is overdrafted aquifer system and is managed by the Fox Canyon Groundwater Management Agency; and

WHEREAS, the City of Oxnard has the intention of injecting water into these aquifers; and

WHEREAS, if not injected, this water would otherwise be lost to the Ocean; and

WHEREAS, injected water will help the depleted aquifer recover lost water levels; and

WHEREAS, the City of Oxnard has agreed to inject this water at locations beneficial to the Fox Canyon Groundwater Management Agency; and

WHEREAS, the Agency has the ability to grant credits for this injected water;

NOW, THEREFORE, IT IS HEREBY PROCLAIMED AND ORDERED that upon approval by the Fox Canyon Groundwater Management Agency of the intended injection location(s), the City of Oxnard shall receive one acre-foot of credit for each acre-foot of water injected. These injection credits shall be redeemable at a location approved by the Agency Coordinator.

On motion by Director Fox, seconded by Director Schwabauer, the foregoing resolution was passed and adopted on December 17, 2003.

Mr. Lynn Maulhardt, Chair, Board of Directors
Fox Canyon Groundwater Management Agency

ATTEST:

by: _____
Kathy Miller, Deputy Clerk of the Board

RESOLUTION 2003-04
OF THE FOX CANYON
GROUNDWATER MANAGEMENT AGENCY

A RESOLUTION GRANTING CREDITS TO THE CITY OF OXNARD FOR THE INJECTION OF RECYCLED WATER

WHEREAS, the mission of the Fox Canyon Groundwater Management Agency includes the protection and preservation of groundwater resources within the boundary of the Fox Canyon Groundwater Management Agency; and

WHEREAS, the Lower Aquifer System of the South Oxnard Plain is overdrafted aquifer system and is managed by the Fox Canyon Groundwater Management Agency; and

WHEREAS, the City of Oxnard has the intention of injecting water into these aquifers; and

WHEREAS, if not injected, this water would otherwise be lost to the Ocean; and

WHEREAS, injected water will help the depleted aquifer recover lost water levels; and

WHEREAS, the City of Oxnard has agreed to inject this water at locations beneficial to the Fox Canyon Groundwater Management Agency; and

WHEREAS, the Agency has the ability to grant credits for this injected water;

NOW, THEREFORE, IT IS HEREBY PROCLAIMED AND ORDERED that upon approval by the Fox Canyon Groundwater Management Agency of the intended injection location(s), the City of Oxnard shall receive one acre-foot of credit for each acre-foot of water injected. These injection credits shall be redeemable at a location approved by the Agency Coordinator.

On motion by Director Fox, seconded by Director Schwabauer, the foregoing resolution was passed and adopted on December 17, 2003.

Mr. Lynn Maulhardt, Chair, Board of Directors
Fox Canyon Groundwater Management Agency

ATTEST:

by: _____
Kathy Miller, Deputy Clerk of the Board

Item 16A

Resolution 2003-5

of the

Fox Canyon Groundwater Management Agency

A RESOLUTION GRANTING CREDITS TO THE CITY OF OXNARD FOR THE DIRECT DELIVERY OF RECYCLED WATER

WHEREAS, the Lower Aquifer System of the South Oxnard Plain is an overdrafted aquifer managed by the Fox Canyon Groundwater Management Agency; and

WHEREAS, the City of Oxnard has the intention of recycling water for use in the overdrafted area; and

WHEREAS, under pumping a historical allocation will result in creation of credits; and

WHEREAS, delivery of this water replaces groundwater that would otherwise be pumped; and

WHEREAS, this recycled water would otherwise be lost to the Ocean; and

WHEREAS, the direct delivery of water will help the depleted aquifer recover lost water levels; and

WHEREAS, the Agency has the ability to grant credits for this injected water;

NOW, THEREFORE, IT IS HEREBY PROCLAIMED AND ORDERED the Fox Canyon Groundwater Management Agency will transfer to the City of Oxnard one acre-foot of credit for each acre-foot of water delivered in-lieu of pumping a historical allocation. These credits shall be redeemable at a location approved by the Agency Coordinator.

On motion by Director Fox, seconded by Director Schwabauer, the foregoing resolution was passed and adopted on December 17, 2003.

Mr. Lynn Maulhardt, Chair, Board of Directors
Fox Canyon Groundwater Management Agency

ATTEST:

by: _____
Kathy Miller, Deputy Clerk of the Board

RESOLUTION 2003-05
OF THE FOX CANYON
GROUNDWATER MANAGEMENT AGENCY

A RESOLUTION GRANTING CREDITS TO THE CITY OF OXNARD FOR THE DIRECT DELIVERY OF RECYCLED WATER

WHEREAS, the Lower Aquifer System of the South Oxnard Plain is an overdrafted aquifer managed by the Fox Canyon Groundwater Management Agency; and

WHEREAS, the City of Oxnard has the intention of recycling water for use in the overdrafted area; and

WHEREAS, under pumping a historical allocation will result in creation of credits; and

WHEREAS, delivery of this water replaces groundwater that would otherwise be pumped; and

WHEREAS, this recycled water would otherwise be lost to the Ocean; and

WHEREAS, the direct delivery of water will help the depleted aquifer recover lost water levels; and

WHEREAS, the Agency has the ability to grant credits for this injected water;

NOW, THEREFORE, IT IS HEREBY PROCLAIMED AND ORDERED the Fox Canyon Groundwater Management Agency will transfer to the City of Oxnard one acre-foot of credit for each acre-foot of water delivered in-lieu of pumping a historical allocation. These credits shall be redeemable at a location approved by the Agency Coordinator.

On motion by Director Fox, seconded by Director Schwabauer, the foregoing resolution was passed and adopted on December 17, 2003.

Mr. Lynn Maulhardt, Chair, Board of Directors
Fox Canyon Groundwater Management Agency

ATTEST:
by: _____
Kathy Miller, Deputy Clerk of the Board

RESOLUTION 2003-05
OF THE FOX CANYON
GROUNDWATER MANAGEMENT AGENCY

A RESOLUTION GRANTING CREDITS TO THE CITY OF OXNARD FOR THE DIRECT DELIVERY OF RECYCLED WATER

WHEREAS, the Lower Aquifer System of the South Oxnard Plain is an overdrafted aquifer managed by the Fox Canyon Groundwater Management Agency; and

WHEREAS, the City of Oxnard has the intention of recycling water for use in the overdrafted area; and

WHEREAS, under pumping a historical allocation will result in creation of credits; and

WHEREAS, delivery of this water replaces groundwater that would otherwise be pumped; and

WHEREAS, this recycled water would otherwise be lost to the Ocean; and

WHEREAS, the direct delivery of water will help the depleted aquifer recover lost water levels; and

WHEREAS, the Agency has the ability to grant credits for this injected water;

NOW, THEREFORE, IT IS HEREBY PROCLAIMED AND ORDERED the Fox Canyon Groundwater Management Agency will transfer to the City of Oxnard one acre-foot of credit for each acre-foot of water delivered in-lieu of pumping a historical allocation. These credits shall be redeemable at a location approved by the Agency Coordinator.

On motion by Director Fox, seconded by Director Schwabauer, the foregoing resolution was passed and adopted on December 17, 2003.

Mr. Lynn Maulhardt, Chair, Board of Directors
Fox Canyon Groundwater Management Agency

ATTEST:
by: _____
Kathy Miller, Deputy Clerk of the Board

Item 16B

Resolution 2023 –02
Of the
Fox Canyon Groundwater Management Agency

RESOLUTION OF THE BOARD OF DIRECTORS OF FOX CANYON GROUNDWATER MANAGEMENT AGENCY REGARDING THE ACCRUAL, EXTRACTION, AND TRANSFER OF RECYCLED WATER PUMPING ALLOCATION

WHEREAS, the Fox Canyon Groundwater Management Agency ("Agency") is a special district created by the California Legislature with the enactment of the Fox Canyon Groundwater Management Agency Act [Stats. 1982, c. 1023] ("Act") to preserve the groundwater resources within the territory of the Agency for agricultural, municipal, and industrial uses; and

WHEREAS, under the Sustainable Groundwater Management Act [Water Code, § 10720 et seq.] ("SGMA"), the Agency is the exclusive groundwater sustainability agency ("GSA") within its statutory boundaries responsible for the sustainable groundwater management of, among other basins, (i) the Pleasant Valley Basin (Basin No. 4-006) and (ii) the Oxnard Subbasin (Subbasin No. 4-004.02) (collectively, the "Basins"); and

WHEREAS, the California Department of Water Resources ("DWR") designated the Basins as high-priority basins, subject to critical conditions of overdraft, requiring the preparation of groundwater sustainability plans ("GSP") by January 31, 2020; and

WHEREAS, the Agency has prepared, and DWR has approved, GSPs to meet the sustainability goals established by the Agency for the Basins; and

WHEREAS, the Agency manages the Basins, consistent with the Act and SGMA, by implementing and enforcing its ordinances, resolutions, GSPs, and other plans that, among other things, establish allocations for the extraction of groundwater from the Basins and provide for the transfer of such allocations; and

WHEREAS, the City of Oxnard (the "City ") extracts groundwater from the Oxnard Subbasin for the municipal use of its residential customers and for the agricultural and industrial uses of other customers; and

WHEREAS, in September 2024, the City approved the Groundwater Recovery Enhancement and Treatment Program ("GREAT Program"), which is a collection of wastewater recycling, groundwater injection, and groundwater desalination projects and programs designed to provide local and regional water supply and quality benefits; and

WHEREAS, Phase 1 of the GREAT Program consists of several elements, including a conjunctive use program whereby the City produces and delivers approximately 2,800 AFY of recycled water from new tertiary/advanced treatment facilities to agricultural customers in the Oxnard Pumping Depression Management Area and the Saline Intrusion Management Area of the Basin in exchange for the transfer of unused allocations to be exercised by the City or UWCD for extracting groundwater from their Water Yard facilities and O-H facilities, respectively, outside of the Oxnard Pumping Depression Management Area and the Saline Intrusion Management Area

to reduce the regional effects of overdraft conditions (e.g., seawater intrusion) in the Basins (collectively, "In-Lieu Program"); and

WHEREAS, in September 2004, the City certified a final Program Environmental Impact Report ("PEIR") [on file with the City of Oxnard] that analyzed the potential environmental impacts of Phase 1 of the GREAT Program, including the In-Lieu Program; and

WHEREAS, using a 2000 UWCD model update to a 1993 United State Geological Survey groundwater flow model of the Santa Clara-Calleguas Basin, the PEIR concluded the impacts of the In-Lieu Program would be less than significant, and did not require any mitigation, because, even though extraction of transferred allocations by the City and UWCD would reduce groundwater elevations by 10 feet in both the Upper Aquifer System ("UAS") and the "Lower Aquifer System ("LAS") across the northern Oxnard Plain and Oxnard Forebay areas, the In-Lieu Program would increase groundwater elevations (2.5 feet and 10 feet in the UAS and LAS, respectively) in the southern Oxnard Plain and Pleasant Valley area and reduce overdraft conditions along the Oxnard Plain coastline (increase groundwater elevation in the UAS by 5.8 feet reduce overdraft reduction in the LAS by 4-6%); short- and long-term climatic cycles play a larger role in dictating groundwater elevations across the Oxnard Plain and Pleasant Valley areas than the In-Lieu Element; and the transfer and extraction of unused allocations by the City and UWCD would be performed pursuant with Agency ordinances and requirements designed to protect the beneficial uses of the regional groundwater resources and the safe yield of the Basins; and

WHEREAS, on June 26, 2013, the Agency approved Resolution No. 2013-02 [Attachment A], which approved the In-Lieu Program subject to conditions on the accrual and extraction of unused allocations transferred to the City, known under Resolution No. 2013-02 as Recycled Water Pumping Allocation ("RWPA"); and

WHEREAS, under Resolution No. 2013-02, the City would accrue up to 5,200 AFY of RWPA for the delivery of each acre-foot of recycled water that resulted in an acre-foot reduction of groundwater extraction from areas of the Basins more impacted by seawater intrusion; and

WHEREAS, among other conditions, Resolution No. 2013-02 limited the City's extraction of "RWPA from the [Oxnard] Forebay when evacuated groundwater from storage in the [Oxnard] Forebay reaches 80,000 acre-feet (as regularly determined by UWCD), or groundwater levels in the [Oxnard] Forebay reach 19 feet above mean sea level" unless otherwise authorized by meetings of the Agency, the City, UWCD, and Pleasant Valley County Water District; and

WHEREAS, the Resolution No. 2013-02 conditions were based on a Recycled Water Impact Analysis ("RWIA") Plan [Attachment A to Resolution No. 2013-02], prepared by UWCD, which expressed concern about the potential for RWPA extraction to result in local and regional effects along the Oxnard Plain coastline, including local and regional lowered groundwater elevations which it determined had the potential to increase seawater intrusion; and thus the RWIA Plan recommended careful monitoring and reduced pumping of RWPA, "if groundwater elevations in the [Oxnard] Forebay reach critical depletion levels (80,000 AFY of available storage or 19 feet above sea level)…and create a landward gradient that pulls seawater further into the aquifers"; and

WHEREAS, since the adoption of Resolution No. 2013-02, the City has accrued approximately 6,600 of RWPA but had been unable to extract any of it until 2023 because conditions in the Oxnard Forebay had remained below the critical depletion levels included in

Resolution No. 2013-02 and the RWIA Plan (i.e., 80,000 AF of evacuated storage or 19 feet above mean sea level); and

WHEREAS, the City has proposed modifying the In-Lieu Program to include updated estimates for its recycled water production, additional locations and water year types for RWPA extraction, and the transfer of RWPA to additional parties (other than UWCD) for their extraction of groundwater in excess of existing allocations and for them to reduce extractions that exceed allocations in prior water years; and accordingly, the City has proposed modifying Resolution No. 2013-02 to revise the provisions governing the accrual, extraction, and transfer of RWPA; and

WHEREAS, at the request of the Agency, the City requested UWCD prepare the Recycled Water Pumping Allocation Impact Analysis ("RWPA Impact Analysis") [Attachment B], which uses UWCD's peer-reviewed numerical groundwater model ("UWCD Coastal Plain Model") to evaluate the effects of seawater intrusion in the Oxnard Subbasin, to update and replace the RWIA Plan; and

WHEREAS, the RWPA Impact Analysis evaluates the potential benefits and impacts of the City's proposed modifications to the In-Lieu Program, specifically scenarios involving delivery of 1,000 AFY and 2,000 AFY of recycled water to agricultural customers in the SIMA and PDMA and the extraction of 3,000 AF to 6,000 AF of RWPA at the City's Water Yard and/or Rice Avenue facilities and/or UWCD's O-H facilities; and

WHEREAS, the RWPA Impact Analysis concludes that the City's proposed modification to the In-Lieu Program is likely to provide a net reduction in seawater intrusion along the coast of the Oxnard Subbasin, but all modeled scenarios (i.e., updated annual recycled water production estimates, extraction at additional locations, extraction in additional water year types) resulted in increased seawater intrusion in the UAS in the coastal segment at Port Hueneme, where seawater intrusion has been documented; and

WHEREAS, the RWPA Impact Analysis found that seawater intrusion along the Port Hueneme coastal segment may be potentially significant when RWPA extractions exceed 3,000 AFY; however, the RWPA Impact Analysis found that RWPA extractions between 3,000 – 6,000 AFY would be less than significant so long as such extractions occurred at the City's Rice Avenue Facilities and/or UWCD's O-H facilities and the immediately preceding three water years types are not consecutively "below normal," "dry," and/or "critical," and

WHEREAS, the Oxnard Subbasin GSP provides that nitrate concentrations in the Oxnard Forebay Management Area, which exceed water quality objectives and basin management objectives for the Oxnard Subbasin, are highly dependent on the amount of surface water diverted from the Santa Clara River, increasing during periods of dry conditions and drought; and

WHEREAS, the RWPA Impact Analysis demonstrates that the potential benefits and impacts of the City's proposed modifications to the In-Lieu Program are consistent with the findings and conclusions of the PEIR's evaluation of the 2003 In-Lieu Program's impacts and the RWIA Plan's evaluation of the 2013 In-Lieu Program's impacts; and

WHEREAS, this Resolution is intended to supersede and replace Resolution No. 2013-02 by approving the modified In-Lieu Program and providing the greatest flexibility for the extraction and transfer of RWPA consistent with the Agency's statutory obligations and responsibilities to protect, preserve, and ensure the sustainable management of the Basins.

NOW, THEREFORE, the Board of Directors of Fox Canyon Groundwater Management Agency hereby resolves, approves, and directs as follows:

1. The above recitals are true and correct and made a part of this Resolution.

2. This Resolution supersedes and restates Resolution No. 2013-02 in its entirety.

3. All RWPA accrued by the City, including RWPA accrued under Resolution No. 2013-02, shall be extracted and transferred according to this Resolution.

4. Accrual of RWPA

A. The City shall accrue one (1) AF of RWPA in any Water Year (October 1 to September 30) that it delivers recycled water that results in a corresponding AF reduction in annual groundwater extracted from wells located in the Saline Intrusion Management Area, the Oxnard Pumping Depression Management Area, and/or the Pleasant Valley Pumping Depression Management Area, as those management areas are defined by the Agency.

B. As a condition precedent to accruing RWPA, the City and the owners and operators (including UWCD) to which recycled water is delivered shall comply with the reporting and documentation requirements of Section 6.

C. No RWPA shall accrue for the delivery of recycled water to users that are not in compliance with all ordinances, resolutions, rules, and requirements of the Agency.

D. No RWPA shall accrue for the delivery of recycled water that results in the reduction of groundwater extraction that would have been subject to surcharges under an Agency ordinance.

E. No RWPA shall accrue for the delivery of recycled water that displaces UWCD surface water deliveries to those same users, when and if UWCD determines, in its discretion, that it is concurrently physically not capable of diverting that volume of surface water to UWCD recharge basins because the recharge basins and the Forebay are full.

F. No carryover allocation or any type of allocation credit shall accrue or otherwise be realized under any Agency ordinance or resolution for any extraction allocation that results in the accrual of RWPA.

5. Extraction and Transfer of RWPA

A. Up to 3,000 AFY of RWPA may be extracted and/or transferred from the Oxnard Subbasin, regardless of Water Year type (e.g., "below normal" or "dry," as those water year types are defined in the GSP for the Oxnard Subbasin and reported GSP Annual Reports published by the Agency), subject to the following conditions:

i. The City may extract and/or transfer RWPA. Only the City may transfer RWPA.

ii. RWPA may be transferred to owners and operators (including UWCD) for extraction in the current Water Year, or to reduce extractions that exceed allocations in the current Water Year or the immediately preceding Water Year.

iii. The City shall extract RWPA only from its Water Yard facilities and its Rice Avenue facilities, and UWCD shall extract RWPA only from its O-H facilities.

iv. RWPA transferred to owners and operators for extraction, and/or use to reduce extractions that exceed allocations, from wells in the Saline Intrusion Management Area and the Oxnard Pumping Depression Management Area of the Oxnard Subbasin will be reduced by a factor of 0.75 such that each AF of RWPA will only offset 0.75 AF of extractions in these management areas.

v. RWPA may be transferred only after a completed "Application for RWPA Transfer," on a form to be prepared by the Agency, completed and signed by the City and the transferee under penalty of perjury, is submitted to the Agency indicating whether the transfer is for use of RWPA in the current or immediately preceding water year and if the transferee's well(s) are in the Saline Intrusion Management Area and the Oxnard Pumping Depression Management Area of the Oxnard Subbasin. A separate "Application for RWPA Transfer" shall be completed and submitted to the Agency for each proposed transfer of RWPA (i.e., each transfer of RWPA between the City and an owner or operator).

B. Up to an additional 3,000 AFY of RWPA (3,001-6,000 AF) may be extracted from the Oxnard Subbasin subject to the following conditions:

i. RWPA subject to this Section 5.B may be extracted only by the City at its Rice Avenue facilities and/or UWCD from its O-H facilities.

ii. RWPA subject to this Section 5.B shall not be transferred.

iii. Except as authorized under Section 5.A, no RWPA shall be extracted in the current Water Year if the Agency determines that the immediately preceding three Water Years have been "below normal," "dry," and/or "critical," as those terms are defined in the GSP for the Oxnard Subbasin and reported GSP Annual Reports published by the Agency.

C. No RWPA shall be extracted by or transferred to owners or operators (including the City and UWCD) that are not in compliance with all applicable well registration and reporting ordinances and requirements of the Agency or have not paid all fees, charges, penalties, and interest due and payable to the Agency.

6. Monitoring, Reporting, and Documentation Requirements

A. Each year, by December 1, the City will report to the Agency the quantity of recycled water delivered to each owner and operator in the Saline Intrusion Management Area, the Oxnard Pumping Depression Management Area, and/or the

Pleasant Valley Pumping Depression Management Area of the Basins in the previous Water Year.

B. Each year, by December 1, each owner and operator in the Saline Intrusion Management Area, the Oxnard Pumping Depression Management Area, and/or the Pleasant Valley Pumping Depression Management Area of the Basins to which the City delivers recycled water will report to the Agency the quantity of recycled water delivered by the City to each of them in the previous Water Year.

C. The City's delivery of recycled water, and operators' reduction in groundwater extraction, shall be documented and reported on forms prepared by the Agency. All forms shall be signed by an authorized representative of the City and each operator under penalty of perjury.

D. The City shall report its extraction and/or transfer of RWPA to the Agency on semi-annual extraction reports as otherwise required under applicable Agency ordinances. The City's extraction of RWPA during any given Water Year shall not be counted against its Extraction Allocation for that Water Year.

E. Each owner and operator that extracted transferred RWPA shall report its extraction and use of RWPA to the Agency on semi-annual extraction reports as otherwise required under applicable Agency ordinances. An owner and operator's extraction of RWPA during any given Water Year shall not be counted against its Extraction Allocation for that Water Year.

F. Each year, UWCD will prepare and submit to the Agency a draft annual monitoring report of Oxnard Forebay conditions for the preceding Water Year by February 1, and a final annual monitoring report of Oxnard Forebay conditions for the preceding Water Year by April 1. The monitoring report shall include groundwater elevations, water quality monitoring, especially nitrate concentrations, and any other data that the Agency's executive officer requests that UWCD regularly monitors.

G. This Resolution and the accrual, extraction, and transfer of RWPA shall be reviewed and updated as appropriate every five (5) years in coordination with and on the same schedule as the Agency's regular GSP evaluation and update. Changes, if any, to the accrual, extraction and transfer of RWPA will be prospective. Extraction and transfer of RWPA accrued prior to the effective date of any update to this Resolution will not be altered. Any update to this Resolution shall be based on an updated technical report, using UWCD's then-current numerical groundwater flow model for the Oxnard Subbasin and Pleasant Valley Basin, that, at a minimum, examines and identifies potential impacts of continued RWPA extraction and transfer against then-current conditions and forecasts of groundwater conditions and seawater intrusion in the UAS and LAS of the Basins.

7. California Environmental Quality Act.

A. Later Activities of GREAT Program.

i. CEQA Guidelines provide that if an agency finds, pursuant to CEQA Guidelines section 15162, that no subsequent EIR would be required, then the agency can approve the activity as being within the scope of the project covered

by a program EIR, and no new environmental document would be required. (CEQA Guidelines, § 15168(c)(2).)

ii. The Agency's Board of Directors finds that the City's modified In-Lieu Program does not require preparation of a subsequent environmental impact report under CEQA Guidelines section 15162, and therefore the Agency may approve the modified In-Lieu Program as an activity with the scope of the original In-Lieu Program covered by the GREAT Program EIR, for the following reasons:

1. The City's proposed modifications to the In-Lieu Program do not require major revisions to the 2003 GREAT Program PEIR (which analyzed the original In-Lieu Program) or the 2013 RWIA Plan (which analyzed the City's first modification to the In-Lieu Program) that involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects. (CEQA Guidelines, § 15168(a)(1).)

2. The geographic and climatic conditions under which the City's proposed modifications to the In-Lieu Program would be undertaken do not require major revisions of 2003 GREAT Program PEIR to account for new significant environmental effects or a substantial increase in the severity of previously identified significant effects. (CEQA Guidelines, § 15168(a)(2).)

3. The RWPA Impact Analysis shows that the City's proposed modification to the In-Lieu Program (i) will not result in one or more significant effects not discussed in the 2003 GREAT Program PEIR; (ii) will not substantially increase the severity of any significant effect shown in the 2003 GREAT Program PEIR; and (iii) does not include a feasible mitigation measure or alternative that the City have declined to accept or adopt. (CEQA Guidelines, § 15168(a)(3)(A)-(D).)

B. Exemption for Natural Resources Maintenance, Restoration, and Enhancement.

i. CEQA Guidelines categorically exempt projects and actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment. (CEQA Guidelines, § 15307.)

ii. Under authority granted to it by the Act and SGMA, the Agency adopts this Resolution for the maintenance, restoration, and enhancement of the Basins, including specifically to implement a conjunctive use program that uses recycled water to offset and protect the Basins' groundwater resources and reduce the local and regional impacts of seawater intrusion.

iii. This Resolution includes provisions that will protect the groundwater supplies and groundwater quality of the Basins, including provisions requiring verification of in-lieu use prior to RWPA extraction; conditions on the

amount of RWPA that may be extracted, the location of RWPA extraction and transfers, and the water year types RWPA can be extracted and transferred.

iv. Based on the foregoing, the Agency's Board of Directors finds that the approval of this Resolution is categorically exempt from CEQA as a regulatory action to assure the maintenance, restoration, or enhancement of the Basins, where the Agency's regulatory authority hereunder includes procedures for protection of the Basins. (CEQA Guidelines, § 15307.) The Agency's executive officer shall prepare and file a notice of exemption for the adoption of this Resolution.

8. Miscellaneous.

A. The Agency retains the authority to rescind this Resolution if any lawsuit or administrative action is filed that challenges the adoption of this Resolution or any of its provisions.

B. All decisions by the Agency's executive officer under this Resolution may be reviewed by the Agency's Board of Directors if an appeal is filed with the Agency within 30 days of the date of the decision by the Agency's executive officer.

[CONTINUED ON NEXT PAGE]

Upon motion of Director Maulhardt, seconded by Director Perello, and duly carried, the Fox Canyon Groundwater Management Agency Board of Directors hereby approves and adopts this Resolution on the 25th day of October 2023 by the following vote:

AYES: 5

NOES: 0

ABSTENTIONS: 0

ABSENT: 0

By: _____
Eugene F. West
Chair, Board of Directors
Fox Canyon Groundwater Management Agency

ATTEST:
Clerk of the Board of Directors

By: Keely Rojas

Groundwater Sustainability Plan for the Oxnard Subbasin

Fox Canyon Groundwater Management Agency
800 South Victoria Avenue
Ventura, California 93009-1610
December 2019



38 NORTH MARENGO AVENUE
PASADENA, CALIFORNIA 91101
T 626.204.9800 F 626.204.9834

December 13, 2019 9837

Board of Directors
Fox Canyon Groundwater Management Agency
800 South Victoria Avenue
Ventura, CA 93009

Subject: Groundwater Sustainability Plan for the Oxnard Subbasin

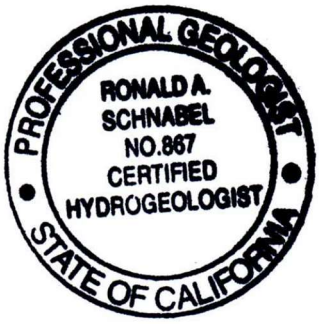
Dear Board of Directors:

Dudek is pleased to submit this Groundwater Sustainability Plan (GSP) for the Oxnard Subbasin to the Fox Canyon Groundwater Management Agency. This GSP was prepared this in accordance with California Code of Regulations, Title 23. Water, Division 2. Department of Water Resources, Chapter 1.5. Groundwater Management, Subchapter 2. Groundwater Sustainability Plans.

Respectfully Submitted,



Ronald Schnabel, PG #7836, CHG #867
Senior Hydrogeologist



INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

Section **Page No.**

EXECUTIVE SUMMARY ES-1

ES.1 Introduction ES-2
ES.2 Summary of Basin Setting and Conditions ES-3
ES.3 Overview of Sustainability Criteria ES-5
ES.4 Overview of the Subbasin Monitoring Network ES-7
ES.5 Projects and Management Actions ES-8

1 ADMINISTRATIVE INFORMATION 1-1

1.1 Purpose of the Groundwater Sustainability Plan 1-1
1.2 Agency Information 1-2
1.2.1 Agency Name 1-2
1.2.2 Agency Address 1-2
1.2.3 Organization and Management Structure 1-3
1.2.4 Plan Manager 1-4
1.2.5 Legal Authority 1-4
1.2.6 Groundwater Sustainability Plan Implementation and Cost Estimate 1-5
1.3 Description of Plan Area 1-11
1.3.1 Description 1-11
1.3.2 Geography 1-13
1.4 Existing Monitoring and Management Plans 1-20
1.4.1 Monitoring Programs 1-21
1.4.2 Management Programs 1-21
1.4.3 Operational Flexibility Limitations 1-22
1.5 Existing Conjunctive-Use Programs 1-23
1.6 Land Use Elements or Topic Categories of Applicable General Plans 1-26
1.6.1 General Plans 1-27
1.6.2 Urban Water Management Plans 1-31
1.6.3 Additional Plan Summaries 1-39
1.7 Well Permitting Policies and Procedures 1-43
1.7.1 FCGMA 1-44
1.7.2 Ventura County 1-45
1.7.3 City of Oxnard 1-46
1.7.4 Additional Well Permitting Policies and Procedures 1-46
1.8 Notification and Communication 1-46
1.8.1 Notification and Communication Summary 1-46
1.8.2 Summary of Beneficial Uses and Users 1-47

1.8.3 Public Meetings Summary 1-50
1.8.4 Summary of Comments and Responses 1-50
1.8.5 Summary of Initial Information on Relationships between State and Federal Regulatory Agencies 1-51
1.8.6 Communication 1-51
1.9 References Cited 1-52

2 BASIN SETTING 2-1
2.1 Introduction to Basin Setting 2-1
2.2 Hydrogeologic Conceptual Model 2-2
2.2.1 Geology 2-3
2.2.2 Basin Bottom 2-5
2.2.3 Principal Aquifers and Aquitards 2-6
2.2.4 Data Gaps and Uncertainty in the Hydrogeologic Conceptual Model 2-12
2.3 Groundwater Conditions 2-12
2.3.1 Groundwater Elevation Data 2-12
2.3.2 Estimated Change in Storage 2-25
2.3.3 Seawater Intrusion 2-27
2.3.4 Groundwater Quality 2-33
2.3.5 Subsidence 2-41
2.3.6 Groundwater–Surface Water Connections 2-42
2.3.7 Groundwater-Dependent Ecosystems 2-43
2.3.8 Potential Recharge Areas 2-46
2.4 Water Budget 2-46
2.4.1 Sources of Water 2-47
2.4.2 Sources of Water Discharge 2-54
2.4.3 Current and Historical Water Budget Analysis 2-56
2.4.4 General Uncertainties in the Water Budget 2-60
2.4.5 Projected Future Water Budget and Sustainable Yield 2-61
2.5 Management Areas 2-75
2.6 References Cited 2-77

3 SUSTAINABLE MANAGEMENT CRITERIA 3-1
3.1 Introduction to Sustainable Management Criteria 3-1
3.2 Sustainability Goal 3-2
3.3 Undesirable Results 3-3
3.3.1 Chronic Lowering of Groundwater Levels 3-3
3.3.2 Reduction of Groundwater Storage 3-5
3.3.3 Seawater Intrusion 3-6

3.3.4 Degraded Water Quality 3-8
3.3.5 Land Subsidence 3-9
3.3.6 Depletions of Interconnected Surface Water 3-10
3.3.7 Defining Subbasin-Wide Undesirable Results 3-11
3.4 Minimum Thresholds 3-13
3.4.1 Chronic Lowering of Groundwater Levels 3-14
3.4.2 Reduction of Groundwater Storage 3-15
3.4.3 Seawater Intrusion 3-16
3.4.4 Degraded Water Quality 3-17
3.4.5 Land Subsidence 3-18
3.4.6 Depletions of Interconnected Surface Water 3-19
3.5 Measurable Objectives 3-20
3.5.1 Chronic Lowering of Groundwater Levels 3-21
3.5.2 Reduction of Groundwater in Storage 3-23
3.5.3 Seawater Intrusion 3-24
3.5.4 Degraded Water Quality 3-24
3.5.5 Land Subsidence 3-25
3.5.6 Depletions of Interconnected Surface Water 3-26
3.6 References Cited 3-27

4 MONITORING NETWORKS 4-1
4.1 Monitoring Network Objectives 4-1
4.2 Description of Existing Monitoring Network 4-1
4.2.1 Groundwater Monitoring 4-2
4.2.2 Surface Conditions Monitoring 4-3
4.3 Monitoring Network Relationship to Sustainability Indicators 4-5
4.3.1 Chronic Lowering of Groundwater Levels 4-5
4.3.2 Reduction of Groundwater Storage 4-7
4.3.3 Seawater Intrusion 4-7
4.3.4 Degraded Water Quality 4-9
4.3.5 Land Subsidence 4-10
4.3.6 Depletions of Interconnected Surface Water 4-10
4.4 Monitoring Network Implementation 4-10
4.4.1 Groundwater Elevation Monitoring Schedule 4-10
4.4.2 Groundwater Storage Monitoring Schedule 4-11
4.4.3 Seawater Intrusion Monitoring Schedule 4-11
4.4.4 Water Quality Monitoring Schedule 4-11
4.4.5 Groundwater Extraction Monitoring Schedule 4-12
4.5 Protocols for Data Collection and Monitoring 4-12
4.6 Potential Monitoring Network Improvements 4-13

4.6.1 Water Level Measurements: Spatial Data Gaps 4-13
4.6.2 Water Level Measurements: Temporal Data Gap 4-14
4.6.3 Groundwater Quality Monitoring 4-15
4.6.4 Subsidence Monitoring 4-15
4.6.5 Shallow Groundwater Monitoring near Surface Water Bodies and GDEs 4-15
4.6.6 Surface Water: Flows in Agricultural Drains in the Oxnard Plain 4-16
4.7 References Cited 4-16

5 PROJECTS AND MANAGEMENT ACTIONS 5-1
5.1 Introduction to Projects and Management Actions 5-1
5.2 Project No. 1 – GREAT Program Advanced Water Purification Facility 5-2
5.3 Project No. 2 – GREAT Program Advanced Water Purification Facility Expansion Project 5-5
5.4 Project No. 3 – RiverPark–Saticoy GRRP Recycled Water Project 5-8
5.5 Project No. 4 – Freeman Expansion Project 5-10
5.6 Project No. 5 – Temporary Agricultural Land Fallowing Project 5-12
5.7 Management Action No. 1 – Reduction in Groundwater Production 5-14
5.8 Management Action No. 2 – Water Market Pilot Program 5-17
5.9 References Cited 5-18

APPENDICES

A GSA Formation Documentation
B Public Outreach
C UWCD Model Report
D Water Elevation Hydrographs
E UWCD Model Peer Review
F Coastal Seawater Intrusion WL vs. CL Plots
G Water Quality Hydrographs
H FCGMA Water Quality Statistics
I Oxnard 303(d) List Reaches
J GeoTracker Open Sites
K TNC GDE Tech Memo
L UWCD GSP Model Documentation

FIGURES

1-1 Vicinity Map for the Oxnard Subbasin 1-75
1-2 Administrative Boundaries for the Oxnard Subbasin 1-77
1-3 Weather Station and Stream Gauge Locations 1-79
1-4 Average Daily Flows (ADF) and Monthly Minimum ADF in Oxnard Surface Waters 1-81
1-5 Oxnard Plain Annual Precipitation 1-83
1-6 Long-Term Precipitation Trends in the Oxnard Plain 1-85
1-7 Land and Water Use 1-87
1-8 Ventura County Water Purveyors 1-89
2-1 Oxnard Subbasin Vicinity Map 2-109
2-2 Geology of the Oxnard Subbasin 2-111
2-3 Cross Section A–A′ 2-113
2-4 Cross Section B–B′ 2-115
2-5 Upper Aquifer System 2015 Extraction (acre-feet) in Oxnard and Pleasant Valley ... 2-117
2-6 Lower Aquifer System 2015 Extraction (acre-feet) in Oxnard and Pleasant Valley ... 2-119
2-7 Groundwater Elevation Contours in the Oxnard Aquifer, March 2–29, 2015 2-121
2-8 Groundwater Elevation Contours in the Oxnard Aquifer, October 2–29, 2015 2-123
2-9a Groundwater Well Hydrographs in the Oxnard Aquifer – Oxnard Plain 2-125
2-9b Groundwater Well Hydrographs in the Oxnard Aquifer – Forebay Area 2-127
2-10 Groundwater Elevation Contours in the Mugu Aquifer, March 2–29, 2015 2-129
2-11 Groundwater Elevation Contours in the Mugu Aquifer, October 2–29, 2015 2-131
2-12 Groundwater Well Hydrographs in the Mugu Aquifer 2-133
2-13 Groundwater Elevation Contours in the Hueneme Aquifer, March 2–29, 2015 2-135
2-14 Groundwater Elevation Contours in the Hueneme Aquifer, October 2–29, 2015 2-137
2-15 Groundwater Well Hydrographs in the Hueneme Aquifer 2-139
2-16 Groundwater Elevation Contours in the Fox Canyon Aquifer, March 2–29, 2015 2-141
2-17 Groundwater Elevation Contours in the Fox Canyon Aquifer, October 2–29, 2015 2-143
2-18 Groundwater Well Hydrographs in the Fox Canyon Aquifer 2-145
2-19 Groundwater Elevation Contours in the Grimes Canyon Aquifer, March 2–29, 2015 2-147
2-20 Groundwater Elevation Contours in the Grimes Canyon Aquifer, October 2–29, 2015 2-149
2-21 Groundwater Well Hydrographs in the Grimes Canyon Aquifer 2-151
2-22 Oxnard Subbasin Annual Change in Storage 2-153
2-23 Oxnard Subbasin Cumulative Change in Storage 2-155
2-24 Oxnard Subbasin Annual Change in Storage Without Coastal Flux 2-157

2-25 Oxnard Subbasin Cumulative Change in Storage Without Coastal Flux 2-159
2-26 Approximate 2015 North–South Saline Water Intrusion Extent 2-161
2-27 Semi-Perched Aquifer Coastal Chloride Concentrations, Fall 2015 2-163
2-28 Oxnard Aquifer Coastal Chloride Concentrations, Fall 2015 2-165
2-29 Mugu Aquifer Coastal Chloride Concentrations, Fall 2015 2-167
2-30 Hueneme Aquifer Coastal Chloride Concentrations, Fall 2015 2-169
2-31 Fox Canyon Aquifer Coastal Chloride Concentrations, Fall 2015 2-171
2-32 Grimes Canyon Aquifer Coastal Chloride Concentrations, Fall 2015 2-173
2-33 Groundwater Flux along the Coast in the Upper Aquifer System 2-175
2-34 Groundwater Flux along the Coast in the Lower Aquifer System 2-177
2-35 Selected Historical Records of Water Elevation and Chloride Concentration 2-179
2-36 Locations of Selected Coastal Wells with Historical Measurements of Chloride Concentration and Water Elevation 2-181
2-37a Upper Aquifer System – Most Recent Total Dissolved Solids (mg/L) Measured 2011–2015 2-183
2-37b Upper Aquifer System, Forebay Area – Most Recent Total Dissolved Solids (mg/L) Measured 2011–2015 2-185
2-38 Lower Aquifer System – Most Recent Total Dissolved Solids (mg/L) Measured 2011–2015 2-187
2-39a Upper Aquifer System – Most Recent Chloride (mg/L) Measured 2011–2015 2-189
2-39b Upper Aquifer System, Forebay Area – Most Recent Chloride (mg/L) Measured 2011–2015 2-191
2-40 Lower Aquifer System – Most Recent Chloride (mg/L) Measured 2011–2015 2-193
2-41a Upper Aquifer System – Most Recent Nitrate (mg/L as Nitrate) Measured 2011–2015 2-195
2-41b Upper Aquifer System, Forebay Area – Most Recent Nitrate (mg/L as Nitrate) Measured 2011–2015 2-197
2-42 Lower Aquifer System – Most Recent Nitrate (mg/L as Nitrate) Measured 2011–2015 2-199
2-43a Upper Aquifer System – Most Recent Sulfate (mg/L) Measured 2011–2015 2-201
2-43b Upper Aquifer System, Forebay Area – Most Recent Sulfate (mg/L) Measured 2011–2015 2-203
2-44 Lower Aquifer System – Most Recent Sulfate (mg/L) Measured 2011–2015 2-205
2-45a Upper Aquifer System – Most Recent Boron (mg/L) Measured 2011–2015 2-207
2-45b Upper Aquifer System, Forebay Area – Most Recent Boron (mg/L) Measured 2011–2015 2-209
2-46 Lower Aquifer System – Most Recent Boron (mg/L) Measured 2011–2015 2-211
2-47 Oil Fields in the Vicinity of FCGMA Groundwater Basins 2-213
2-48 Impaired Surface Waters in the Vicinity of FCGMA Groundwater Basins 2-215

2-49 Constituents of Concern at Open GeoTracker Cases with Impacted Groundwater within FCGMA Groundwater Basin Boundaries 2-217
2-50 Groundwater Elevation Contours in the Semi-Perched Aquifer, March 2–29, 2015 2-219
2-51 Groundwater Elevation Contours in the Semi-Perched Aquifer, October 2–29, 2015 2-221
2-52 Groundwater-Dependent Ecosystems for the Oxnard Subbasin 2-223
2-53 Lower Santa Clara River Groundwater-Dependent Ecosystems 2-225
2-54 McGrath Lake Groundwater Dependent Ecosystems 2-227
2-55 Ormond Beach Groundwater-Dependent Ecosystems 2-229
2-56 Mugu Lagoon Groundwater Dependent Ecosystems 2-231
2-57 Oxnard Potential Recharge Areas 2-233
2-58 Oxnard Subbasin Stream Gauges and Water Infrastructure 2-235
2-59 Freeman Diversion and Uses in the Oxnard Subbasin 2-237
2-60 UWCD Groundwater Recharge 2-239
2-61 Water Deliveries to the PVCWD and UWCD 2-241
2-62 Groundwater Pumping 2-243
2-63 Coastal Flux from the UWCD Model Scenarios 2-245
2-64a UWCD Model Particle Tracks, Oxnard Aquifer, Future Baseline 2-247
2-64b UWCD Model Particle Tracks, Mugu Aquifer, Future Baseline 2-249
2-64c UWCD Model Particle Tracks, Hueneme Aquifer, Future Baseline 2-251
2-64d UWCD Model Particle Tracks, Upper Fox Canyon Aquifer, Future Baseline 2-253
2-64e UWCD Model Particle Tracks, Basal Fox Canyon Aquifer, Future Baseline 2-255
2-65 UWCD Model Zones 2-257
2-66a UWCD Model Particle Tracks, Oxnard Aquifer, Future Baseline With Projects 2-259
2-66b UWCD Model Particle Tracks, Mugu Aquifer, Future Baseline With Projects 2-261
2-66c UWCD Model Particle Tracks, Hueneme Aquifer, Future Baseline With Projects 2-263
2-66d UWCD Model Particle Tracks, Upper Fox Canyon Aquifer, Future Baseline With Projects 2-265
2-66e UWCD Model Particle Tracks, Basal Fox Canyon Aquifer, Future Baseline With Projects 2-267
2-67a UWCD Model Particle Tracks, Oxnard Aquifer, Reduction With Projects Simulation – 26,500 AFY Groundwater Production in the UAS 2-269
2-67b UWCD Model Particle Tracks, Mugu Aquifer, Reduction With Projects Simulation – 26,500 AFY Groundwater Production in the UAS 2-271

2-67c UWCD Model Particle Tracks, Hueneme Aquifer, Reduction With Projects Simulation – 12,800 AFY Groundwater Production in the LAS 2-273
2-67d UWCD Model Particle Tracks, Upper Fox Canyon Aquifer, Reduction With Projects Simulation – 12,800 AFY Groundwater Production in the LAS 2-275
2-67e UWCD Model Particle Tracks, Basal Fox Canyon Aquifer, Reduction With Projects Simulation – 12,800 AFY Groundwater Production in the LAS 2-277
2-68a UWCD Model Particle Tracks, Oxnard Aquifer, Reduction Without Projects Simulation 1 – 27,200 AFY Groundwater Production in the UAS 2-279
2-68b UWCD Model Particle Tracks, Mugu Aquifer, Reduction Without Projects Simulation 1 – 27,200 AFY Groundwater Production in the UAS 2-281
2-68c UWCD Model Particle Tracks, Hueneme Aquifer, Reduction Without Projects Simulation 1 – 11,600 AFY Groundwater Production in the LAS 2-283
2-68d UWCD Model Particle Tracks, Upper Fox Canyon Aquifer, Reduction Without Projects Simulation 1 – 11,600 AFY Groundwater Production in the LAS 2-285
2-68e UWCD Model Particle Tracks, Basal Fox Canyon Aquifer, Reduction Without Projects Simulation 1 – 11,600 AFY Groundwater Production in the LAS 2-287
2-69 Oxnard Subbasin Management Areas 2-289
3-1 Minimum Thresholds and Groundwater Elevation Contours in the Oxnard Aquifer, October 2–29, 2015 3-33
3-2 Minimum Thresholds and Groundwater Elevation Contours in the Mugu Aquifer, October 2–29, 2015 3-35
3-3 Minimum Thresholds and Groundwater Elevation Contours in the Hueneme Aquifer, October 2–29, 2015 3-37
3-4 Minimum Thresholds and Groundwater Elevation Contours in the Fox Canyon Aquifer, October 2–29, 2015 3-39
3-5 Minimum Thresholds and Groundwater Elevation Contours in the Grimes Canyon Aquifer, October 2–29, 2015 3-41
3-6a Key Well Hydrographs for Wells Screened in the Oxnard Aquifer 3-43
3-6b Key Well Hydrographs for Wells Screened in the Oxnard Aquifer 3-45
3-7a Key Well Hydrographs for Wells Screened in the Mugu Aquifer 3-47
3-7b Key Well Hydrographs for Wells Screened in the Mugu Aquifer 3-49
3-8a Key Well Hydrographs for Wells Screened in the Hueneme Aquifer 3-51
3-8b Key Well Hydrographs for Wells Screened in the Hueneme Aquifer 3-53
3-9a Key Well Hydrographs for Wells Screened in the Fox Canyon Aquifer 3-55
3-9b Key Well Hydrographs for Wells Screened in the Fox Canyon Aquifer 3-57
3-10 Key Well Hydrographs for Wells Screened in the Grimes Canyon Aquifer 3-59
3-11 Key Well Hydrographs for Wells Screened in Multiple Aquifers 3-61
3-12 Interim Milestones for Dry and Average Conditions – Linear Interpolation 3-63

3-13 Distribution of 5-Year Average Climate Conditions in the Historical Record of Precipitation on the Oxnard Plain 3-65
4-1 Monitoring Wells Screened in the Semi-Perched Aquifer in the Oxnard Subbasin 4-35
4-2 Monitoring Wells Screened in the Oxnard Aquifer in the Oxnard Subbasin 4-37
4-3 Monitoring Wells Screened in the Mugu Aquifer in the Oxnard Subbasin 4-39
4-4 Monitoring Wells Screened in the Hueneme Aquifer in the Oxnard Subbasin 4-41
4-5 Monitoring Wells Screened in the Fox Canyon Aquifer in the Oxnard Subbasin 4-43
4-6 Monitoring Wells Screened in the Grimes Canyon Aquifer in the Oxnard Subbasin 4-45
4-7 Active Surface Water Monitoring Network for the Oxnard Subbasin 4-47
4-8 Active Precipitation Monitoring Network for the Oxnard Subbasin 4-49
4-9 Existing and Potential New Wells for Monitoring Groundwater Conditions in the Semi-Perched Aquifer 4-51
4-10 Existing and Potential New Wells for Monitoring Groundwater Conditions in the Oxnard Aquifer 4-53
4-11 Existing and Potential New Wells for Monitoring Groundwater Conditions in the Mugu Aquifer 4-55
4-12 Existing and Potential New Wells for Monitoring Groundwater Conditions in the Hueneme Aquifer 4-57
4-13 Existing and Potential New Wells for Monitoring Groundwater Conditions in the Fox Canyon Aquifer 4-59
4-14 Existing and Potential New Wells for Monitoring Groundwater Conditions in the Grimes Canyon Aquifer 4-61

TABLES

1-1 Estimate of Project Cost and Water Supply for First 5 Years 1-57
1-2 Groundwater Sustainability Plan Estimated Implementation Cost through 2040 1-57
1-3 Groundwater Sustainability Agencies in the Oxnard Subbasin 1-58
1-4 Summary of Land Ownership in the Oxnard Subbasin 1-58
1-5 Oxnard Plain Stream Gauge Information 1-59
1-6 Oxnard Plain Precipitation Station Information 1-60
1-7 Drought Periods in the Oxnard Plain 1-62
1-8 Past and Present Land Uses within the Oxnard Plain, 1990–2015 1-62
1-9 Past, Current, and Projected Population for Ventura County, the Cities of Oxnard and Port Hueneme, and the Oxnard Plain 1-63
1-10 Oxnard Subbasin Existing Water Resources Monitoring Programs 1-65
1-11 Oxnard Subbasin Existing Water Resources Management Projects, Programs, and Strategies 1-66
1-12 FCGMA Public Meetings on Oxnard Subbasin GSP 1-71

2-1 Oxnard Subbasin Stratigraphic and Hydrostratigraphic Nomenclature 2-84
2-2 Vertical Gradient 2-85
2-3 Seawater/Saline Water Historical Reports and Studies 2-87
2-4 Basin Plan and FCGMA Water Quality Thresholds for Groundwater in the Oxnard Subbasin 2-87
2-5 Modeled Surface Water Percolation from Streams in the Oxnard Subbasin 2-88
2-6 Ecological Assets 2-89
2-7a Groundwater Recharge and Discharge in the Semi-Perched Aquifer 2-91
2-7b Groundwater Recharge and Discharge in the Upper Aquifer System 2-92
2-7c Groundwater Recharge and Discharge in the Lower Aquifer System 2-94
2-8 UWCD Diversions and Usage of Santa Clara River Water (AF) 2-95
2-9 United Water Conservation District Water (AF) 2-96
2-10 Summary of Water Deliveries 2-97
2-11 Recharge by Type (AF) 2-99
2-12 Stream Flows in Arroyo Las Posas and Conejo Creek, and Conejo Creek Diversion and Deliveries to the Pleasant Valley County Water District (AF) 2-101
2-13 Sales and Usage of Imported Water Supplied by the Calleguas Municipal Water District (AF) 2-103
2-14 Oxnard Subbasin Groundwater Used 2-105
2-15 Modeled 2040–2069 Groundwater Extraction Rates and Surface Water Deliveries for the Oxnard Subbasin 2-107
3-1 Minimum Threshold Groundwater Elevations by Well, Management Area, and Aquifer for Key Wells in the Oxnard Subbasin 3-29
3-2 Measurable Objectives and Interim Milestones 3-31
4-1 Network of Stations Monitoring Surface Flows in the Vicinity of the Oxnard Subbasin 4-19
4-2 Network of Stations Monitoring Precipitation in the Vicinity of the Oxnard Subbasin 4-19
4-3 VCWPD Monitoring Schedule of Wells in the Oxnard Subbasin 4-20
4-4 UWCD Monitoring Schedule of Wells in the Oxnard Subbasin 4-24

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AEA	Annual Efficiency Allocation
AFY	acre-feet per year
AMI	advanced metering infrastructure
ASR	Aquifer Storage and Recovery
AWMP	Agricultural Water Management Plan
AWPF	Advanced Water Purification Facility
bgs	below ground surface
BM	benchmark
BMO	Basin Management Objective
BMP	best management practice
BTEX	benzene, toluene, ethyl benzene, and xylenes
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
CMWD	Calleguas Municipal Water District
COCs	constituents of concern
DAC	Disadvantaged Community
DBS&A	Daniel B. Stephens & Associates Inc.
DPWM	Distributed Parameter Watershed Model
DWR	California Department of Water Resources
EOPMA	East Oxnard Plain Management Area
Evap	evaporation
FCA	Fox Canyon Aquifer
FCGMA	Fox Canyon Groundwater Management Agency
GDE	groundwater-dependent ecosystem
gpm	gallons per minute
GREAT	Groundwater Recovery Enhancement and Treatment
GRRP	Recycled Water/Groundwater Replenishment Reuse Project
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
IE	irrigation efficiency
IRWM	Integrated Regional Water Management
LAS	Lower Aquifer System
M&I	municipal and industrial
MCL	maximum contaminant level
mgd	million gallons per day
mg/L	milligrams per liter
msl	above mean sea level
MTBE	methyl tertiary butyl ether
MWD	Metropolitan Water District of Southern California
OHWS	Oxnard–Hueneme Water System
OPV	Oxnard Subbasin–Pleasant Valley Basin

Acronym/Abbreviation	Definition
PCB	polychlorinated biphenyl
PHWA	Port Hueneme Water Agency
RMSE	root-mean-squared error
SCAG	Southern California Association of Governments
SGMA	Sustainable Groundwater Management Act
SMP	Salinity Management Pipeline
SNMP	Salt and Nutrient Management Plan
SWP	State Water Project
SWRCB	State Water Resources Control Board
TAG	Technical Advisory Group
TBA	tert-butyl alcohol
TDS	total dissolved solids
UAS	Upper Aquifer System
USGS	U.S. Geological Survey
UWCD	United Water Conservation District
UWMP	urban water management plan
UWMPA	Urban Water Management Planning Act
VCGP	Ventura County General Plan
VCWPD	Ventura County Watershed Protection District
VOC	volatile organic compound
VWD	City of Ventura Water Department
VWRF	Ventura Water Reclamation Facility
WOPMA	West Oxnard Plain Management Area
WQO	Water Quality Objective

EXECUTIVE SUMMARY

The Fox Canyon Groundwater Management Agency (FCGMA, or the Agency) has developed this Groundwater Sustainability Plan (GSP) for the Oxnard Subbasin (Subbasin; DWR Basin 4-004.02) of the Santa Clara River Valley Groundwater Basin (DWR Basin 4-004), in compliance with the 2014 Sustainable Groundwater Management Act (SGMA; California Water Code, Section 10720 et seq.). The purpose of this GSP is to define the conditions under which the groundwater resources of the entire Oxnard Subbasin, which support agricultural, municipal and industrial, and environmental uses, will be managed sustainably in the future.

Historical groundwater production has resulted in seawater intrusion in the five primary aquifers of the Subbasin. These aquifers have been divided into an Upper Aquifer System, which comprises the Oxnard and Mugu Aquifers, and a Lower Aquifer System, which comprises the Hueneme, Fox Canyon, and Grimes Canyon Aquifers. The average rate of groundwater production from the Upper Aquifer System between 2015 and 2017 was approximately 40,000 acre-feet per year (AFY). The average production from the Lower Aquifer System between 2015 and 2017 was approximately 29,000 AFY. Numerical groundwater simulations indicate that if these production rates were carried into the future, seawater intrusion would continue in the Subbasin and the area currently impacted by concentrations of chloride greater than 500 milligrams per liter would grow. The landward extent of this area is referred to as the *saline water impact front*.[1]

Combinations of projects and management actions were explored to estimate the rate of groundwater production that would prevent future expansion of the area of the Subbasin currently impacted by concentrations of chloride greater than 500 milligrams per liter. This rate of groundwater production is referred to as the sustainable yield. With the currently available projects and management actions, the sustainable yield of the Upper Aquifer System, was calculated to be approximately 32,000 AFY, with an uncertainty of ± 4,100 to 6,000 AFY. The sustainable yield of the Lower Aquifer System was calculated to be approximately 7,000 AFY, with an uncertainty of ± 2,300 to 3,600 AFY.

Adoption of this GSP represents the first step in achieving groundwater sustainability within the Oxnard Subbasin by 2040, as required by SGMA. Evaluation of this GSP is required at a minimum of every 5 years following submittal to the California Department of Water Resources (DWR). As part of the 5-year evaluation process, the sustainable yield for each aquifer system will be refined and adjusted. These refinements will be based on new data, additional studies undertaken to fill data gaps, and groundwater modeling. Refinements and adjustments will also be made to the minimum threshold water levels developed to avoid

[1] Sources of water high in chloride in the Oxnard Subbasin include modern-day seawater as well as non-marine brines and connate water in fine-grained sediments. Therefore, the area of the Subbasin impacted by concentrations of chloride greater than 500 milligrams per liter is referred to as the *saline water impact area*, rather than the *seawater intrusion impact area*, to reflect all the potential sources of chloride to the aquifers in this area.

undesirable results, the measurable objective water levels that account for the need to continue groundwater production during drought cycles and the associated interim milestones to help gauge progress toward sustainability over the next 20 years.

In order to minimize the pumping reductions required to achieve sustainable management of the Subbasin, investment in large-scale projects to increase water supply, provide the infrastructure to redistribute pumping, and/or directly control seawater intrusion should be investigated. Basin optimization studies, groundwater modeling, and project feasibility studies will be conducted over the next 5 years to explore practicable processes and approaches to increasing the sustainable yield of the Oxnard Subbasin.

ES.1 INTRODUCTION

The Oxnard Subbasin is a coastal alluvial groundwater subbasin, located in Ventura County, California, that is in hydrologic communication, to varying degrees, with adjoining groundwater basins to the north and east, and with the Pacific Ocean to the west and southwest. The climate is typical of coastal Southern California, with average daily temperatures ranging generally from 50°F to 78°F in summer and from 40°F to 75°F in winter. Land use on the Oxnard Plain is roughly equally divided between agricultural and urban uses. DWR has designated the 90-square-mile Subbasin as high priority and subject to critical conditions of overdraft.

Historical groundwater production in the Subbasin was first found to have induced seawater intrusion into the aquifers of the Oxnard Subbasin in the 1930s. In 1982, the California Legislature formed the FCGMA, an independent special district, to manage and protect the aquifers within its jurisdiction for the common benefit of the public and all groundwater users. Extractors within FCGMA jurisdiction are subject to the Agency's GSPs, ordinances, and policies created for the sustainable management of groundwater management actions.

Three groundwater sustainability agencies (GSAs) have jurisdiction over portions of the Subbasin. FCGMA is the GSA for the area of the Subbasin that falls within its jurisdiction. The Camrosa Water District–Oxnard Subbasin GSA has jurisdictional control over the portion of the Camrosa Water District service area in the Subbasin that is south and east of the Bailey Fault, and the Oxnard Outlying Areas GSA has jurisdictional control over portions of the Subbasin not within FCGMA or Camrosa Water District–Oxnard Subbasin GSA jurisdiction. This FCGMA GSP is the sole GSP prepared for the Subbasin, and covers the entire Subbasin, including all areas of the Subbasin outside of FCGMA's jurisdiction.

Public participation and stakeholder feedback have played a critical role in the development of this GSP. The FCGMA maintains a list of stakeholders interested in the GSP process, known as the *List of Interested Parties*. A monthly newsletter, meeting notices, and notices of GSP documents available for review were sent electronically to the List of Interested Parties. Public workshops

were held to inform stakeholders and the general public on the contents of the GSPs and to solicit feedback on that content. To further facilitate stakeholder understanding, the FCGMA Board of Directors (Board) approved release of a preliminary draft GSP for public comment in November 2017. Additionally, the FCGMA Board formed a Technical Advisory Group, which held monthly public meetings throughout the GSP development process beginning in July 2015. Updates on the development of the GSP were given at meetings of the FCGMA Board beginning in April 2015. All FCGMA Board meetings, Technical Advisory Group meetings, Board-appointed committee meetings, and Board special workshops were noticed in accordance with the Brown Act, and opportunities for public comment were provided at all FCGMA Board meetings, Technical Advisory Group meetings, Board-appointed committee meetings, and workshops.

ES.2 SUMMARY OF BASIN SETTING AND CONDITIONS

There are five commonly recognized aquifers in the Subbasin: the Oxnard, Mugu, Hueneme, Fox Canyon, and Grimes Canyon Aquifers. These aquifers are grouped into the Upper Aquifer System and the Lower Aquifer System, with the Oxnard and Mugu Aquifers composing the Upper Aquifer System and the Hueneme, Fox Canyon, and Grimes Canyon Aquifers composing the Lower Aquifer System. The majority of recharge that replenishes the Subbasin comes from surface water diversions of the Santa Clara River, which are directed to spreading basins in the Oxnard Forebay operated by the United Water Conservation District (UWCD). In the Forebay, the Upper Aquifer System rests directly on the folded and eroded upper surface of the Hueneme Aquifer and the Fox Canyon Aquifer. Elsewhere in the Subbasin, the aquifers of the Lower Aquifer System are separated from those of the Upper Aquifer System by low-permeability clay beds. A low-permeability clay cap also overlies the aquifers of the Upper Aquifer System throughout the Subbasin, except in the Forebay. Water that recharges in the Forebay is able to migrate throughout the Subbasin.

Groundwater elevations and flow directions have varied historically in the Subbasin. During periods of above average precipitation, when UWCD has been able to operate its recharge basins from the diversion of Santa Clara River water, groundwater elevations have been higher than sea level, generating a seaward-directed gradient that prevents seawater intrusion. At other times in the past, and since the onset of the drought period beginning in 2011, groundwater elevations have been below sea level, creating a landward gradient that allows for inland migration of seawater. Absolute changes in groundwater levels over cycles of drought and recovery vary both geographically and vertically within the aquifers of the Subbasin, although the general patterns of decline and recovery are similar throughout the Subbasin.

Seawater intrusion tends to occur preferentially in the vicinity of Port Hueneme and Point Mugu, where submarine canyons are close to the coast, and the onshore freshwater aquifer units are exposed in the canyon walls. The current extent of seawater intrusion varies by aquifer, but in

general the impacted area of the Subbasin lies to the south of Hueneme Road and west of Highway 1. Groundwater quality not related to seawater intrusion is also a concern in the Forebay of the Subbasin, where nitrate concentrations exceeding the water quality objectives for the Subbasin are present in the groundwater. These concentrations are likely a legacy of historical septic discharges and historical agricultural fertilizer application practices, and may also be influenced by current agricultural return flows.

The water budget for the Subbasin provides an accounting and assessment of the average annual volume of groundwater and surface water entering (i.e., inflow) and leaving (i.e., outflow) the Subbasin and enables an accounting of the cumulative change in groundwater in storage over time. UWCD developed the Ventura Regional Groundwater Flow Model, a MODFLOW numerical groundwater flow model, for the Oxnard Subbasin, the Mound Basin, the western part of the Las Posas Valley Basin, and the Pleasant Valley Basin. A peer review study of the UWCD model was conducted for this GSP. The historical groundwater budget for the Subbasin is based on the UWCD model, which had a historical base period from 1985 to 2015. During average conditions (1988, 1991, 1992, 1994, 1996, 1997, 2000, 2001, 2003, 2006, 2008, 2010, and 2011), which are defined as water years in which the precipitation in the Oxnard Subbasin was between 75% and 150% of the average annual precipitation, the net change in groundwater storage for the Upper Aquifer System without seawater intrusion was an increase in 1,856 AFY and the net change in storage without seawater intrusion in the Lower Aquifer System was a decrease of 4,196 AFY. The net seawater intrusion during these years was 4,189 AFY in the Upper Aquifer System, and 5,225 AFY in the Lower Aquifer System. Groundwater pumping during these average condition years averaged 47,080 AFY in the Upper Aquifer System and 28,893 AFY in the Lower Aquifer System.

Several model scenarios were developed to assess the future sustainable yield of the Subbasin. Each future scenario covered a 50-year timeframe, from 2020 to 2069. In two scenarios, the 2015–2017 average groundwater extraction rate was continued throughout the 50-year modeled period. The results of each of these scenarios indicated that continuing the 2015–2017 extraction rate would contribute to net seawater intrusion in both the Upper Aquifer System and Lower Aquifer System. In three additional scenarios, the groundwater production rate was decreased gradually over the first 20 years. These model scenarios indicated that reduced groundwater production from the Subbasin can eliminate net seawater intrusion in the Subbasin over periods of drought and recovery. Based on the suite of model scenarios, the sustainable yield of the Upper Aquifer System was calculated to be approximately 32,000 AFY, with an uncertainty of ± 4,100 to 6,000 AFY. The sustainable yield of the Lower Aquifer System was calculated to be approximately 7,000 AFY, with an uncertainty of ± 2,300 to 3,600 AFY.

It is anticipated that the analysis for the 5-year update to the GSP will focus on developing new water supply projects, as well as examining the potential impacts of differential extractions on the coast and inland, particularly in the Lower Aquifer System. Additional modeling is recommended for the

5-year update process to understand how changes in pumping patterns and the addition of new water supply projects can increase the overall sustainable yield of the Subbasin. As this understanding improves, projects to support increases in the overall sustainable yield can be developed.

To reflect the current understanding of the hydrogeologic characteristics of the Subbasin, and in anticipation of future management strategies the Subbasin has been divided into five management areas. These areas are the Forebay Management Area, the West Oxnard Plain Management Area, the Oxnard Pumping Depression Management Area, the Saline Intrusion Management Area, and the East Oxnard Plain Management Area. These areas are separated by hydrogeologic and water quality characteristics.

ES.3 OVERVIEW OF SUSTAINABILITY CRITERIA

The sustainability goal in the Subbasin is to increase groundwater elevations inland of the Pacific coast in the aquifers that compose the Upper Aquifer System and the Lower Aquifer System to elevations that will prevent the long-term, or climatic cycle net (net), landward migration of the area currently impacted by seawater intrusion; prevent net seawater intrusion in the Upper Aquifer System; and prevent net seawater intrusion in the Lower Aquifer System.

Under SGMA, undesirable results occur when the effects caused by groundwater conditions occurring throughout the Subbasin cause significant and unreasonable impacts to any of the six sustainability indicators:

- Chronic lowering of groundwater levels
- Reduction of groundwater storage
- Seawater intrusion
- Degraded water quality
- Land subsidence
- Depletions of interconnected surface water

All six sustainability indicators are applicable to the Subbasin. Minimum thresholds and measurable objectives, which are quantitative metrics of groundwater conditions in the Subbasin, were established for the sustainability indicators determined to be a current and/or potential future undesirable result. Groundwater elevations that achieve the sustainability goal for seawater intrusion were used as a proxy for other sustainability indicators in establishing the minimum thresholds and measurable objectives. This is because if the minimum thresholds and measurable objectives for seawater intrusion are achieved, then undesirable results for the other sustainability indicators are avoided.

The measurable objective water levels for the Subbasin are the groundwater levels throughout the Subbasin, at which there is neither seawater flow into nor freshwater flow out of the Upper Aquifer System or Lower Aquifer System. If groundwater levels in the Subbasin remained at the measurable objective in perpetuity, no groundwater would flow from the aquifer systems into the Pacific Ocean, and no ocean water would flow into the aquifer systems. To allow for operational flexibility during drought periods, water levels in the Subbasin are allowed to fall below the measurable objective. In order to prevent net seawater intrusion over periods of drought and recovery, the periods during which groundwater elevations are below the measurable objective must be offset by periods when the groundwater elevations are higher than the measurable objective.

The minimum thresholds for all six sustainability indicators are groundwater levels that were selected to limit seawater intrusion and allow declines in groundwater elevations during periods of future drought to be offset by recoveries during future periods of above-average rainfall. These thresholds were tested with future groundwater model simulations. The model simulations suggest that if groundwater levels fall below the minimum threshold elevations, the Subbasin is likely to experience net landward migration of the 2015 saline water impact front after 2040. These minimum thresholds are anticipated to improve the beneficial uses of the Subbasin by limiting seawater intrusion. This allows for long-term use of groundwater supplies in the Subbasin.

Although exceedance of a minimum threshold at any given well in the Subbasin may indicate an undesirable result is occurring in the Subbasin, a single exceedance is not necessarily sufficient to indicate that Subbasin-wide conditions are causing undesirable results. Additionally, conditions in the Upper Aquifer System may differ from those in the Lower Aquifer System. Therefore, to define the conditions under which undesirable results will occur in the Subbasin, criteria were developed for each aquifer system. The Upper Aquifer System would be determined to be experiencing an undesirable result if:

- In any single monitoring event, groundwater levels in 6 of 15 identified key wells are below their respective minimum thresholds.
- The groundwater elevation at any individual key well is below the historical low water level for that well.
- The groundwater level in any individual key well is below the minimum threshold for either three consecutive monitoring events or three of five consecutive monitoring events, which occur in the spring and fall of each year.

The Lower Aquifer System would be determined to be experiencing an undesirable result if:

- In any single monitoring event, groundwater levels in 8 of 19 identified key wells are below their respective minimum thresholds.

- The groundwater elevation at any individual key well is below the historical low water level for that well.
- The groundwater level in any individual key well is below the minimum threshold for either three consecutive monitoring events or three of five consecutive monitoring events, which occur in the spring and fall of each year.

ES.4 OVERVIEW OF THE SUBBASIN MONITORING NETWORK

The overall objective of the monitoring network in the Subbasin is to track and monitor parameters that demonstrate progress toward meeting the sustainability goals. In order to accomplish this objective, the monitoring network in the Subbasin must be capable of the following:

- Monitoring changes in groundwater conditions (in six sustainability indicator categories)
- Monitoring progress toward minimum thresholds and measurable objectives
- Quantifying annual changes in water budget components

The existing network of groundwater wells includes both monitoring wells and production wells. This network is capable of delineating the groundwater conditions in the Subbasin and has been used for this purpose in the past. The current groundwater well network will be used to monitor groundwater conditions moving forward, in order to continue to assess long-term trends in groundwater elevation and groundwater quality in the Subbasin.

Although the current monitoring network is adequate to monitor groundwater conditions in the Subbasin, it can be improved as funding becomes available An additional well, or wells, in the Oxnard Pumping Depression Management Area would provide aquifer-specific groundwater elevations in an area that does not have local wells screened solely in the Mugu Aquifer or the Hueneme Aquifer, and does not have a dedicated monitoring well screened in any of the primary aquifers.

Additionally, the monitoring network in the West Oxnard Plain Management Area could be improved by adding a monitoring well to the area north of Highway 101 and south of the Oxnard Forebay, and adding a monitoring well to the area north of 6th Street and west of Ventura Road. A monitoring well north of Highway 101 and south of the Oxnard Forebay would provide for aquifer-specific water levels adjacent to the West Las Posas Management Area boundary. These groundwater levels could be used to constrain the gradient between the West Las Posas Management Area and the Subbasin. A monitoring well north of 6th Street and west of Ventura Road would help constrain groundwater gradients in the northwestern Subbasin.

There are currently no monitoring wells in the East Oxnard Plain Management Area, which has minimal known groundwater production. Addition of a monitoring well in the vicinity of Calleguas

Creek in this management area would help constrain the relationship between groundwater elevations in the East Oxnard Plain Management Area and groundwater conditions in the adjacent Oxnard Pumping Depression and Saline Intrusion Management Areas.

In addition to supplementing the existing monitoring network with new wells, monitoring can also be improved in the future by coordination of monitoring schedules to ensure that groundwater monitoring activities occur over a 2-week window during the key reporting periods and mid-March and mid-October. As funding becomes available, pressure transducers should be added to wells in the groundwater monitoring network. Pressure transducer records provide the high-temporal-resolution data that allows for a better understanding of water level dynamics in the wells related to groundwater production, groundwater management activities, and climatic influence.

In the future, to the extent possible, additional dedicated monitoring wells will be incorporated into the existing monitoring network. These wells will provide information on groundwater conditions in geographic locations where data gaps have been identified, or where a dedicated monitoring well would better represent conditions in the aquifers than a production well currently used for monitoring.

ES.5 PROJECTS AND MANAGEMENT ACTIONS

Projects and management actions have been identified to address potential impacts to beneficial uses and users of groundwater in the Subbasin resulting from groundwater production in excess of the current sustainable yield. The five projects included in this GSP were suggested by stakeholders and were reviewed by the Operations Committee of the FCGMA Board. The inclusion of these projects does not constitute a commitment by the FCGMA Board to construct or fund the projects, but rather signals that these projects were sufficiently detailed to be included in groundwater modeling efforts that examined the quantitative impacts of the projects on groundwater elevations and the sustainable yield of the Subbasin. Projects included in the GSP or any amendment thereof that increase the available supply of groundwater are necessary to meet the sustainability goal for the Subbasin in a manner that avoids adverse impacts to beneficial uses and users of groundwater within the Subbasin.

Project No. 1 – GREAT Program Advanced Water Purification Facility

Under this project, the City of Oxnard's Groundwater Recovery Enhancement and Treatment (GREAT) Program's Advanced Water Purification Facility (AWPF) could provide the Subbasin with a source of reclaimed water that can be used for landscape irrigation, agricultural, industrial process water, and groundwater recharge. The AWPF product water that will be put to use in the Subbasin is secondary wastewater effluent that is currently discharged to the Pacific Ocean. Therefore, this project provides a new source of water for use in the Subbasin.

Project No. 2 – GREAT Program Advanced Water Purification Facility Expansion Project

The purpose of the GREAT Program AWPF Expansion Project is to increase the production of high-quality recycled water within the City of Oxnard, the Subbasin, and the Pleasant Valley Basin. This project will provide additional reclaimed water for Subbasin recharge, in-lieu groundwater production, or indirect potable reuse. The AWPF Expansion Project product water that will be put to use in the Subbasin is secondary wastewater effluent that is currently discharged to the Pacific Ocean. Therefore, this project provides a new source of water for use in the Subbasin.

Project No. 3 – RiverPark–Saticoy GRRP Recycled Water Project

The RiverPark–Saticoy Groundwater Replenishment and Reuse Project (GRRP) Recycled Water Project will convey water produced by the GREAT Program AWPF Expansion Project to the Saticoy Groundwater Recharge Facility and El Rio Groundwater Recharge Facility operated by UWCD. The RiverPark–Saticoy Pipeline and the GRRP will help ensure that excess flows from the AWPF will be used for groundwater recharge and implementation of this project is expected to improve groundwater quality in the Forebay.

Project No. 4 – Freeman Expansion Project

The Freeman Expansion Project will expand the recharge facilities operated by UWCD adjacent to the Santa Clara River, to be able to accommodate diversions from the river at higher flow rates. The benefits of this project are multifold. It will provide additional recharge, improve water quality in the Forebay, and reduce pump lift, and therefore energy consumption, for municipal and agricultural pumpers.

Project No. 5 – Temporary Agricultural Land Fallowing

The Temporary Agricultural Land Fallowing Project will decrease groundwater production in the portions of the Subbasin that are susceptible to seawater intrusion. This project will benefit the Subbasin by mitigating seawater intrusion in the Subbasin and would complement a water market that is currently being developed for the Subbasin by providing an alternative method for landowners to monetize pumping allocations.

Management Action No. 1 – Reduction in Groundwater Production

The primary management action proposed under this GSP is a reduction in groundwater production from the Subbasin. FCGMA has had the authority to monitor and regulate groundwater production in the Subbasin since 1983. The primary benefit related to reduction in groundwater production is recovery of groundwater elevations that have historically allowed for seawater intrusion in the Subbasin. Reduction in groundwater production can be used to close any differential between

groundwater elevations that can be obtained through implementation of projects and the groundwater elevations necessary to prevent future net seawater intrusion in the Upper Aquifer System and the Lower Aquifer System.

FCGMA approved an ordinance to establish an allocation system for the Oxnard Subbasin and the Pleasant Valley Basin on October 23, 2019. The purpose of this ordinance is to facilitate adoption and implementation of the GSP and to ensure that the Oxnard Subbasin and the Pleasant Valley Basin are operated within their sustainable yields. It is not the purpose of the ordinance to determine or alter water right entitlements, including those that may be asserted pursuant to California Water Code Sections 1005.1, 1005.2, or 1005.4.

Management Action No. 2 – Water Market Pilot Program

A water market pilot program is currently being conducted by FCGMA as a means of increasing operational management of groundwater in the Subbasin. Analysis of the water market pilot program will be conducted and its suitability for incorporation as a management action for the Subbasin will be determined after the pilot program is completed in July 2019.

CHAPTER 1
ADMINISTRATIVE INFORMATION

1.1 PURPOSE OF THE GROUNDWATER SUSTAINABILITY PLAN

The Fox Canyon Groundwater Management Agency (FCGMA), acting as the Groundwater Sustainability Agency (GSA) for the Oxnard Subbasin of the Santa Clara River Valley Groundwater Basin (4-004; Oxnard Subbasin [Subbasin]), has developed this Groundwater Sustainability Plan (GSP) in compliance with the 2014 Sustainable Groundwater Management Act (SGMA) (California Water Code, Section 10720 et seq.). This GSP has been developed to apply to the entirety of the Oxnard Subbasin, including those portions of the Subbasin that lie outside FCGMA's jurisdictional boundary, primarily consisting of fringe areas of the Subbasin. The County of Ventura (County) and the Camrosa Water District (CWD) have each elected to act as the GSA for portions of the Subbasin not within FCGMA's jurisdiction. The County and CWD will rely on this GSP and coordinate with FCGMA as necessary to ensure that the Subbasin is sustainably managed in its entirety, in accordance with SGMA.

SGMA defines sustainable groundwater management as the management and use of groundwater in a manner that can be maintained over a 50-year planning and implementation horizon without causing undesirable results. Undesirable results are defined in SGMA and are summarized here as any of the following effects caused by groundwater conditions occurring throughout the Subbasin:[1]

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply
- Significant and unreasonable reduction of groundwater storage
- Significant and unreasonable seawater intrusion
- Significant and unreasonable degraded water quality
- Significant and unreasonable land subsidence
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

As described in Chapter 2, Basin Setting, of this GSP, undesirable results within the Oxnard Subbasin are occurring with respect to significant and unreasonable reduction of groundwater storage and seawater intrusion. Portions of the Subbasin are experiencing, or under threat of experiencing, degraded water quality. Chronic lowering of groundwater levels has not occurred because declines in groundwater elevation are offset by seawater intrusion. Land subsidence has occurred historically in the Subbasin and has the potential to occur in the future if groundwater

[1] As defined in SGMA, "basin" means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to California Water Code, Section 10720 et seq. (Basin Boundaries).

conditions are not managed sustainably. Depletions of interconnected surface water have not occurred historically in the Subbasin, because the Groundwater-Dependent Ecosystems (GDEs) in the Subbasin are supported by shallow groundwater flows that are generally separated and disconnected from the primary groundwater aquifers (see Section 1.3.2, Geography; Section 2.2.1, Geology; and Section 2.3.7, Groundwater-Dependent Ecosystems).

The purpose of this GSP is to define the conditions under which the groundwater resources of the entire Oxnard Subbasin, which support agricultural, municipal and industrial (M&I), and environmental uses, will be managed sustainably in the future. The adoption of this GSP represents the first step in achieving groundwater sustainability within the Oxnard Subbasin by 2040, as required by SGMA. Over the next 20 years, data will continue to be gathered and used to refine the estimated sustainable yield and potential paths for achieving sustainability set forth in the following chapters. As the understanding of the Subbasin improves, this GSP will be updated to reflect the new understanding of the Subbasin. This GSP outlines a plan for annual reporting and periodic (5-year) evaluations (Chapter 1); characterizes groundwater conditions, trends, and the cumulative impacts of groundwater pumping for each of the SGMA-defined sustainability indicators (Chapter 2); establishes minimum thresholds, measurable objectives and interim milestones by which sustainability can be measured and tracked (Chapter 3, Sustainable Management Criteria); outlines the monitoring network used to support and document progress toward sustainability (Chapter 4, Monitoring Networks); and identifies projects and management actions to be implemented by the GSA and/or stakeholders to minimize undesirable results (Chapter 5, Projects and Management Actions).[2] This GSP documents a viable path, determined by the GSA in collaboration with stakeholders and informed by the best available information, to achieving the sustainability goal within the Oxnard Subbasin.

1.2 AGENCY INFORMATION

1.2.1 Agency Name

Fox Canyon Groundwater Management Agency (FCGMA or Agency)

1.2.2 Agency Address

Mailing Address:

Fox Canyon Groundwater Management Agency
800 South Victoria Avenue
Ventura, California 93009-1610

[2] All references in this GSP to *minimizing*, *limiting*, or *mitigating* undesirable results means doing so in a manner that culminates in the absence of (i.e., avoidance of) undesirable results by 2040 and thereafter during the planning and implementation horizon.

Office Location:

Ventura County Government Center
Hall of Administration
800 South Victoria Avenue
Ventura, California 93009

1.2.3 Organization and Management Structure

FCGMA is governed by five Board of Directors (Board) members who represent (1) the County, (2) the United Water Conservation District (UWCD), (3) the seven mutual water companies and small water districts within the Agency (Alta Mutual Water Company, Pleasant Valley County Water District (PVCWD), Berylwood Mutual Water Company, Calleguas Municipal Water District (CMWD), CWD, Zone Mutual Water Company, and Del Norte Mutual Water Company), (4) the five incorporated cities within FCGMA (Ventura, Oxnard, Camarillo, Port Hueneme, and Moorpark), and (5) the farmers (FCGMA 2019a). Four of these Board members, representing the County, UWCD, the mutual water companies and small water districts, and the incorporated cities, are appointed by their respective organizations or groups. The representative for the farmers is appointed by the other four seated Board members from a list of candidates jointly supplied by the Ventura County Farm Bureau and the Ventura County Agricultural Association. An alternate Board member is selected by each appointing agency or group in the same manner as the regular member and acts in place of the regular member in case of absence or inability to act.

All members and alternates serve for a 2-year term of office, or until the member or alternate is no longer an eligible official of the member agency. All Board members and alternates serve on a volunteer basis and no compensation is provided for attendance at FCGMA meetings or events. Information regarding current FCGMA Board representatives can be found on the Agency's website (FCGMA 2019b).

Extractors within Oxnard Subbasin will be subject to FCGMA's GSP and any management actions created for this GSP. These actions are administered by the Agency Executive Officer, who is appointed by the FCGMA Board. The Agency Executive Officer and other FCGMA staff are provided by the County of Ventura Public Works Agency pursuant to a contract with the County of Ventura. FCGMA does not construct, operate, or maintain capital facilities but does have the authority to adopt ordinances requiring registration of groundwater wells, requiring reporting of groundwater use, regulating groundwater extractions, and requiring fees. FCGMA contracts with the County to provide staff to support FCGMA (FCGMA 2019a).

1.2.4 Plan Manager

Executive Officer of FCGMA, Jeff Pratt, PE

Mailing Address:

Fox Canyon Groundwater Management Agency
800 South Victoria Avenue
Ventura, California 93009-1610

Phone: 805.654.2073

Email: Jeff.Pratt@ventura.org

1.2.5 Legal Authority

FCGMA is an independent special district formed by the California Legislature in 1982 to manage and protect the aquifers within its jurisdiction for the common benefit of the public and all agricultural, domestic, and M&I users (FCGMA et al. 2007). FCGMA's jurisdiction was established as the area overlying the FCA and includes portions of the Oxnard Subbasin and the Las Posas Valley Basin (LPVB), the Pleasant Valley Basin (PVB), and the Arroyo Santa Rosa Valley Basin. FCGMA may adopt ordinances for the purpose of regulating, conserving, managing, and controlling the use and extraction of groundwater within its territory (FCGMA Act, Section 403).

The FCGMA Act prohibits the Agency from engaging in water supply activities normally and historically undertaken by its member agencies. Nonetheless, FCGMA may exercise the water supply powers and authorities authorized under SGMA provided the Board makes a finding that FCGMA is otherwise unable to sustainably manage the basin.

The full text of the FCGMA Act, Assembly Bill 2995, as well as amendments and additional legislation, can be accessed on the Agency's website (FCGMA 2019c). FCGMA is identified in SGMA as an agency created by statute to manage groundwater that is the exclusive GSA within its territory with powers to comply with SGMA (SGMA, Section 10723[c][1][D]). FCGMA notified the California Department of Water Resources (DWR) of its intent to undertake sustainable groundwater management under SGMA on January 26, 2015, and was granted exclusive GSA status under SGMA, Section 10723(c) (Appendix A, GSA Formation Documentation, to this GSP).

1.2.6 Groundwater Sustainability Plan Implementation and Cost Estimate

This GSP will be implemented by FCGMA, with cooperation from the Camrosa Water District–Oxnard Subbasin GSA and County for the small portion of the Subbasin outside FCGMA jurisdiction (see Section 1-3, Description of Plan Area). The following sections provide a discussion of the standards for and costs associated with GSP implementation, including annual reporting, periodic updates, monitoring protocols, and projects and management actions. Potential funding sources and mechanisms are presented along with a tentative schedule for implementing the GSP's primary components. In addition, annual reporting and 5-year evaluation procedures for the Oxnard Subbasin are described.

1.2.6.1 Standards for Plan Implementation

Annual Reporting

The GSA shall submit an annual report to DWR by April 1 of each year following the adoption of the GSP. The annual report shall include the following components for the preceding water year (23 CCR, Section 356.2):

- General information, including an executive summary and a location map depicting the basin covered by the report
- A detailed description and graphical representation of
    - Groundwater elevation data from wells identified in the monitoring network
    - Groundwater extraction for the preceding water year
    - Change in groundwater in storage
    - Surface water supply used or available for use
    - Total water use
- A description of progress toward implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report

The description and graphical representation of groundwater elevations will include groundwater elevation contour maps for each principal aquifer in the Subbasin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions. Additionally, hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year, will be included in the annual report. As described in Section 1.2.6.2, Data Collection, Validation, and Analysis, relevant data collected by

entities within the PVB are regularly provided to FCGMA and will be used to prepare the annual reports submitted to DWR.

The description and graphical representation of change in groundwater storage will include a graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

Five-Year Evaluation

FCGMA will evaluate the GSP at least every 5 years. This 5-year evaluation will be provided as a written assessment to DWR. The assessment shall describe whether the Plan implementation, including implementation of projects and management actions, are meeting the sustainability goal in the basin. The evaluation will include the following:

- A description of current groundwater conditions for each applicable sustainability indicator relative to measurable objectives, interim milestones, and minimum thresholds
- A description of the implementation of any projects or management actions, and the effect on groundwater conditions resulting from those projects or management actions
- Revisions, if any, to the basin setting, management areas, or the identification of undesirable results and the setting of minimum thresholds and measurable objectives
- An evaluation of the basin setting in light of significant new information or changes in water use, and an explanation of any significant changes
- A description of the monitoring network within the basin, including whether data gaps exist, or any areas within the basin are represented by data that does not satisfy the requirements of the GSP Regulations (23 CCR, Sections 352.4 and 354.34[c])
- A description of significant new information that has been made available since GSP adoption, amendment, or the last 5-year assessment
- A description of relevant actions taken by the Agency, including a summary of regulations or ordinances related to the GSP
- Information describing any enforcement or legal actions taken by the Agency in furtherance of the sustainability goal for the basin
- A description of completed or proposed GSP amendments
- A summary of coordination that occurred between FCGMA and other agencies, if appropriate, in the Subbasin, as well as between FCGMA and other agencies in hydrologically connected basins

1.2.6.2 GSP Implementation Budget

The primary costs associated with implementing the GSP are anticipated to be connected with the following:

- Data collection, validation, and analysis
- Ongoing data gap analysis and assessments of priorities for filling data gaps
  - Filling of data gaps
  - Operations and maintenance
- Annual report preparation and preparation of the 5-year GSP evaluation
- Regional studies for basin optimization, groundwater modeling
- Management, administration, and other costs

Data Collection, Validation, and Analysis

FCGMA has historically obtained data from the Ventura County Watershed Protection District (VCWPD) to monitor streamflow, precipitation, groundwater elevation, and groundwater quality throughout the Oxnard Subbasin. Besides VCWPD, entities that monitor groundwater level and groundwater quality in the Oxnard Subbasin include the United Water Conservation District (UWCD), the Cities of Oxnard and Camarillo, PVCWD, and small mutual water companies. Relevant data collected by these entities is regularly provided to VCWPD, and the data are shared with FCGMA for use in the FCGMA annual groundwater reports. This process will continue, but analysis will now include comparison of collected data against sustainable management criteria established by this GSP.

The majority of water level and water quality data in the Oxnard Subbasin are generated by VCWPD and UWCD. To date, this data sharing has not required expenditures from FCGMA because FCGMA did not control the location or timing of data and sample collection. The existing monitoring schedules and locations are discussed in Chapter 4, Monitoring Networks. It is anticipated that as long as the existing schedules are maintained, VCWPD will continue to host the data for the Oxnard Subbasin and FCGMA will be able to use the data for annual monitoring reports and the 5-year GSP evaluations. However, to the degree that monitoring schedules and locations will change, a cost-sharing agreement will be developed between VCWPD and FCGMA.

Data Gap Analysis and Priorities

During the initial 5-year period after the GSP is adopted, FCGMA will explore options for filling data gaps identified in this GSP. The primary data gaps identified in the historical data are spatial and temporal gaps in groundwater elevation and groundwater quality measurements.

In order to assess the priorities for filling these gaps, FCGMA plans to review options and potential costs associated with those options to direct funding toward the solutions that are needed most. One option that will be investigated would include adding pressure transducers to existing agricultural wells in the monitoring network. These transducers would record water levels at regular intervals (e.g., hourly) to determine static, or recovered, water levels. The cost for purchasing and installing transducers in agricultural wells must be assessed and incorporated into the cost of GSP implementation. As instrumentation is added to the monitoring network, the annual cost of operations and maintenance will also be factored in to the budget for GSP implementation.

In addition to assessing the need for new instrumentation, the analysis of data gaps and priorities will review the potential cost and need to substitute existing agricultural wells in the monitoring network with dedicated monitoring wells, or install monitoring wells in key areas where there are no appropriate wells to monitor. While monitoring wells are often preferred to agricultural wells, for the time being, the agricultural well data provide a link to historical data. This link is critical in assessing progress toward sustainability. Therefore, the data gap analysis and priorities assessment will review which agricultural wells may need to be substituted and which wells should be retained for ongoing historical comparison.

Annual Report Preparation and Preparation of the 5-Year Evaluation

Details of the information that will be included in the annual reports are presented in Section 1.2.6.1, Standards for Plan Implementation. It is currently anticipated that the annual reports will be produced by FCGMA staff and the costs associated with these reports will be incorporated in the annual operating budget of FCGMA.

Every fifth year of GSP implementation and whenever the GSP is amended, the GSA is required to prepare and submit an Agency Evaluation and Assessment Report to the DWR together with the annual report for that year. The tasks associated with preparing this report include updating the water budget, updating the groundwater model, and reassessing the sustainable yield, minimum thresholds, and measurable objectives (see Section 1.2.6.1). Additionally, the evaluation will provide an assessment of the pumping and groundwater conditions. It is currently anticipated that the 5-year evaluation reports will be produced by FCGMA staff with the assistance of consultants and that the costs associated with these reports will be incorporated in the annual operating budget of FCGMA.

Basin Optimization Studies, Groundwater Modeling, and Project Feasibility

During the initial 5-year period after the GSP is adopted, FCGMA will explore opportunities to optimize basin management. The work required to assess these opportunities includes implementing and supporting regional studies and groundwater modeling efforts that assess how

to maximize the sustainable yield of the Oxnard Subbasin and adjoining basins. These studies are anticipated to include more detailed feasibility studies of projects that were proposed and modeled for this GSP, as well as an investigation of how the projects will be implemented, the costs associated with project implementation, and potential cost-sharing agreements for these projects.

It should be noted that Chapter 5 of this GSP includes projects that were far enough along in development and/or implementation that meaningful information could be included about their potential to improve sustainable management of the Subbasin. Additional projects may be implemented within the next 20 years to, for example, minimize the need for pumping reductions. This GSP does not preclude future projects or existing projects that are too early in the stage of development to be included in Chapter 5 from being investigated or undergoing feasibility analysis in the coming years. Relevant information about new projects and/or updates to existing projects described in Chapter 5 will be provided in annual reports and 5-year evaluations.

Current anticipated costs for implementing projects in the Oxnard Subbasin that were analyzed as part of this GSP are presented in Table 1-1.

In addition, it is anticipated that basin optimization studies will be undertaken in the initial 5-year period after the GSP is implemented adopted to assess projects that were not included in this GSP. This assessment is expected to include an investigation of how adjustments to the location of groundwater production will minimize seawater intrusion in the Oxnard Subbasin, while maximizing the sustainable yield of the combined aquifer systems of the Oxnard Subbasin, the PVB, and the West Las Posas Management Area. Basin optimization investigations are inherently tied to groundwater modeling, which would be conducted to provide the estimated sustainable yield for all scenarios analyzed.

Lastly, as part of the project feasibility analyses, FCGMA anticipates evaluating potential revenue streams for implementing the projects required to optimize basin management. This analysis will include a review of the potential for implementing basin replenishment fees and the costs associated with proposing and passing such fees.

Cost Estimate

The estimated total GSP implementation costs are presented in Table 1-2. The starting cost for monitoring systems, coordination of data collection, obtaining data form other GSAs in the basin is estimated to be $1 million for 2020. Costs were increased annually, using a 2.8% inflation rate, from 2020 to 2040 (Table 1-2). The annual reviews to DWR are anticipated to be included as part of the operations and monitoring costs for FCGMA. The management, administration, and other costs for 2020 are based on the 2019–2020 fiscal year budget, in which these costs are estimated to be $1,455,000.

The 5-year evaluation costs are anticipated to cover the professional specialty services to evaluate and assess the GSP and perform the additional work necessary to fill data gaps and analyze projects and management actions for the Oxnard Subbasin, as well as for the PVB and LPVB. FCGMA has prepared the GSPs for the entire area of the Oxnard Subbasin, Las Posas Valley Basin, and Pleasant Valley Basin. FCGMA will be responsible for evaluating these GSPs, for each basin, every 5 years. Cost sharing for these evaluations may be investigated with the other GSAs in each basin in the future. Initial costs for the 5-year evaluation were estimated to be $100,000 per basin, with 2.8% inflation between 2020 and 2024. Costs for 2025 through 2029 were estimated to be $100,000 if the work were performed in 2020, but the costs in the budget account for 2.8% annual inflation between 2020 and 2025. Costs between 2030 and 2033 were calculated from the 2.8% annual inflation on $50,000. Subsequent years were calculated either based on 2.8% inflation on $100,000, or 2.8% inflation on $50,000, depending on whether the year included preparation of a physical report for DWR.

Finally, the estimated implementation costs include a 10% contingency on the total operating and monitoring costs, management administration and other costs, and the 5-year evaluation.

1.2.6.3 Funding Sources

In general, FCGMA plans to fund its basic operations costs using groundwater extraction charges. Surcharges for extractions in excess of an allocation may also be used in carrying out FCGMA's groundwater management functions. FCGMA collects a groundwater extraction base rate fee of $6 per acre-foot and imposes a surcharge of up to $1,961 for excess extractions. Together, these pump fees have generated more than $1 million in operating revenues each fiscal year (ending in June) between 2013 and 2016. FCGMA anticipates using this existing revenue structure, along with eventual implementation of a replenishment fee, to fund the GSP implementation and direct costs.

Under SGMA, FCGMA gained additional authority to impose regulatory fees and currently collects a sustainability of fee of $11 per acre-foot in addition to its groundwater extraction fee. The sustainability fee is projected to generate additional annual revenue of $1,375,000. The sustainability fee will increase to $14 per acre-foot in 2020 and generate an additional $375,000 in annual revenue. Upon adoption of this GSP, FCGMA will have authority to impose replenishment fees and to fund projects and management actions that can influence groundwater supply. Projects to achieve sustainability are anticipated to require funding beyond that generated by the existing extraction and sustainability fees. FCGMA anticipates working with other agencies and stakeholders to understand how individual projects will impact stakeholders and identify the most appropriate funding sources for these projects.

1.3 DESCRIPTION OF PLAN AREA

1.3.1 Description

The Oxnard Subbasin (the Subbasin; DWR Groundwater Basin 4-004.02) is a coastal alluvial subbasin of the Santa Clara River Valley Groundwater Basin (4-004). It is bounded to the east by the LPVB (4-008), the Camarillo Hills, and the PVB (4-006); to the southeast by the Santa Monica Mountains; to the west and southwest by the Pacific Ocean; and to the north by the Mound (4-004.03) and Santa Paula (4-004.04) Subbasins of the Santa Clara River Valley Groundwater Basin (Figure 1-1, Vicinity Map for the Oxnard Subbasin).

The Oxnard Subbasin is in hydrologic communication, to varying degrees, with the LPVB and PVB to the east, the Mound and Santa Paula Subbasins to the north, and the Pacific Ocean to the west and southwest.

The Oak Ridge and McGrath Faults form the boundary between the Oxnard Subbasin and the Mound and Santa Paula Subbasins to the north (DWR 2016a). The boundary between the Oxnard Subbasin and the LPVB is a jurisdictional boundary that corresponds to property lines and associated water sources. It is parallel and proximal to the surface expression of the Wright Road Fault. The boundary between the Oxnard Subbasin and the PVB is defined by a facies change between the predominantly coarse-grained sand and gravel deposits that compose the Upper Aquifer System (UAS) in the Oxnard Subbasin and finer-grained clay- and silt-rich deposits in the PVB. The southeastern boundary of the Oxnard Subbasin is the contact between permeable alluvium and semi-permeable rocks of the Santa Monica Mountains (SWRCB 1956; DWR 2016a).

The Oxnard Subbasin has historically been divided into two subareas by local practitioners (UWCD 2014). Across most of the Oxnard Plain, the main water-producing aquifers are confined beneath a low-permeability, clay-rich layer that separates the UAS from the topmost unconfined semi-perched aquifer groundwater unit. This clay layer and the semi-perched aquifer are absent in the northeastern area known as the Oxnard Forebay, and as a result, unconfined aquifer conditions exist in the UAS in this area (Figure 1-1).

In this report, to distinguish between features on the land surface and in the subsurface, the term "Oxnard Plain" will be used to refer to the geographic area overlying the Oxnard Subbasin.

Administrative Boundaries

Multiple boundaries have been used to define or manage the Subbasin (Figure 1-2, Administrative Boundaries for the Oxnard Subbasin), including the following:

1. The boundary of the Subbasin defined by DWR in its 2016 Basin Boundary Modification
2. The jurisdictional boundary of FCGMA
3. The boundaries of the Oxnard Forebay historically used by FCGMA
4. The boundary of the Oxnard Subbasin historically used by FCGMA

The boundary of the Oxnard Subbasin defined by DWR in its 2016 Basin Boundary Modification extends beyond FCGMA jurisdiction to the southeast, northwest, and northeast (Figure 1-2). The jurisdictional boundary of FCGMA was established based on a vertical projection of the interpreted extent of the FCA, as provided by the Fox Canyon Groundwater Management Agency Act (FCGMA Act) in 1982. The FCA is absent in the areas of the DWR Bulletin 118 boundaries for the Oxnard Subbasin that lie outside of FCGMA jurisdiction (Figure 1-2). The majority of the area that is outside FCGMA jurisdiction but inside the 2016 Subbasin boundary lies within the jurisdiction of the County of Ventura. The County has filed to be the GSA for the Oxnard Basin Outlying Areas (see Appendix A; Figure 1-2). The remaining area outside of FCGMA jurisdiction but within the boundary of the Subbasin currently used by DWR will be managed by CWD, which has filed to be the GSA for the Camrosa Water District–Oxnard Subbasin, which covers the portion of CWD's service area that lies within the Oxnard Subbasin (Appendix A; Figure 1-2). Table 1-3 presents a breakdown of all GSAs that intersect the boundary of the Oxnard Subbasin defined by DWR in its 2016 Basin Boundary Modification. The 2016 Basin Boundary Modification was used instead of the 2018 Basin Boundary Modification to be consistent with the groundwater model used in this GSP. The County (by Resolution 17-088) and CWD (by Resolution 17-11) have each elected to act as the GSA for portions of the Subbasin not within FCGMA's jurisdiction (Appendix A). The County and CWD will rely on this GSP and coordinate with the FCGMA, as necessary, to ensure that the Subbasin is sustainably managed in its entirety, in accordance with SGMA.

The external boundary of the Oxnard (4-004.02), Mound (4-004.03), and Santa Paula (4-004.04) Subbasins were adjusted in DWR's 2018 Basin Boundary Modification process (DWR 2019). The adjustment was made by request of the Mound Basin GSA, who notified FCGMA of the proposed change, which was ultimately approved by DWR in 2019. The purpose of the boundary change was to better align the boundaries of the Mound Subbasin, FCGMA, and the Santa Paula basin adjudication. Compared with the 2016 boundary for the Oxnard Subbasin, the 2018 Basin Boundary Modification aligned the north-northwestern border of the Subbasin with FCGMA's jurisdictional boundary, resulting in subtraction of 75.2 acres from the Subbasin near the Pacific Coastline south of the Santa Clara River, and the addition of 614.7 acres to the Subbasin in a narrow zone north of the Santa Clara River (DWR 2016a, 2019).

From a technical and sustainable management perspective, the effect of the change in area for the Oxnard Subbasin between 2016 and 2018 is negligible, because the area does not newly include or exclude representative monitoring sites or production wells and does not affect the model domain, boundary conditions, and/or other parameters used in the Ventura Regional Groundwater Flow Model. Therefore, the effect on water budget for the Subbasin would be limited to the inclusion and/or exclusion of model grid cells for inflow and outflow calculations along the northern boundary of the Subbasin. The dimension of the model grid cells (2,000 feet) is greater than the maximum change in distance between the 2016 and 2018 boundaries for the Oxnard Subbasin (1,300 feet or less), which suggests that any difference could be within the margin of error associated with the model grid resolution. Because this change represents just 0.9% of the Subbasin's total area and is an administrative rather than a scientific/technical boundary modification, and because this GSP was largely completed prior to adoption of the change in 2019, Subbasin condition information presented in this GSP reflects DWR's 2016 Basin Boundary Modification.

Land Ownership and Jurisdiction

Land within the Oxnard Subbasin is under a variety of municipal, County, state, and federal jurisdictions. The City of Oxnard and Port Hueneme are entirely encompassed by the Oxnard Subbasin. The Cities of Ventura and Camarillo lie primarily outside the Subbasin; however, the cities' outer edges are crossed by the Subbasin boundary. Land under County jurisdiction outside the incorporated cities composes the majority (55.5%) of the Subbasin's land area. State agencies that own and/or manage land within the Oxnard Subbasin include the California Department of Parks and Recreation, California State University, and California Department of Corrections and Rehabilitation. Federal land within the Subbasin consists of the Naval Base Ventura County (Naval Construction Battalion Center Port Hueneme and Point Mugu Naval Air Station), which occupies about 10% of the Subbasin's land area. Finally, The Nature Conservancy owns and manages land along the lower reach of the Santa Clara River and Ormond Beach for conservation purposes. A summary of land ownership and jurisdiction is provided in Table 1-4.

1.3.2 Geography

1.3.2.1 Surface Water and Drainage Features

The dominant surface water bodies in the Oxnard Plain are the Santa Clara River, Revolon Slough, and Calleguas Creek, all three of which drain watersheds that extend beyond the boundaries of the Subbasin. In addition, the relatively flat areas within the Cities of Oxnard and Port Hueneme are drained by several lined drains that discharge directly into the Pacific Ocean (Figure 1-3, Weather Station and Stream Gauge Locations).

The Santa Clara River is close to and generally parallels the northern boundary of the Oxnard Subbasin and discharges to the Pacific Ocean through the Santa Clara River Estuary north of the

Oxnard Subbasin. Flow in the channel infiltrates into sediments overlying the Oxnard Forebay and is a source of recharge to the aquifers in the Subbasin. In addition, UWCD, under permit, diverts surface water from the Santa Clara River at the Freeman Diversion. The diversion, which was constructed in 1991, replaced an earthen diversion that had been in place since 1928. The diversion is located upstream of the Subbasin boundary and discharges Santa Clara River water to infiltration basins overlying the Oxnard Forebay (Figure 1-3). West of the Oxnard Forebay, the Santa Clara River channel overlies a confining clay layer and does not communicate directly with the confined aquifers of the UAS and the Lower Aquifer System (LAS). In this portion of the channel (including the estuary) the semi-perched aquifer, which is located above the uppermost confining clay layer, supplies water to the Lower Santa Clara River (Section 2.1, Introduction to Basin Setting).

Revolon Slough drains the eastern portion of the Oxnard Plain and the western portions of the LPVB and PVB (which are east of the Oxnard Plain) (Figure 1-3). The drainage area of Revolon Slough includes western Camarillo. Flow in the slough is generally southward, parallel to the eastern Oxnard Subbasin boundary, until it joins with Calleguas Creek. Calleguas Creek drains the approximately 250-square-mile Calleguas Creek Watershed to the northeast of the Oxnard Subbasin and crosses the Oxnard Subbasin boundary with the PVB at the base of the Santa Monica Mountains (Figure 1-3). Within the Oxnard Subbasin, Calleguas Creek flows generally southward along the southeastern boundary of the Subbasin and discharges into the Pacific Ocean through Mugu Lagoon near Point Mugu (Figure 1-3). Recharge from surface waters into the Oxnard Subbasin is discussed in Section 2.3.6, Groundwater–Surface Water Connections.

Characterization of Flow

Streamflow records for four active and five inactive streamflow gauging stations (Figure 1-3; Table 1-5) were used to characterize flow in the Santa Clara River (Stations 708, 708A, 723, and 724), in the Revolon Slough Watershed (Stations 776, 776A, 780, and 782), and in Calleguas Creek (Station 805).

Some reaches of the Santa Clara River are typically dry in dry weather (for example, at Stations 708 and 708A; Figure 1-3). Sources of dry-weather flow to Revolon Slough include discharge from private tile drains in the Oxnard Plain. Although dry-weather flow is observed in some portions of Calleguas Creek (i.e., at Station 805), in other reaches, Calleguas Creek is dry in dry weather (VCWPD 2009). The primary sources of dry-weather flow to Calleguas Creek are two wastewater treatment plants: the Hill Canyon Wastewater Treatment Plant, operated by the City of Thousand Oaks, which discharges to Arroyo Conejo, a tributary to Arroyo Santa Rosa; and the Camarillo Sanitary District Wastewater Treatment Plant, operated by the City of Camarillo, which discharges to Conejo Creek. Both Arroyo Santa Rosa and Conejo Creek are tributaries of Calleguas Creek. Irrigation water from agriculture and/or landscaping may also serve as a source of flow in all three channels during some parts of the year.

In the Santa Clara River, the available stream flow record within the Subbasin extends from 1927 to 2014, with a gap from 1932 to 1950 (Figure 1-4, Average Daily Flows [ADF] and Monthly Minimum ADF in Oxnard Surface Waters [A]). Peak flow typically occurs between November and April of any given water year and baseflow generally falls to 0 cubic feet per second (cfs) between July and September, except in reaches above and below the Oxnard Forebay. There are some exceptions, particularly in 1980, 1983, 1993, 1998, and 2005, when flow continued through the summer months. The highest gauged flow was 92,300 cfs in March 1969 (Figure 1-4[A]).

In the Revolon Slough, the available streamflow record within the Subbasin extends from 1979 to 2014. Peak flow typically occurs between December and March of any given water year, and baseflow tends to drop to between 2 and 25 cfs between July and September. The highest gauged flow was 2,870 cfs in January 2005 (Figure 1-4[B]).

In Calleguas Creek, the available streamflow record within the Subbasin extends from 1968 to 2014. Peak flow typically occurs between December and March of any given water year, and baseflow tends to drop to between 5 and 13 cfs between July and September. The highest gauged flow was 9,686 cfs in March 1983 (Figure 1-4[C]).

To quantitatively assess changes in baseflow, all streamflow gauges were assigned a minimum average daily flow for each month of the record, and this monthly minimum was plotted in Figures 1-4(D) through 1-4(F). In Calleguas Creek, flows from 2005 to 2015 were lower than those in the 1980s and 1990s. The low flows correspond with a period of below-average rainfall associated with the recent drought. Because surface water in Calleguas Creek and its tributaries is diverted by property owners and by CWD and delivered as a water supply in lieu of groundwater pumping, decreased flow in Calleguas Creek will affect groundwater management in the Subbasin. On the Santa Clara River, decreased flows in the past 5 years have impacted artificial recharge operations and other management decisions made by UWCD.

1.3.2.2 Current, Historical, and Projected Climate

Current Climate

The climate of the Oxnard Plain is typical of coastal Southern California, with average daily temperatures ranging generally from 50°F to 78°F in summer and from 40°F to 75°F in winter, as measured at the California Irrigation Management Information System (CIMIS) weather station in Oxnard, which was active from October 2001 through April 2017 (CIMIS 2018). Typically, approximately 85% of precipitation in the Ventura County region falls between November and April (Hanson et al. 2003).

Records of rainfall were collected from VCWPD weather stations located within the boundary of the Oxnard Plain (12 active and 11 inactive; Figure 1-3, Figure 1-5 (Oxnard Plain Annual Precipitation), and Table 1-6). Annual precipitation varies from gauge to gauge (Figure 1-5 and Table 1-6).

Evaporation as pan evaporation rate is measured at one VCWPD weather station within the Oxnard Plain (Station 239, El Rio–UWCD Spreading Grounds). The Station 239 evaporation record begins in 1972 and ends in 2016. Monthly average evaporation ranges from 3.7 inches in January to 7.2 inches in July, with an average total annual evaporation of 63.0 inches.

Evapotranspiration is measured at CIMIS Station 156, located on the River Ridge Golf Course, approximately 800 feet south of the Santa Clara River and 725 feet west of North Ventura Road. The monthly average evapotranspiration calculated for data collected between 2001 and 2017 using the Penman–Monteith equation at Station 156 ranges from 2.01 inches in December to 5.12 inches in July. The average total annual evapotranspiration is 44.93 inches.

Historical Climate Trends

In order to characterize rainfall variability in the Oxnard Plain over the past century, two stations whose combined records cover the entire period were selected: Stations 032 and 168 (Figure 1-3). Station 032 (Oxnard–Water Department) is located approximately 1.5 miles east of Station 168 (Oxnard Airport). Precipitation records can vary based on several factors, including geographic location, the type of gauge used to measure precipitation, and the physical characteristics of the area surrounding a measurement site. Therefore, in order to examine how rainfall recorded at these two stations compared to the other stations, correlation coefficients (R) were calculated for the period of time in which the station records overlap. The correlation coefficients between all pairs of station records, excepting pairs that included Stations 223, 273, 412, and 503, exceeded 0.9. Stations 273, 412, and 503 have less than 8 years of overlapping data, which may explain the poorer correlation between these sites and Stations 032 and 168. The low correlation between Station 223, which is located near the southwest corner of the Oxnard Plain near Point Mugu, and Stations 032 and 168 is due in part to anomalously low values recorded at Station 223 in some years in the 1950s, 1960s, and 1970s. Because the record from Station 223 does not correlate with the records from any other station in the area, this station cannot be used to typify trends in the Oxnard Plain.

The variability in the records of precipitation measured at Stations 032 and 168 is similar to that measured at the other precipitation stations, and can be used to characterize the precipitation trends in Oxnard Plain over the 113-year period from 1903 to 2015 (Figure 1-5).

The long-term trend record was based on the record from Station 032 for the period from 1902 to 2003. After 2003, no data are available for Station 032. Therefore, from 2003 to 2016, the annual precipitation value recorded at Station 168 was used to predict a value for the location of Station

032, based on a linear regression of the annual precipitation values in the 46 years of overlap (1957–2002) in the records for Stations 032 and 168 (see formula below).

$$Station\ 032\ (inches) = 1.0127 * Station\ 168\ (inches) + 0.0011 \qquad (R^2 = 0.9766)$$

The root-mean-squared error (RMSE) between the observed annual precipitation at Station 032 and the predicted precipitation using Station 168 was 1.3 inches per year. The bias was −0.00058 inches. Thus, some uncertainty is introduced by extending the Station 032 record using Station 168. However, this slight uncertainty does not outweigh the benefit of being able to use the resulting 113-year record to characterize long-term climate trends.

Based on this long-term record, the calculated mean annual precipitation in the central Oxnard Plain is 14.4 inches (Figure 1-6, Long-Term Precipitation Trends in the Oxnard Plain). For each water year in the record, the total annual precipitation was compared to the long-term mean annual precipitation in order to calculate the cumulative departure from mean precipitation (Figure 1-6). Historical drought periods were defined as a falling limb on the cumulative departure from the mean curve (Figure 1-6). Based on the historical record, a drought in the Oxnard Plain can be defined as a period of years in which the area experiences no more than one consecutive year of above-average precipitation and at least 24 inches of cumulative precipitation deficit (see Table 1-7 and Figure 1-6).

The century-long precipitation record demonstrates that drought cycles have frequently impacted the Oxnard Plain. The average drought duration in the past century was 8.2 years, and the average cumulative rainfall deficit during the droughts was −30.25 inches. The duration of periods of average or above-average rainfall was rarely more than 10 years. In this historical context, the approximately 20-year period in the 1990s and 2000s constitutes an unusually long wet period (Figure 1-6). Consequently, planning for drought cycles in the coming decades will be an integral component of water resources management.

The FCGMA contracted and received evapotranspiration data collected at private weather stations located in the Oxnard Subbasin during the period 1992 to 2013. The number of weather stations in the Subbasin fluctuated over the years. The data collected from the private weather stations were used for determining the annual irrigation efficiency allocation during the period 1992 to 2013. These data are available from FCGMA Board Meeting Agenda packets and were reported to FCGMA on a monthly basis.

Projected Climate

The literature review conducted in support of the U.S. Bureau of Reclamation's Los Angeles Basin Stormwater Conservation Study Task 3.1 Report found that the following changes are anticipated in Southern California due to global climate change (Bureau of Reclamation 2013):

- Increased temperature (1°C to 3°C)
- Increased evaporation rate
- Decrease in annual precipitation (2% to 5%)
- Increase in extreme precipitation events

Future climate conditions were modeled for the Oxnard Subbasin using climate change factors provided by DWR. The impacts to the future water budget are discussed in more detail in Chapter 2, Basin Setting.

1.3.2.3 Historical, Current, and Projected Land Use

Historical land uses on the Oxnard Plain were determined based on review of data from the Southern California Association of Governments (SCAG), which has mapped more than 105 land use categories to a minimum 2-acre resolution for the years 1990, 1993, 2001, and 2005 (SCAG 2005). Current land uses within the Oxnard Plain were determined based on review of the General Plan land use map for Ventura County (VCPD 2015), and are shown on Figure 1-7, Land and Water Use. Existing land use patterns and trends are expected to continue, and are described based on information contained in General Plan documents.

The majority of the Oxnard Plain consists of unincorporated areas of Ventura County, though it also encompasses nearly all of the Cities of Oxnard and Port Hueneme. Land use on the Oxnard Plain consists of 47% agriculture, 47% urban uses, and 6% vacant/open space (Table 1-8). About 83% of the agricultural uses consist of orchards, cropland, and improved pasture land with the remaining 17% consisting of nurseries, horse ranches, and other uses (Table 1-8). The primary crops grown in the Oxnard Plain are strawberries, raspberries, celery, peppers, kale, cut flowers, and nursery stock (VCFB 2016). Urban and residential land uses are concentrated in Oxnard and Port Hueneme. Federal lands consist of two Naval Base Ventura County operations within the Oxnard Subbasin, Point Mugu and Port Hueneme, and the Channel Islands Air National Guard Station. The Naval Base Ventura County was formed in 2000 through the merger of Naval Air Station Point Mugu (located in the southern portion of the Oxnard Subbasin in unincorporated Ventura County) and Naval Construction Battalion Center Port Hueneme (located in the west-central part of the Oxnard Subbasin within the City of Port Hueneme along the coast). Currently, there are about 19,000 military, civilian, and contract personnel working or stationed at Naval Base Ventura County (City of Oxnard 2011).

Recreational land uses on the Oxnard Plain consist of state and local beaches, golf courses, and community parks in Oxnard and Port Hueneme. Open space (i.e., not consisting of agricultural, military, or urban uses) is limited to the Santa Clara River corridor, beaches, and lagoons. Table 1-8 shows the County General Plan land uses within the Oxnard Plain, tabulated by area in acres and by percentage of total area.

With the exception of several high-rise buildings in north Oxnard, the City of Oxnard is characterized by one- or two-story residential and commercial buildings and several industrial areas (City of Oxnard 2011). Most of Oxnard's higher-intensity development lies adjacent to primary thoroughfares, such as Highway 101, Gonzales Road, Rose Avenue, Rice Avenue, Oxnard Boulevard, Hueneme Road, Ventura Road, Victoria Avenue, and Saviers Road, and in the central business district (City of Oxnard 2011). Growth is directed into one of Oxnard's 14 Specific Plans, which are in various stages of planning or buildout. City of Oxnard projects currently in the planning, permitting, or construction stages consist of 19 residential projects (greater than 50 units), 18 commercial projects, and 6 industrial projects (City of Oxnard 2016a). The largest planned development consists of the Teal Club Specific Plan (located west of Ventura Road between Doris Avenue and Teal Club Road), where up to 990 residential units are envisioned (City of Oxnard 2016a).

In the future, agricultural preservation and open space land use policies are expected to limit the rate and reach of "greenfield" development and direct growth through infill development and zoning policies that allow higher-density and mixed-use development (VCPD 2015). Furthermore, large-scale development is highly restricted in the California Coastal Zone, so development is likely to be concentrated on the urban fringes of Oxnard and Port Hueneme that are outside the coastal zone. For unincorporated areas within the Oxnard Plain, the Ventura County General Plan Environmental Impact Report identifies the widening of roads as a potential growth-inducing effect of the General Plan land uses and policies, as well as policies that allow for the creation of substandard-sized parcels for farmworker housing complexes and an increase in allowable building coverage for farmworker housing complexes in Agricultural and Open Space designations (VCPD 2005). Demographics and population growth within the Oxnard Plain are addressed in Section 1.3.2.4.

1.3.2.4 Historical, Current, and Projected Demographics

There are several sources of population data for the Oxnard Plain, most of which are derived from decennial census counts, which last occurred in 2010. Sources of population information are as follows:

- **U.S. Census Bureau**: The U.S. Census Bureau conducts a census count every 10 years. Census data are gathered by tracts, blocks, and census-designated places. Census tracts were intersected with the Oxnard Plain boundary to determine the population overlying the

Oxnard Subbasin for 2010. Census tracts that intersected the boundaries of the Oxnard Plain were area-weighted to determine the population that falls within the Oxnard Plain.

- **City and County General Plans**: The Cities of Oxnard and Port Hueneme and the County of Ventura gather data on development, growth, and land use patterns, and make population estimates in conjunction with census data. The cities' and county's general plans and websites were reviewed for historical and current population data.
- **Southern California Association of Governments**: SCAG is the nation's largest metropolitan planning organization, representing 6 counties, 191 cities, and more than 18 million residents. SCAG produces demographics data and growth forecasts for the entire Southern California region.

At a countywide level, population growth is skewed toward incorporated cities. The population distribution within Ventura County is the result of a 1969 County–City agreement, called the Guidelines for Orderly Development, which directs urban-level development to incorporated cities in Ventura County (VCPD 2015). That agreement limits urban-level development and services within unincorporated areas. The total increase in population within unincorporated areas in Ventura County was only 1.9% from 2000 to 2010, whereas population in the cities increased by 10.4% over the same period.

Table 1-9 shows the past, current, and projected population for Ventura County, the Cities of Oxnard and Port Hueneme, and the Oxnard Plain. The population of the Oxnard Plain is estimated to have been 237,871 in 2010, based on census data. The population of the City of Oxnard is over 200,000 residents, as of 2015, with an average household size of 3.99 (City of Oxnard 2011; SCAG 2016). The City of Port Hueneme has about 22,000 residents and an average household size of 2.99 (City of Port Hueneme 2016a). The population of unincorporated areas within the Oxnard Plain is less than 10% of the total population of the Oxnard Plain.

The aforementioned population information is limited to the population that resides within the Oxnard Subbasin boundary. It should be noted that the City of Ventura overlies a portion of the Oxnard Subbasin, but this portion consists of commercial, recreational, and industrial land uses, with a negligible permanent population. The City of Ventura relies on groundwater from the Oxnard Plain for part of its groundwater supply. The population for the City of Ventura's water service area, as reported in its 2015 UWMP, is 112,412 (City of Ventura 2016).

1.4 EXISTING MONITORING AND MANAGEMENT PLANS

Over the past few decades, multiple agencies have implemented programs to monitor and manage water within the Oxnard Subbasin. Local and state agencies have worked together and with stakeholders to develop management strategies and monitoring programs. Table 1-10 and Table

1-11 summarize the monitoring and management programs, projects, and strategies that are currently in effect.

1.4.1 Monitoring Programs

Table 1-10 provides a summary of existing monitoring programs. It is subdivided into monitoring programs that are primarily for surface water and those primarily for groundwater. These monitoring programs are anticipated to continue, independent of the development of this GSP; however, the data from these programs will continue to be used to help assess groundwater conditions in the Oxnard Subbasin. Specifically, groundwater elevation data collected by VCWPD at key wells throughout the Subbasin will be compared to the minimum thresholds and measurable objective established in Chapter 3, Sustainable Management Criteria, of this GSP. VCWPD will continue to host the data for the Oxnard Subbasin and FCGMA will use the data for annual monitoring reports and the 5-year GSP evaluations (Section 1.2.6, Groundwater Sustainability Plan Implementation and Cost Estimate).

1.4.2 Management Programs

Table 1-11 provides a summary of management programs, projects, and strategies. Similar to Table 1-10, it is subdivided into projects that address primarily surface water and those that address primarily groundwater. It also contains a third category, "other," for projects that address both surface water and groundwater or an additional parameter.

Table 1-11 indicates whether each project or program is associated with conjunctive use. As used herein, "conjunctive use" applies to programs, projects, and strategies that meet the 2003 Bulletin 118 definition of the term: "Conjunctive management in its broadest definition is the coordinated and combined use of surface water and groundwater to increase the overall water supply of a region and improve the reliability of that supply" (DWR 2016a). For example, CWD provides reclaimed wastewater from the Hill Canyon WWTP diverted from Conejo Creek to its non-potable customers in the Arroyo Santa Rosa Valley Basin and the PVB and to PVCWD for delivery to agricultural users in the Oxnard Subbasin and PVB, thereby reducing the amount of groundwater pumped from these basins (FCGMA 2014a). For a description of some of the most important projects and programs, see Section 1.5, Existing Conjunctive-Use Programs.

Due to the overlapping jurisdictions of the agencies that manage groundwater resources, there are many programs that occur within the Subbasin or benefit multiple basins. Therefore, Tables 1-10 and 1-11 include a column ("Multi-Basin Program") that lists the basins in which the programs are conducted or those that benefit from each program.

1.4.3 Operational Flexibility Limitations

Operational flexibility is a key consideration in integrated water resource management because it helps water purveyors adapt to known legal, operational, and environmental constraints, and plan for an uncertain future, especially as it relates to drought resiliency and the effects of climate change. Operational flexibility can be measured over a given time horizon and/or geographic scale (e.g., water district service area) as the difference between available water supply and service area demand. Operational flexibility is maximized when a water purveyor has a large variety of sources in a water supply portfolio, when it has local control over such sources, and when such sources are connected to each other (i.e., conjunctively managed). On a general statewide scale, water purveyors are increasingly looking to minimize reliance on imported water supplies by promoting stormwater recharge, maximizing wastewater recycling, and sustainably developing local sources of water.

For the Oxnard Subbasin, water purveyors collectively draw from a combination of sources—including local surface water, groundwater, imports from the State Water Project (SWP), and increasingly, recycled water—which differ in terms of the volume available, area served, timing of peak availability, and reliability. Climate and regulatory constraints (e.g., water quality standards, water rights, and minimum environmental flows) have historically had a greater impact on the availability of surface water supplies. Groundwater sources with adequate water quality were historically limited only by the capacity of production wells accessing the aquifer until 1991, when FCGMA initiated a groundwater allocation reduction system. With the passage of SGMA and the sustainable management criteria established in this GSP (Chapter 3), once adopted, groundwater extraction will be further limited by minimum thresholds established for each sustainability indicator. FCGMA has exercised its authority to limit groundwater production since 1983, and thus has managed the basin in an effort to avoid critical overdraft. Because in 2015 the State Department of Water Resources listed the Oxnard Subbasin as being in a state of Critical Overdraft, the sustainable management criteria adopted in this GSP may limit operational flexibility by further reducing allowable groundwater production.

The GSP complements and enhances existing projects and programs currently in place to maximize beneficial use of water resources and increase operational flexibility within the Oxnard Plain and within FCGMA jurisdiction as a whole. Existing water monitoring and management activities are described in Tables 1-10 and 1-11. Because the basins are all interconnected either physically or through water sources, the opportunity for operational flexibility exists and has been used by FCGMA and local water agencies. Examples of projects that have increased operational flexibility within the Oxnard Plain include the City of Oxnard's Groundwater Recovery Enhancement and Treatment (GREAT) Program and the Oxnard–Hueneme (OH) Pipeline and the Freeman Diversion Project, both operated by UWCD (Table 1-11).

Despite the coordination of projects and programs within the Oxnard Subbasin, limits to operational flexibility remain. These limits include constraints imposed by interaction with other regulatory programs, including the federal Endangered Species Act and the Recycled Water Policy (2009, amended 2013) that was adopted by the State Water Resources Control Board. The Recycled Water Policy intends to encourage the safe use of recycled water by recognizing its benefits, establishing statewide recycled water goals and targets, clarifying regulatory agency roles and permitting approaches for various types of recycled water projects, and establishing an approach to avoid or minimize potential adverse consequences (e.g., excessive salts, nutrients, and/or constituents of emerging concern). For example, the policy requires that local water and wastewater entities prepare Salt and Nutrient Management Plans (SNMPs) for the groundwater basin in which they operate. The SNMP for the Lower Santa Clara River, which includes the Oxnard Forebay, has been accepted by the Los Angeles Regional Water Quality Control Board (LARWQCB), and the SNMP for the Oxnard Plain and Pleasant Valley Basins has been submitted to the LARWQCB (VCWPD 2015; City of Oxnard 2016b).

UWCD has prepared a Multiple Species Habitat Conservation Plan as part of its application for incidental take permits under Section 10(a)(1)(B) of the federal Endangered Species Act (UWCD 2018). The Multiple Species Habitat Conservation Plan specifies conditions under which flow diversions from the Santa Clara River would be allowed. The diverted flow at the Freeman Diversion, one of the oldest and most important sources of supply to the Oxnard Subbasin, is used to recharge groundwater and provided for in-lieu use in both the Oxnard Subbasin and the PVB. The operational flexibility provided by this project is constrained by habitat requirements for the federally endangered Southern California steelhead (*Oncorhynchus mykiss*) in the Santa Clara River. Climate fluctuations and future climate may also impact the quantity of water diverted from the Santa Clara River. Currently, the project permit limits access to flows. Water diversion is primarily during the recession of a large storm event and during conditions allowed per National Marine Fisheries Service diversion constraints.

In addition to local projects, parts of the Oxnard Plain depend on imported water from the SWP. Such supplies have been, and may continue to be, limited by climate, infrastructure, and increased commitment for environmental and supply purposes (see Section 1.6.2, Urban Water Management Plans, under Calleguas Municipal Water District UWMP).

1.5 EXISTING CONJUNCTIVE-USE PROGRAMS

In the California Water Plan, DWR (2013) describes conjunctive use as follows: “Conjunctive management or conjunctive use refers to the coordinated and planned use and management of both surface water and groundwater resources to maximize the availability and reliability of water supplies in a region to meet various management objectives. Surface water and groundwater resources typically differ significantly in their availability, quality, management needs, and

development and use costs. Managing both resources together, rather than in isolation, allows water managers to use the advantages of both resources for maximum benefit. Conjunctive management thus involves the efficient use of both resources through the planned and managed operation of a groundwater basin and a surface water storage system combined through a coordinated conveyance infrastructure."

Due to the history of interagency collaboration on groundwater management within FCGMA jurisdiction on the Oxnard Plain, multiple conjunctive-use programs are currently operational. These are identified and described in Table 1-11, as introduced in Section 1.4, Existing Monitoring and Management Plans. Some of the most important of these projects and programs are described in this section. The GSP will occur in conjunction with and build upon existing and planned conjunctive use programs in the Subbasin.

UWCD Freeman Diversion Project. The UWCD Freeman Diversion Project is a critical component of water supply within the Oxnard Subbasin. Its predecessor was constructed in 1927 as a series of earthen levies that diverted water from the Santa Clara River, which were washed out and replaced after large flows. The current project, constructed in 1991, diverts on average more than 62,000 acre-feet per year (AFY). About 75% of the water diverted has been sent to spreading basins within the Oxnard Forebay for groundwater recharge. Water from the project is also delivered to the Oxnard Subbasin and PVB through the Pumping Trough Pipeline and Pleasant Valley Pipeline, which supply water for non-potable applications (see Table 2-10, Summary of Water Deliveries). The water provided by the Freeman Diversion Project offsets groundwater production in coastal areas of the Subbasin, thereby helping to alleviate seawater intrusion. One of the projects and management actions identified in this GSP (Chapter 5) would build upon the existing facilities by increasing the Freeman Diversion Project's capability to divert surface flows (by capturing higher flow rates with higher sediment loads) and by developing additional recharge capabilities (using two former gravel mines).

City of Oxnard Advanced Water Purification Facility. The City of Oxnard's Advanced Water Purification Facility (AWPF) is part of the City of Oxnard's 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 Title 22 recycled water source that can be used for landscape irrigation, agriculture, 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 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, reverse osmosis, and ultraviolet disinfection using advanced oxidation. Several of the projects and management actions identified in this GSP (Chapter 5) could build upon the GREAT Program by expanding the AWPF's capacity, increasing utilization of the recycled water in lieu of groundwater for irrigation.

CMWD SWP Deliveries. SWP deliveries are an important source of water within the Oxnard Subbasin. Supplied by CMWD, the vast majority of SWP water is delivered to and used by the City of Oxnard, with minor amounts used by the Port Hueneme Water Agency (PHWA). CMWD treats SWP water to potable standards and delivers it to M&I customers within its service area (see Section 2.4, Water Budget, for a discussion of this in the context of the water budget, including Table 2-10). In addition, up to 5,000 AFY of the Ventura County SWP allocation may be delivered to Lake Piru and later released for percolation or diversion at the Freeman Project. Note that CMWD is a member agency of the Metropolitan Water District of Southern California (MWD), which supplies water from a number of sources, including the Colorado River. One of the management actions to be implemented by FCGMA will be to reduce groundwater extraction allocations over time to a rate that will prevent net seawater intrusion after 2040. Reduced groundwater allocations may put increased pressure on water purveyors to use the maximum SWP allocations available, which are already highly limited by climate and competing demands. However, other projects and management actions in the GSP—including temporary agricultural land fallowing, expansion of recycled water sources and reach, and better utilization of existing and new stormwater recharge facilities—are expected to minimize this potential effect.

Fox Canyon Groundwater Management Agency Programs. FCGMA has been charged with groundwater management for decades and implements several programs that encourage efficient use of groundwater, new water sources, and brackish groundwater. Most programs apply to the entire FCGMA jurisdiction, but some management programs apply to specific areas. In addition to programs and ordinances that require reporting and fees for groundwater use, FCGMA implements a groundwater storage credit program that provides groundwater credits for surface water or imported water delivered equal to the amount of water that was used in lieu of pumping groundwater and that could have been used for groundwater recharge (spreading or injection).

By Resolution 2014-01, FCGMA approved the Conejo Creek Water Pumping Program involving CWD and PVCWD using the Conejo Creek Diversion (Conejo Creek Project). The Conejo Creek Project provides for the use of recycled water produced by the Hill Canyon Wastewater Treatment Plant in Thousand Oaks within the PVCWD service area through CWD. CWD diverts recycled water discharged to Conejo Creek and delivers it to the PVCWD service area for use in lieu of pumping. The FCGMA resolution allows the PVCWD to transfer credits generated by using recycled water in lieu of groundwater pumping within its service area to CWD. If monitoring data indicate that the Subbasin will support it, the resolution provides for extraction of up to 4,500 acre-feet (AF) from CWD-owned wells in an amount equal to the volume of recycled water delivered by PVCWD in lieu of pumping. However, flows from the Hill Canyon WWTP have decreased in response to conservation programs and are expected to decrease further in the future, thus reducing the potential yield of the project. Diversions of surface water on Conejo Creek prior to 2002 were estimated to average 2,450 AFY from 1985 to 2002 (see Chapter 2 of this GSP).

FCGMA approved an ordinance to establish an allocation system for the Oxnard Subbasin and PVB on October 23, 2019. The purpose of this ordinance is to facilitate adoption and implementation of the GSP and to ensure that the Oxnard Subbasin and PVB are operated within their sustainable yields. It is not the purpose of the ordinance to determine or alter water right entitlements, including those that may be asserted pursuant to California Water Code Sections 1005.1, 1005.2, or 1005.4. A copy of this ordinance is included in Appendix A.

1.6 LAND USE ELEMENTS OR TOPIC CATEGORIES OF APPLICABLE GENERAL PLANS

SGMA requires that the GSP include a description of the consideration given to the applicable county and city general plans and the various adopted water-resources-related plans and programs and an assessment of how the GSP may affect those plans (California Water Code, Section 10727.2[g]). In addition to these elements, the GSP may include processes to review land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity (California Water Code, Section 10727.2[g]). Several kinds of land use plans contain provisions that affect water use and sustainability within the Oxnard Subbasin. Sustainable management of the FCGMA basins and the SGMA legislation require that the provisions of these plans be considered and coordinated in the development of DWR requires that the GSP include a summary of these plans and a description of how these plans may change water demands or affect FCGMA's ability to achieve sustainability and how the GSP addresses these potential effects, and how the GSP may affect the water supply assumptions made in these plans (DWR 2016b, Sections 354.8[f] and 354.8[g]). The California Water Code requires that the GSP include processes to review land use plans and coordinate with planning agencies related to groundwater issues (California Water Code, Section 10727.2). Plan types relevant to FCGMA jurisdiction and individual basins within it include county and city General Plans and associated area-specific and community plans and urban water management plans (UWMPs). There are no agricultural water management plans applicable to the Oxnard Subbasin because none of the water purveyors serve more than 25,000 irrigated acres within the Subbasin (excluding recycled water deliveries). The CWD has a 2015 Agricultural Water Management Plan, and although the southern end of CWD's service area extends into the Oxnard Subbasin near California State University Channel Islands, its agricultural service area occurs outside the Subbasin (CWD 2017).

California state law requires that cities and counties prepare and adopt a "comprehensive long-term general plan for the physical development of the county or city" and that "elements and parts [of the plan] comprise an integrated, internally consistent and compatible statement of policies for the adopting agency" (California Government Code, Sections 65300 and 65300.5). Among the required elements of the plan is the conservation, development, and utilization of water developed in coordination with groundwater agencies such as FCGMA (California Government Code, Section 65302[d][1]).

The Urban Water Management Planning Act of 1983 requires urban water suppliers to report on water sources, deliveries, demand, and efficiency, as well as performing water shortage contingency planning. Such plans are to be updated every 5 years (in years ending in 0 and 5) and submitted to DWR. The Urban Water Management Planning Act applies both to urban retail suppliers that provide potable municipal water to more than 3,000 end users or 3,000 AFY and to urban wholesale water suppliers that provide more than 3,000 AFY at wholesale (DWR 2016c). The applicable codes have been modified multiple times to include various provisions for water-related reporting.

For more than three decades, FCGMA has participated in the management of water within its jurisdiction. Such management includes oversight of many aspects of groundwater production and use, as well as coordination with all other entities responsible for water supply and land use issues. Because of these long-term relationships, many of the plans described in this section are consistent with the goal of sustainable groundwater management over the planning and implementation horizon. Due to the high level of coordination among agencies within the Oxnard Plain and FCGMA jurisdiction, it is anticipated that water demand among land uses managed by City and County jurisdiction, as well as water customers served by water purveyors, will be monitored and managed in a manner consistent with the provisions of SGMA and this GSP.

The following sections contain a description of the land use and water management plans that are applicable to water planning within the Oxnard Plain, a discussion of the consideration given to the land use plans, and an assessment of how the GSP may affect those plans. The plans included were selected as the plans with the most salient information relating to sustainable management. However, this is not intended to be a comprehensive list; other plans that include information pertinent to water management in the Oxnard Subbasin include the City of Port Hueneme UWMP, PHWA UWMP, MWD UWMP, the City of Oxnard General Plan, and the Naval Base Ventura County Joint Land Use Study (City of Port Hueneme 2016b; PHWA 2016; MWD 2016; City of Oxnard 2011; NBVC 2015). These plans are discussed in brief in Section 1.6.3, Additional Plan Summaries.

1.6.1 General Plans

General plans are considered applicable to the GSP to the extent that they may change water demands within the Oxnard Subbasin or affect the ability of the GSA to achieve sustainable groundwater management over the planning and implementation horizon. General Plans applicable to the Oxnard Subbasin are (1) the Ventura County General Plan, (2) the City of Oxnard 2030 General Plan, and (3) the 2015 General Plan and Local Coastal Program for the City of Port Hueneme. Small parts of the City of Ventura and City of Camarillo partially overlap the Subbasin, but implementation of their general plans are expected to have a negligible effect on

implementation of the GSP within the Oxnard Subbasin. The areas of Ventura and Camarillo that extend into the Subbasin are already built out or zoned as agriculture and open space.

FCGMA staff has participated on the Ventura County General Plan Update Water Element Focus Group and continues to work with Ventura County planning staff to ensure that the GSP and the General Plan Update are mutually consistent. Furthermore, the FCGMA Board includes a representative for both the County and all the incorporated cities within FCGMA's jurisdiction, ensuring representation and coordination between the GSA, the County, and the incorporated cities.

Based on the timing of the adoption of the General Plan Update and the GSP, the GSA will be subject to the following California Government Code sections pertaining specifically to the coordination of planning and SGMA-related documents:

- California Government Code, Section 65350.5 – requires that the planning agency review and consider GSPs prior to General Plan adoption.
- California Government Code, Section 65352 – requires that prior to adoption of a General Plan Update, the legislative body must refer the plan to the GSA for review.
- California Government Code, Section 65352.5 – requires that the GSA provide the current version of the GSP to planning agencies preparing to update or adopt the General Plan.

All existing general plans and future updates undergo an analysis of environmental impacts under the California Environmental Quality Act (CEQA). In addition, all discretionary projects proposed within the Oxnard Subbasin under municipal, County, and/or state jurisdiction are required to comply with CEQA. In 2019, the Governor's Office of Planning and Research released an update to the CEQA Guidelines that included a new requirement to analyze projects for their compliance with adopted GSPs. Specifically, the applicable significance criteria include the following:

- Would the program or project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- Would the program or project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Therefore, to the extent general plans allow growth that could have an impact on groundwater supply, such projects would be evaluated for their consistency with adopted GSPs and for whether they adversely impact the sustainable management of the Subbasin. Under CEQA, potentially significant impacts identified must be avoided or substantially minimized unless significant impacts are unavoidable, in which case the lead agency must adopt a statement of overriding considerations.

Ventura County General Plan

Plan Description

The Ventura County General Plan (VCPD 2015) applies to the County as a whole and includes area-specific plans for distinct unincorporated areas. For example, the El Rio/Del Norte Area Plan includes policies to (1) protect the Oxnard Forebay Basin and its recharge area within the El Rio/Del Norte area in order to protect groundwater resources and (2) ensure that sewage treatment facilities provide maximum feasible protection and/or enhancement of groundwater resources. The County General Plan was last amended in October 2015. However, the County Planning Department is now undertaking a comprehensive update of the plan, thereby providing an immediate opportunity for coordination between FCGMA (as the GSA) and the County Planning Department, as required by SGMA.

The comprehensive update of the County General Plan is due to be completed by mid-2020 and will have a planning horizon of 20 years.

How the Plan May Affect Sustainable Water Management

Because General Plans and the associated elements define long-term policy related to community growth, development, and land use, General Plans are integral to the implementation of sustainable water management. The County General Plan is in the process of undergoing a comprehensive update, which provides the opportunity for consistency in regard to the relevant areas of the County General Plan and the GSP. Areas where FCGMA will coordinate with the County include the following:

- The compatibility of County land use with the goals and requirements of SGMA and groundwater sustainability. This includes County programs and policies for the protection or redesignation of urban, agriculture, and open space for the purpose of reducing or adjusting groundwater use, recharge, or groundwater quality.
- The consistency of discretionary development as it pertains to the FCGMA basins' water resources.
- The development of thresholds by the County for development within available water supply limits as determined by the GSPs for the FCGMA basins.
- Coordinated water-related monitoring programs within the FCGMA basins.
- The inclusion of land subsidence, drought, and point-source pollution as "hazards," as identified in the County General Plan.
- The coordination of goals, policies, and programs of the Water Resources section of the General Plan.

- The coordination of goals, policies, and programs of the Water Resources section of the General Plan, which pertain to groundwater overdraft, environmental uses of surface water, groundwater and surface water quality, and demand management and reuse. The programs of the Water Resources section specifically address the coordination of water agencies and County support of FCGMA plans.
- The coordination of capital projects or programs proposed as part of the GSP to achieve sustainability within the FCGMA basins.
- The regulatory authority of the GSA as it relates to that of the County.

How the GSP May Impact the Water Supply Assumptions of the General Plan

Sections 1.3.1 through 1.3.3 of the General Plan (VCPD 2015) describe the goals, policies, and programs that apply to water resources. The goals outlined in Section 1.3.1 of the General Plan include monitoring water supply and quality, maintaining or restoring water quality and supply, balancing supply and demand, protection of aquifer recharge areas and protecting and restoring wetlands. The GSP includes specific provisions for each of these: the monitoring of water resources (Chapter 4), the definition and maintenance of groundwater-dependent ecosystems (wetlands), definition of sustainability as it pertains to water resources (Chapter 3), and projects and management actions by which these goals will be obtained (Chapter 5, Projects and Management Actions). The General Plan also has a resource appendix that describes in general terms the groundwater resources within Ventura County. The next time the general plan is updated, the information in the GSP will be used to provide information relevant to the groundwater resources appendix.

The General Plan policies listed in Section 1.3.2 (VCPD 2015) include provisions and requirements for discretionary development. Some of the projects of the GSP will likely constitute discretionary development and therefore require consistency with General Plan or demonstration of "overriding considerations." The GSAs within the Subbasin will encourage municipalities to consider the GSP in the implementation of each of their general plans, and incorporate groundwater management criteria, where applicable and relevant, from the GSP into future general plan updates. General Plan Section 1.3.3 lists specific programs that County divisions will support in the application of the General Plan. Programs (management actions) implemented by FCGMA as part of the GSP may be added to those supported by the General Plan.

The 1998 Save Open Space and Agricultural Resources ordinance generally requires an approval by the electorate for any General Plan Amendment that changes land use designations for agricultural, rural, or open-space-designated lands. This and similar ordinances are in effect for much of the FCGMA area, including the Cities of Camarillo, Oxnard, and Ventura and unincorporated County areas, through at least 2050 (VCPD 2015). Should implementation of the

GSP result in the conversion of agricultural, rural, or open space lands to other uses, either to accommodate GSP projects or as a result of management actions that reduce water demand, a vote of the electorate would be required.

It is not the role of a general plan to make water supply assumptions, but to take into consideration existing and anticipated water supply conditions in planning for growth. This includes FCGMA's water supply allocations, as incorporated into the 5-year UWMPs. General plan policies for all jurisdictions include provisions to maximize water conservation for both indoor use and outdoor irrigation/landscaping. Furthermore, the areas zoned for development are generally already built out, so growth, where it occurs, is likely to consist of redevelopment projects or small areas of new development. As all new development is subject to supply mitigation, which includes installing dual plumbing and the use of nonpotable water where feasible, any offset of or increase in the volume of water used on the land being developed or redeveloped is mitigated; land conversion and changes in land use planning are not anticipated to adversely affect implementation of the GSP. Furthermore, city and County officials make up part of the FCGMA Board, and like the SGMA process, both UWMPs and general plans are living documents subject to periodic updates and reviews.

1.6.2 Urban Water Management Plans

UWMPs are prepared by urban water suppliers every 5 years. These plans support the suppliers' long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs (California Water Code, Sections 10610–10656 and 10608). Every urban water supplier that either provides over 3,000 AF of water annually or serves more than 3,000 urban connections is required to submit a UWMP. Within UWMPs, urban water suppliers must:

- Assess the reliability of water sources over a 20-year planning time frame.
- Describe demand management measures and water shortage contingency plans.
- Report progress toward meeting a targeted 20% reduction in per-capita (per-person) urban water consumption by the year 2020.
- Discuss the use and planned use of recycled water.

The information collected from the submitted UWMPs is useful for local, regional, and statewide water planning. Besides annual review of the GSP, the 5-year evaluation interval required for GSPs under SGMA works well with the equivalent review interval for UWMPs, ensuring that information on water supply, and groundwater in particular, is updated appropriately. Water suppliers that operate groundwater wells within the jurisdiction of FCGMA and the other GSAs (County and CWD) in the Subbasin will update their water supply projections in accordance with the allocation of groundwater production available. Groundwater supply assumptions made by urban water suppliers in their 2015 UWMPs will be superseded by the groundwater allocation reduction management actions discussed in Chapter 5 of this GSP.

Calleguas Municipal Water District UWMP

Description/Summary of Agency and Plan

CMWD is an independent special district and a wholesale water provider, the service area of which includes significant parts of each of the basins and the Oxnard Subbasin within the FCGMA area (Figure 1-8, Ventura County Water Purveyors; FCGMA et al. 2007). Within the Oxnard Plain, CMWD supplies the Cities of Oxnard and Port Hueneme (Figure 1-8). It has been a member agency of MWD since 1960, and provides wholesale water to 19 retail water purveyors. CMWD supplies water mainly for M&I uses. Most of the water supplied by CMWD is water from the SWP purchased from MWD. Storage facilities available to CMWD include a surface water reservoir in Thousand Oaks and underground storage in the LPVB via the Las Posas Aquifer Storage and Recovery Project (see Table 1-11).

CMWD does not operate any wastewater treatment facilities but supports the use of recycled water through the ownership and operation of recycled water pipelines and pumping facilities. The Salinity Management Pipeline transfers salty water away from surface waters in the southwestern Ventura County region to other beneficial uses or the Pacific Ocean (Table 1-11). CMWD actively conducts water conservation programs. Such programs include rebate/incentive programs, school programs, social media campaigns, and workshops.

The UWMP, adopted June 15, 2016, has a planning horizon of 25 years. The production of the UWMP was coordinated with, and obtained information from, numerous water suppliers and management agencies, including CWD, City of Camarillo, City of Oxnard, City of Port Hueneme, City of Moorpark, Ventura County Waterworks District 1, Ventura County Waterworks District 19, FCGMA, MWD, and UWCD. CMWD notified the appropriate agencies and the public of the production of the UWMP, conducted a public hearing, and incorporated public comments prior to adopting the plan.

Coordination with SGMA and Other Agencies

The UWMP contains a section describing FCGMA and the programs that it implements (CMWD 2016, Section 6-2). The SGMA legislation and GSP requirements are also described in this section, including FCGMA's role as the GSA and its role in preparing the GSPs.

In January of 2016, the CMWD Board of Directors adopted a strategic plan, one of the provisions of which is to, "Work with FCGMA, United Water Conservation District, agricultural pumpers, purveyors, and other groundwater interests to encourage, support, and facilitate the development and implementation of groundwater sustainability plans within the service area that increase certainty in groundwater management and promote conjunctive use operations" (CMWD 2016, p. 7-13).

How the Plan May Change Water Demands within the Subbasin

Due to the extensive collaboration between FCGMA as the historical management agency and GSA and the CMWD as a major wholesale water supplier within the FCGMA basins, the UWMP incorporates and reflects water demand and sustainability issues that must be addressed under SGMA. Implementation of this GSP will require continued coordination between the many agencies and stakeholders within the Oxnard Subbasin and periodic adjustment of assumptions regarding climate, population, land use, environmental requirements, and other factors impacting water demand. The CMWD UWMP recognizes those factors and provides for adaptation where necessary.

Such adaptation includes support of Senate Bill (SB) X7-7 goals for conservation, an extensive demand management program, and participation in capital projects that provide for conjunctive use on a regional scale.

How the Plan May Affect Sustainable Groundwater Management within the Subbasin

For the reasons noted previously, the CMWD UWMP largely fosters the goals of sustainable management within the Oxnard Subbasin. Both CMWD and MWD have recognized and are pursuing remedies to improve the reliability of water supplies within their respective service areas. UWMP strategies to remediate reliability issues of water supplies include pursuing demand management programs and local water supply projects such as increased use of recycled and brackish groundwater. In regard to SWP supply reliability, MWD and CMWD support DWR in projects and strategies to increase reliability from the Sacramento/San Joaquin Delta. These programs include California WaterFix and California EcoRestore (CMWD 2016, p. 7-2).

How the GSP May Impact the Assumptions of the UWMP

The UWMP presents strategies for preparing for SWP reliability challenges, climate variability, and emergency shortages. For planning purposes, the UWMP considers demand to be the total demand within the service area after accounting for local supplies. The GSP anticipates groundwater extraction reductions for M&I and agricultural uses even if planned projects discussed in the 2015 UWMP are developed. The UWMP assumes an increase in imported normal year demand of 5% between 2020 and 2040. Therefore, the UWMP may underestimate the demand upon which supply calculations are made. The UWMP assumes future water projects and demand management measures in water demand and reliability calculations. Those assumptions may be modified by those projects and management actions included in the GSP.

United Water Conservation District UWMP (Oxnard–Hueneme Water System)

Description/Summary of Agency and Plan

UWCD is a wholesale water supplier that was established as a public agency in 1950; its predecessor agency, the Santa Clara Water Conservation District, had been in existence since 1927. UWCD is also a water conservation district established under the California Water Code. UWCD is tasked with managing, protecting, and supplying water within the Santa Clara River Valley and the Oxnard Plain. It provides potable water to several retail systems within the Oxnard Subbasin, including the City of Oxnard, PHWA, and several mutual water companies (Figure 1-8). Its service area encompasses the entire extent of the Oxnard Plain, as well as portions of the Las Posas Valley and Pleasant Valley, and part of the Santa Clara River Watershed (Figure 1-8). The UWCD UWMP applies only to the Oxnard–Hueneme Water System (OHWS) within the Oxnard Plain.

UWCD facilities include the OHWS, the Freeman Diversion, Lake Piru Reservoir, the Pumping Trough Pipeline, the Pleasant Valley Pipeline, and multiple recharge basins located in the Oxnard Forebay (see Table 1-11). Components of the OHWS include 12 extraction wells proximal to the recharge basins of the Oxnard Forebay, the El Rio Treatment Plant, and approximately 12 miles of transmission pipelines (UWCD 2016, p. 7). The OHWS supplies water mainly for residential, commercial, and industrial uses. The Pumping Trough Pipeline and Pleasant Valley Pipeline provide non-potable surface water or blended surface water and groundwater to agriculture in the central and southern portions of the Subbasin, thus offsetting groundwater pumping in the area in order to reduce the risk of seawater intrusion.

As a party to the SWP contract between Ventura County Flood Control District and DWR, UWCD purchased 1,260 AF of SWP water from Casitas Mutual Water District in 2012 and 1,890 AF of SWP water from the City of San Buenaventura in 2013. This water was released from Lake Piru into the Santa Clara River, from which it could be diverted at the Freeman Diversion, and served as a potential supply source for the OHWS (UWCD 2016, p. 17). The UWCD also routinely purchases Table A SWP water when available.

Potential UWCD projects to be implemented in the future could include the Full Advanced Treatment Program, which would entail a collaborative agreement between the City of Oxnard or another source and several agricultural entities to deliver recycled water through UWCD's Pumping Trough Pipeline and the Pleasant Valley Pipeline for agricultural users in the Oxnard Plain. A study completed by UWCD indicated that desalination opportunities may be feasible. However, such a system would not supply water to the OHWS (UWCD 2016).

As a wholesale supplier, UWCD complies with demand management requirements through metering, public education, and stakeholder outreach. All components of the OHWS are fully metered, including the 12 supply wells at the El Rio Spreading Grounds. The UWCD conducts

tours, lectures, workshops, and other outreach as part of their water conservation program. In addition, UWCD is subject to demand management and other programs instituted by FCGMA. The UWCD UWMP was adopted June 8, 2016, and included coordination with Ventura County and the Cities of Oxnard and Port Hueneme, among other entities.

Coordination with SGMA and Other Agencies

As a wholesale water provider located within the Oxnard Plain, UWCD is within the jurisdiction of, and therefore subject to the allocations and requirements of, FCGMA. A UWCD representative sits on the FCGMA Board of Directors.

UWCD conducts monitoring programs for groundwater levels, surface flow, and water quality and produces an annual report summarizing these data (Table 1-10). This information is vital for the implementation of monitoring and management programs within the Oxnard Plain. The UWCD Resolution 2014-01, adopted March 12, 2014, addresses cooperation among all of the water users within FCGMA jurisdiction and the Santa Clara River basins to undertake conservation measures, support the FCGMA emergency ordinance, and pursue alternative water supplies (UWCD 2016, Appendix E).

How the Plan May Change Water Demands within the Subbasin

Due to the high level of coordination among agencies within the Oxnard Plain and FCGMA jurisdiction, it is anticipated that water demand among users of the OHWS will be monitored and managed consistent with the provisions of SGMA and this GSP. In addition, UWCD conducts demand management programs and activities in conjunction with the other water agencies in the Oxnard Plain.

How the Plan May Affect Sustainable Groundwater Management within the Subbasin

Because UWCD takes an active role in FCGMA, the implementation of SGMA, and monitoring programs within the Oxnard Plain, this and future versions of the UWMP will continue to support sustainable groundwater management. The UWMP states that aquifer protection is mainly the responsibility of FCGMA and that, "As the designated Groundwater Sustainability Agency, FCGMA has the primary responsibility for aquifer protection … FCGMA has the legal authority to implement the GSP when adopted" (UWCD 2016, p. 34). Historically, the OHWS has had little reliance on imported water supplies and therefore is minimally subject to issues related to declining reliability of that source.

Water quality concerns within the Oxnard Subbasin include seawater intrusion, release of connate brines, nitrate concentrations, and salt accumulation. To the extent that UWCD operations allow for diversion of generally higher-quality surface water than that usually found in groundwater and

offset pumping in coastal areas, the plan fosters sustainable management with respect to water quality. Nitrate concentrations in water extracted from UWCD shallow supply wells have been found to increase during periods of drought, when artificial recharge of diverted Santa Clara River water decreases. The UWMP recommends the deepening of existing wells in the vicinity of the El Rio Spreading Grounds in order to draw water from areas with lower nitrate concentrations.

How the GSP May Impact the Assumptions of the UWMP

The UWCD UWMP assumes a 75% reduction in groundwater extractions from historical levels. Those provisions are superseded by the yields determined in this GSP (see Chapter 2). In addition, the GSP proposes minimum thresholds for water levels in coastal wells that are significantly higher than those of the recent past in order to reduce the impacts of seawater intrusion (see Section 3.4.3, Seawater Intrusion). These provisions of the GSP will impact UWCD operations within the Subbasin, including groundwater extractions from UWCD wells, and deliveries through the OHWS.

The UWMP assumes future water projects and demand management measures in water demand and reliability calculations. Those assumptions may be modified by those projects and management actions included in the GSP.

City of Oxnard UWMP

Description/Summary of Agency and Plan

The City of Oxnard was incorporated in 1903. The City of Oxnard serves as a retail water purveyor, providing potable and recycled water for commercial, industrial, residential, and agricultural use. The City of Oxnard's water service area includes the City of Oxnard and limited unincorporated areas of Ventura County. Oxnard's water supplies include imported water from CMWD, groundwater from UWCD, and groundwater produced from local wells. These sources may be blended to meet water quality requirements and to optimize for cost and supply. The City of Oxnard also operates wastewater treatment facilities for its own service area and surrounding areas. The City of Oxnard conducts a water conservation program with public information, water efficiency rebates, and water waste patrols. It is also compliant with SB X7-7, requiring a 20% reduction in per-capita urban water use by the year 2020.

As part of its water supply infrastructure, the City of Oxnard owns and operates 10 groundwater wells and 6 blending stations within the Oxnard Subbasin boundary. In 2009, as part of its GREAT Program, the City constructed the AWPF, which produces recycled water. The GREAT Program also includes brackish water desalters, one of which currently operates at a production rate of 7,500 AFY, and is planned to expand to 15,000 AFY. The AWPF now has a capacity of 7,000 AFY and its use is expected to increase as consumers are identified and pipelines are constructed. The facility recycles effluent from, and is located near, the wastewater treatment plant in the southern

part of the City of Oxnard. Consumers of this recycled water include PVCWD and some other agricultural operators. Potential consumers could include PHWA and UWCD (City of Oxnard 2015). In addition to recycling water for landscape and agricultural irrigation, the City of Oxnard plans to construct and operate an aquifer storage and recovery well program through which recycled water may be stored or extracted.

The City of Oxnard is considering future water projects, including expansion of the AWPF by 7,000 AFY for groundwater recharge and expansion of aquifer storage and recovery facilities to inject and store treated water in the LAS. A dozen or more wells may be constructed by the early 2030s as part of this program (City of Oxnard 2015). This program has the capacity to provide predictable quantities of reclaimed water to the region for a variety of conjunctive uses, without borrowing from existing sources of water. The project reclaims and reuses treated effluent that would otherwise be conveyed to the ocean.

Coordination with SGMA and Other Agencies

The UWMP was adopted June 20, 2016, and has a planning horizon of 25 years. The production of the UWMP was coordinated with, and obtained information from, numerous water suppliers and management agencies, including the CMWD, UWCD, MWD, PHWA, FCGMA, and the Ventura County Local Agency Formation Commission (LAFCo). The City of Oxnard notified the appropriate agencies and the public of the production of the UWMP, conducted a public hearing, and incorporated public comment prior to adopting the plan.

How the Plan May Change Water Demands within the Subbasin

The City of Oxnard is entirely within FCGMA jurisdiction. As such, it is subject to the FCGMA ordinances and groundwater management activities described in Table 1-11. Many of the City of Oxnard's plans for water project expansion have been developed with, and require approval by, FCGMA. Implementation of this GSP will require continued coordination between the agencies and stakeholders within the Oxnard Subbasin and periodic adjustment of assumptions regarding climate, population, land use, environmental requirements, and other factors impacting water demand. Currently, the City has a net-zero policy on new development, which requires a proposed development to provide their groundwater allocation to the City (subject to FCGMA approval) or contribute to City programs designed to offset potable water use. Because of the existing level of coordination with FCGMA, the Oxnard UWMP is not expected to affect the water demand within the Oxnard Subbasin.

How the Plan May Affect Sustainable Groundwater Management within the Subbasin

Due to the jurisdictional overlap of FCGMA and the City of Oxnard, the Oxnard UWMP largely fosters the goals of sustainable management within the Oxnard Subbasin. Because the City of

Oxnard at times relies on imported water from MWD via CMWD, the declining reliability of that supply may affect future management decisions. MWD is strategically addressing issues related to source reliability (CMWD 2016). Assumptions within the UWMP that may impact sustainable management of the basin include the continuation of current pumping allocations and the future availability of potable reuse supplies.

How the GSP May Impact the Assumptions of the UWMP

The UWMP indicates consistency with FCGMA management actions, including extraction reductions in accordance with Ordinance 8, Ordinance E, and the 100,000 acre-foot (AF) basin maximum extraction target of the 2007 FCGMA Basin Management Plan. However, the GSP contemplates reductions in groundwater extractions as compared to the historical averages and maintaining increased groundwater elevations near the coast for the management of seawater intrusion (see Chapters 2 and 3). Because the City of Oxnard is a coastal city partially dependent on groundwater extractions and UWCD supplies, its UWMP will be impacted by these GSP components. The UWMP assumes future water projects and demand management measures in water demand and reliability calculations. Those assumptions may be modified by those projects and management actions included in the GSP.

City of Ventura UWMP

Description/Summary of Agency and Plan

The City of Ventura, which was originally incorporated in 1866, is located on the Pacific Coast to the north of the Oxnard Subbasin, with a small portion of the city extending into the Subbasin. The City of Ventura Water Department (VWD), a retail water provider, supplies water to the city and several unincorporated areas of Ventura County. Parts of the city's water system are within both Casitas Municipal Water District and UWCD jurisdictions. VWD provides potable water for commercial, industrial, residential, and irrigation customers. VWD also provides recycled water for the irrigation of parks and golf courses (City of Ventura 2016).

VWD's supplies are from Lake Casitas, the Ventura River, groundwater, and reclamation facilities. Although the City of Ventura has a 10,000 AFY allocation of SWP water, there are currently no facilities by which SWP water can be delivered to the city. VWD extracts groundwater from the Oxnard Subbasin for use within the City's service area. The City's full Historical Allocation (HA) was 5,472 AFY (in 1990) and has since been adjusted by FCGMA ordinances to 4,104 AFY (a 25% reduction of HA in 2013) and 3,862 AFY (20% reduced Temporary Extraction Allocation since 2016). The City of Ventura has complied with SB X7-7, requiring 20% reduction in per-capita water use, and implements demand management programs, including a prohibition on water waste, conservation pricing, and public education.

Wells used by the City of Ventura for its municipal water supply that are located within the Oxnard Subbasin consist of three wells at the Buenaventura Golf Course (City of Ventura Well Nos. 5, 6, and 7) (City of Ventura 2016).

Coordination with SGMA and Other Agencies

The City of Ventura UWMP was adopted in June 2016, and has a planning horizon of 25 years. The production of the UWMP was coordinated with, and obtained information from, numerous water suppliers and management agencies, including FCGMA, CMWD, UWCD, City of Oxnard, and Ventura County LAFCo. The City of Ventura notified the appropriate agencies and the public of the production of the UWMP, conducted a public hearing, and incorporated public comments prior to adopting the plan.

How the Plan May Change Water Demands within the Subbasin

The City of Ventura UWMP will not likely change the water demand within the Oxnard Subbasin.

How the Plan May Affect Sustainable Groundwater Management within the Subbasin

Although the City of Ventura is located primarily outside the Oxnard Subbasin and the FCGMA area, the City extracts approximately 3,860 AFY of groundwater from the Subbasin that FCGMA has approved to be exported for use within the City's service area. To the extent that the UWMP assumes continuation of this exportation of groundwater, these continued extractions will need to be addressed as part of FCGMA's ongoing efforts to sustainably manage groundwater in the Oxnard Subbasin. However, the extraction has historically been subject to FCGMA management ordinances and will be subject to future FCGMA policies.

How the GSP May Impact the Assumptions of the UWMP

The UWMP assumes continued extractions from the Oxnard Subbasin. This assumption may be impacted by GSP management actions that reduce annual extractions within the Subbasin. These management actions would be undertaken to maintain coastal groundwater levels at higher than historic averages (see Chapters 2 and 3).

1.6.3 Additional Plan Summaries

Port Hueneme Water Agency UWMP

PHWA is a wholesale urban water supplier that delivers approximately 4,000 AFY of SWP water and groundwater to Naval Base Ventura County, the City of Port Hueneme, and the Channel Islands Beach Community Services District (PHWA 2016). Approximately 20% of the PHWA water supply is purchased SWP water from CMWD. The remaining 80% of the water supply is

groundwater, provided to PHWA by UWCD as part of a 40-year supply agreement negotiated in 1996 (PHWA 2016). PHWA does not directly pump groundwater from the Oxnard Subbasin, but relies on the groundwater produced by UWCD.

City of Port Hueneme UWMP

The City of Port Hueneme is a retail water agency that supplies approximately 1,903 AFY of SWP water and groundwater purchased from PHWA (City of Port Hueneme 2016b). The City of Port Hueneme does not directly pump groundwater in the Oxnard Subbasin (City of Port Hueneme 2016b).

Metropolitan Water District UWMP

MWD is a public agency that delivers water from the Colorado River and the SWP to its member agencies (MWD 2016). The member agencies of MWD include 14 cities, 11 municipal water districts, and 1 county water agency (MWD 2016). Relevant to water supplies in the Oxnard Basin, PHWA purchases water from CMWD, which is a member agency of MWD. MWD supplies imported water to CMWD. MWD does not directly or indirectly pump groundwater in the Oxnard Subbasin.

City of Oxnard General Plan

The City of Oxnard owns and operates a municipal water supply system, providing both imported water and local groundwater in its service area. The General Plan addresses groundwater resources in both the Infrastructure and Community Services Goals section and the Environmental Resources Goals section of the General Plan. These goals include supporting the FCGMA policies that protect, enhance, and replenish the aquifers of the Oxnard Subbasin and adhering to recommendations regarding groundwater extractions and quality from the Ventura County Regional Water Quality Planning Program (City of Oxnard 2011, Goals ICS-11.5 and ICS-11.9). Additionally, Goal ER-5 states: "well managed water supply and wastewater treatment programs that together meet expected demand, prevent groundwater overdraft, and ensure water quality" (City of Oxnard 2011). Under this goal, reducing dependence on groundwater through development of the GREAT Program is specified as supporting the policies of FCGMA (City of Oxnard 2011). Specifically, Policy ER-5.3 states "The City shall maintain a minimal dependence on Basin 4A groundwater consistent with the Groundwater Resource Encroachment and Treatment (GREAT) Program and support the policies of the Fox Canyon Groundwater Management Agency to protect, enhance, and replenish the aquifers underlying the Oxnard Plain" (City of Oxnard 2011).

The City of Oxnard General Plan includes several policies that address a range of water supply and groundwater resource issues. These include the following (City of Oxnard 2011):

- **Policies ICS-1.1 (Maintain Existing Service Levels), ICS-1.2 (Development Impacts to Existing Infrastructure), and ICS-1.3 (Funding for Public Facilities)** require the City

to plan and ensure that a variety of funding methods (including developer fees, grants, and public facility fees) are used to expand the range of public services and utilities (including water supply infrastructure) consistent with community needs.

- **Policy ICS-11.4 (GREAT Program Implementation)** requires the City to continue supporting and implementing this program as a key way to meet the City's long-term water supply needs.
- **Policies ICS-11.2 and ICS-11.7** encourage the City to continue its promotion of a variety of water conservation measures (including landscaping and low-flow fixtures) as part of all future development.
- **Policy ICS-11.6 (Sustainability of Groundwater)** calls for the continued support of the various policies of the local groundwater management agency and **Policy ICS-11.9 (Groundwater Extractions)** calls for continued adherence to the Ventura County Regional Water Quality Planning Program's recommendations regarding groundwater quality and extractions.
- **Policy ICS-11.12 (Water for Irrigation)** encourages the use of non-potable water supplies for landscape irrigation.
- **Policy ICS-11.10 (Water Supply Assessment for All Projects)** requires the preparation of water supply studies prior to the approval of future development projects.
- **Implementation Measure No. 59** requires the City to maintain and periodically update water, wastewater, and drainage infrastructure master plans to ensure that sufficient levels of infrastructure are planned for and financed in the City.

The General Plan does not contain water supply assumptions that would conflict with the sustainable management criteria or the projects and management actions proposed in this GSP. The City General Plan recognizes the existing constraints water resources that exist in supporting future development, as evidenced through its various policies encouraging development of alternative water supplies, promoting conservation and use of non-potable water, and requiring completion of water supply assessments for all projects prior to approval. In addition, the City has a net-zero policy on new development, which requires a proposed development to provide their groundwater allocation to the City (subject to FCGMA approval) or contribute to City programs designed to offset potable water use. The General Plan also includes policies that promote redevelopment of old and/or blighted areas, development of mixed-use urban villages, and/or expansion of existing business and attraction of new business. Such development and investments would undoubtedly require additional water resources to support, and implementation of this GSP is likely to increase existing limitations on water availability. However, as discussed in detail in Section 1.4.3 (Operational Flexibility Limitations) and Chapter 5 (Projects and Management Actions) of the FCGMA, the

City and other jurisdictions within the Oxnard Plain continue to implement projects that increase operational flexibility within the Oxnard Subbasin.

Naval Base Ventura County

Naval Base Ventura County (NBVC) is composed of three main operating areas (Point Mugu, Port Hueneme, and San Nicolas Island) and eight special areas. NBVC Point Mugu is located in unincorporated Ventura County, and NBVC Port Hueneme is located in the City of Port Hueneme. NBVC plays a vital role in national security missions, supporting approximately 80 tenant commands and over 20,000 direct, indirect, and induced jobs within Ventura County. Water sustainability is critical to military sustainability, resiliency, and compatibility. NBVC's primary water supply is groundwater extracted from the Forebay by UWCD, blended with imported water from the CMWD, and delivered to NBVC Port Hueneme and NBVC Point Mugu via the Oxnard Hueneme Pipeline, contracted through and in partnership with the Port Hueneme Water Agency. NBVC also operates one groundwater well on Port Hueneme with limited pumping, listed as a back-up drinking water source, and used primarily for landscaping and water system operations. NBVC groundwater use currently represents approximately 1 percent of groundwater pumped in the Oxnard Subbasin and Pleasant Valley Basin.

The Channel Islands Air National Guard Station (ANGS) shares the airfield with NBVC Point Mugu, but is housed on property owned by the United States Air Force and is located in unincorporated Ventura County. Channel Islands ANGS supports missions for both the Federal government and the State of California. Channel Islands ANGS is supported by two water sources; a groundwater well, permitted through the County of Ventura, which is used for irrigation only; and a potable water pipeline that is part of the NBVC groundwater pipeline. All permitting, reporting and other requirements are provided as a matter of comity and in support of good water management.

The SGMA provides that the federal government, appreciating the shared interest in assuring the sustainability of groundwater resources, may voluntarily agree to participate in the preparation or administration of a groundwater sustainability plan, per Water Code Section 10720.3. Recognizing this shared interest, NBVC has voluntarily engaged in the development of the GSP for the Oxnard Subbasin by FCGMA.

While welcoming federal government participation, SGMA recognizes Federal Reserve Water Rights (FRWR) as distinct from those water rights based in state law and directs that Federal Reserve Water Rights be respected in full, and in case of any conflict between federal and state law, federal law shall prevail. Water Code § 10720.3(d). SGMA also directs that the groundwater sustainability agency consider the interests of all beneficial uses and users of groundwater, listing

the federal government, including, but not limited to, the military and managers of federal lands among those interests. Water Code § 10723.2.

Under U.S. Supreme Court case law defining the FRWR, federal agencies have an implied right to water to support the primary mission for which Congress and the Federal government have designated that land, including a provision of water for growth to support that mission.[3] It is well established in the Supremacy Clause of the U.S Constitution, Article VI, Clause 2, that the Federal Government is not subject to state regulation, unless Congress clearly and unambiguously waives this sovereign immunity.

Consistent with its proactive and cooperative engagement with FCGMA, NBVC has a vested interest in participating in the SGMA effort to support a groundwater basin that achieves a sustainable yield. NBVC may voluntarily agree to an allocation under the GSP less than its full FRWR. In recognition and acknowledgment of the limits on FCGMA to regulate the federal government, any such allocation shall be directly assigned to the federal agency and shall not be subject to the requirements of any allocation ordinance, including but not limited to allocation carryovers, borrowing, transfers, reductions and/or variances and fees.

Although not subject to formal regulation under SGMA, NBVC is committed to being a good steward of water resources and to exploring partnerships that help to achieve groundwater sustainability, including projects that benefit both the Navy and the community.

Naval Base Ventura County Joint Land Use Study

The NBVC prepared a Joint Land Use Study that includes a discussion of water supply and potential impacts to Naval Base Ventura County water quality and quantity (NBVC 2015). This report, which was prepared in cooperation with the Cities of Camarillo, Oxnard, and Port Hueneme and the County of Ventura, identifies saltwater intrusion and impacts to storm drain flows as potential concerns for adequate supplies of good quality water to Naval Base Ventura County. To avoid these potential impacts, the Joint Land Use Study suggests coordination with the FCGMA GSP efforts (NBVC 2015).

1.7 WELL PERMITTING POLICIES AND PROCEDURES

The three permitting agencies requiring well permits within FCGMA jurisdiction are FCGMA, Ventura County Public Works Agency, and the City of Oxnard. The FCGMA well permit requirements pertain to the entirety of FCGMA's jurisdiction. The Ventura County ordinances do

[3] The FRWR was first recognized by the U.S. Supreme Court in the context of tribal interests (*See Winters v. United States*, 207 U.S. 564 5090 (1908)) and subsequently expanded to federal agencies (*See Cappaert v. United States*, 426 U.S. 128 (1976)), *Federal Power Commission v. Oregon*, 349 US 435 (1955)).

not preclude or supplant any other agency requirements. To construct a well within the City of Oxnard, a permit is required from both FCGMA and the City of Oxnard.

Each well permitting agency, as a minimum standard, implements California's Water Well Standards, which include requirements to avoid sources of contamination or cross-contamination, proper sealing of the upper annular space (i.e., first 50 feet), disinfection of the well following construction work, use of appropriate casing material, and other requirements. The permitting agencies require wells to meet certain setback criteria (e.g., septic system setback) and specific construction and sealing requirements. In addition, well-drilling activities are required to reduce pollution to the maximum extent practicable using best management practices such as installing a sediment basin to contain runoff, using geotextile fabric to contain sediments and drilling mud, or eliminating the use of drilling foam.

The permitting agencies monitor and enforce these standards by requiring drilling contractors with a valid C-57 license to submit permit applications for the construction, modification, reconstruction (i.e., deepening), or destruction of any well within their jurisdiction. The processing and issuance of a water well permit is currently considered a ministerial action, meaning permits are issued to drillers meeting California Water Well Standards and County sealing requirements, and notwithstanding errors in the application. Certain circumstances, however, such as when installing a well could cause the spread of contaminants to uncontaminated water zones, may prevent FCGMA from issuing a well permit.

The passage of SB 252 added Article 5, Wells in Critically Overdrafted Groundwater Basins, to Chapter 10 of the California Water Code, requiring collection of specific information for water wells proposed in critically overdrafted groundwater basins. The provisions of SB 252 are effective until January 30, 2020.

1.7.1 FCGMA

Since its inception, FCGMA has implemented multiple ordinances and policies related to the extraction and use of groundwater. FGMA did not impose a permit requirement for the Oxnard Subbasin until 2010 (Ordinance 8.2). A complete list of historical policies and ordinances is kept and updated on the FCGMA website (FCGMA 2019c). Those currently pertaining to well permits are described here.

Emergency Ordinance E, adopted April 11, 2014, in response to severe drought, declining water levels, and seawater intrusion, prohibits the issuance of permits for new groundwater wells associated with new or increased groundwater use, and limits extractions from existing wells (FCGMA 2014b). The ordinance limits groundwater extractions for M&I and agricultural users.

Ordinance E temporarily replaced the then-in-use allocation systems (HA and Baseline Allocation [BA]) for M&I well operators with a Temporary Extraction Allocation that uses average annual extractions from the base period 2003 to 2012. The ordinance sets a series of allocation reductions from the base amount to take effect beginning July 1, 2014, with a 10% reduction. The ordinance requires an additional 5% reduction every 6 months through January 2016, resulting in a total reduction of 20%.

Ordinance E requires all agricultural well operators to apply for a 25% reduced Efficiency Allocation. An Efficiency Allocation is based on a well operator demonstrating that water used for agriculturally developed land is at least 80% efficient (FCGMA 2011, Resolution No. 2011-04). Ordinance E also contains provisions for the FCGMA Board to undertake additional adjustments to irrigation allowances by resolution.

Under Emergency Ordinance E, accounts that are solely associated with domestic wells operate well(s) using a 25% reduced HA (also known as an Adjusted Historical Allocation [AHA]) and/or a BA. An HA is an average of annual extractions from the base period 1985 to 1989. A BA is associated with a parcel and is based on new development after the close of the HA base period.

Since 1983, FCGMA ordinances have required registration of wells, reporting of extractions, and payment of pumping fees. Currently, the FCGMA Ordinance Code continues these requirements. Additionally, the code (Chapter 2) requires that permits be obtained from FCGMA for new wells prior to construction. For wells installed within the FCGMA area, the applicant must subsequently obtain a permit from the Ventura County Public Works Agency or the City of Oxnard if within the City's jurisdiction. The FCGMA Ordinance Code requires the installation and maintenance of flow meters, providing proof of flowmeter accuracy, and reporting of all extractions semi-annually (Table 1-11). In 2018, FCGMA adopted an ordinance that will require all wells within the Agency to be equipped with advanced metering infrastructure telemetry by October 1, 2020.

1.7.2 Ventura County

The ordinances relating to groundwater wells in Ventura County are contained in Ventura County Ordinances, Division 4, Chapter 8, Water, Article 1 – Groundwater Conservation, Sections 4811–4828 (County of Ventura 2016). These ordinances regulate the construction, maintenance, operation, modification, and destruction of groundwater wells. Ventura County requires well permits for any construction, modification, replacement, repair, or destruction of wells. Permit requirements include "information as the Agency may deem necessary in order to determine whether underground waters will be protected" (County of Ventura 2016, Chapter 8, 4813, C8). Ventura County requires that a well permit application from FCGMA be completed and authorized prior to consideration for a Ventura County permit. Ventura County well construction or destruction activity standards are required to comply with the DWR Well Standards Bulletins Nos.

74-81 and 74-90. New water wells must be equipped with a flow meter and calibrated every 3 years; however, de minimis extractors (those producing less than 2 AFY) are exempt from this requirement. Completion logs are required for all wells, and geophysical logs are required where necessary to prevent cross contamination of pumping zones.

Section 4826 pertains to the Aquifer Protection Program, the purpose of which is to require destruction or repair of wells that are causing groundwater pollution. The provision requires annual reporting of water extractions, time of operation, static water levels, and pump test data if available. Based on these data, all wells are classified with regard to location and operational condition.

Due to pervasive drought conditions, as of October 28, 2014, Section 4826.1 prohibited the construction of new wells within the unincorporated area of Ventura County except under specific circumstances. With the initiation of SGMA, the ordinance was modified to include only basins designated as high or medium priority by DWR, which includes all of the FCGMA basins in the Oxnard Subbasin except the Arroyo Santa Rosa Valley Basin.

1.7.3 City of Oxnard

Chapter 22, Article VII, of the Oxnard City Code includes requirements for the construction, repair, modification, and destruction of wells. The City of Oxnard requires a fee and permit for the construction of water wells. Notable among the permit requirements is a statement confirming that the aquifers underlying the City of Oxnard are no longer in a state of overdraft. Applications for new wells require a public hearing and are considered by City Council (Oxnard City Code, Section 22-101). Permits are also required for the repair, modification, or destruction of existing wells.

1.7.4 Additional Well Permitting Policies and Procedures

In addition to State of California, County of Ventura, and FCGMA well permitting policies and procedures, a permit in the form of a well agreement with the City of Ventura is required to construct a well within the City of Ventura's jurisdictional boundary.

1.8 NOTIFICATION AND COMMUNICATION

1.8.1 Notification and Communication Summary

Notification and communication regarding the development of the Oxnard Subbasin GSP takes place in the following four key phases:

1. Initial Notification
2. GSP Development

3. Draft GSP Review and Comment
4. GSP Implementation

The Initial Notification was completed with the FCGMA submittal of the Notice of Intent on February 24, 2017, to the DWR to develop a GSP for the Oxnard Subbasin. The GSP Development phase included extensive outreach and engagement with the stakeholders, including beneficial users, as described in more detail in Section 1.8.3, Public Meetings Summary, and Section 1.8.6, Communication.

The Draft GSP Review and Comment phase will include the formal public comment period for the Draft GSP and response to comments, as discussed in Section 1.8.4, Summary of Comments and Responses. The GSP Implementation notification and communication period will begin once FCGMA submits the final GSP to DWR and will include engagement with the public and beneficial users regarding the progress of monitoring and reporting updates on the GSP to DWR, establishment of fees, and the development and implementation of management strategies, including projects as needed.

1.8.2 Summary of Beneficial Uses and Users

Beneficial uses of groundwater from the Oxnard Subbasin include agricultural, M&I, and environmental uses. As discussed in Section 1.3.2.3, Historical, Current, and Projected Land Use, land use on the Oxnard Plain is 47% agriculture, 47% urban, and 6% open space. Of the groundwater produced from the UAS and the LAS, approximately 60% is used for agriculture and the remaining 40% is used for M&I and urban uses. GDEs are the primary environmental users of groundwater in the Subbasin. The GDEs are connected to the semi-perched aquifer, which is separated from the underlying UAS by a clay layer throughout much of the Oxnard Subbasin, and from which there is limited groundwater production.

Beneficial users of groundwater and property interests potentially affected by the use of groundwater are described in the following paragraphs.

Surface Water Users. The primary surface water users within the Oxnard Subbasin are UWCD and CWD, which both operate conjunctive-use programs. The interests of UWCD and CWD are represented on the FCGMA Board, as discussed in Section 1.2.3, Organization and Management Structure. Consultation with UWCD and CWD staff has occurred formally and informally throughout the development of the GSP, including participation in public meetings and the Technical Advisory Group (TAG). UWCD has also contributed data from their monitoring programs. There are also environmental uses of surface water, as discussed in this section under Environmental Users. All identified surface water users in the Oxnard Subbasin were added to the interested parties list that is sent monthly electronic newsletters and meeting notices regarding the status of the GSP.

Municipal Well Operators and Public and Private Water Purveyors. There are over 40 public and private water purveyors in the Oxnard Plain, as shown on Figure 1-8. A detailed description of each purveyor is included in the VCWPD Inventory of Public and Private Water Purveyors (2006). All of the purveyors in the Oxnard Plain, including all municipal well operators, are supplied water by either UWCD or CMWD. The interests of both UWCD and CMWD are represented on the FCGMA Board, as previously discussed in Section 1.2.3. Staff from both UWCD and CMWD have provided groundwater monitoring data, have participated in public meetings, and regularly collaborate with FCGMA staff. The Cities of Oxnard and Port Hueneme also have direct representation on the FCGMA Board by the representative appointed to serve on behalf of the five incorporated cities within FCGMA jurisdiction. Several of the smaller water districts and mutuals have also participated in FCGMA public meetings and provided comments throughout the development of the GSP.

Agricultural Users. Agricultural users have been identified as key stakeholders since the creation of FCGMA in 1982 and have direct representation through one of five members on the FCGMA Board. The primary crops grown in the Oxnard Plain are strawberries, raspberries, celery, peppers, beans, cabbage, lettuce, spinach, kale, cut flowers, and nursery stock. Agricultural user interests are represented within the Oxnard Plain by the Ventura County Agricultural Commissioner, the Ventura County Farm Bureau, individual pumpers, and groups of pumpers that have organized to advocate for their interests during the GSP development process. The FCGMA Board directed staff to work with pumpers' groups on the development of proposed allocation systems that will be brought before the FCGMA Board for consideration. FCGMA maintains a database of well owners, including agricultural well owners. Email addresses in the database have been added to the list of interested parties who receive electronic newsletters regarding the status and development of the Oxnard Subbasin GSP.

Domestic Users. The majority of domestic groundwater users in the Subbasin are supplied water from a city, special district, or mutual water company. FCGMA maintains a database of well owners, including domestic well owners. Email addresses in the database have been added to the list of interested parties who receive electronic newsletters regarding the status and development of the Subbasin GSP.

Local Land Use Planning Agencies. FCGMA staff members have reached out to all local land use planning agencies with jurisdiction over the Oxnard Plain, including the County of Ventura, the City of Oxnard, and the City of Port Hueneme. The County of Ventura holds one of five seats on the FCGMA Board. The FCGMA Board also has a member appointed to represent the five incorporated cities, including the cities of Oxnard and Port Hueneme. As discussed in Section 1.6, Land Use Elements or Topic Categories of Applicable General Plans, FCGMA has established working relationships with the land use planning agencies. FCGMA staff has participated on the

Ventura County General Plan Update Water Element Focus Group and continues to work with Ventura County planning staff to ensure that the GSP and General Plan Update are consistent.

Environmental Users. Environmental users of groundwater are concentrated in the four GDEs and two potential GDEs described further in Section 2.3.7, Groundwater-Dependent Ecosystems. These GDEs include aquatic habitat, in-channel wetlands, riparian forest, and coastal marshes. FCGMA has taken steps to incorporate the interests of environmental users in the development of the GSP through appointing an environmental representative to the TAG. The TAG held a special meeting focusing on potential groundwater-dependent ecosystems and accepted comments from the public on the potential impacts to surface water bodies. There are several non-governmental organizations with missions associated with environmental water uses on the list of interested parties who receive electronic newsletters regarding the status and development of the Oxnard Subbasin GSP.

The Federal Government. As discussed in Section 1.3.2.3, the federal government is a landowner and groundwater user in the Oxnard Basin through the Naval Base Ventura County. Representatives from the U.S. Navy have been coordinating with FCGMA staff regarding the development of the GSP, have participated in FCGMA public meetings, and are on the list of interested parties who receive electronic newsletters regarding the status and development of the Oxnard Subbasin GSP.

California Native American Tribes. According to the U.S. Bureau of Indian Affairs California Tribal Homelands and Trust Land Map, updated in 2011 and available from the DWR website, the entire Oxnard Subbasin is within the Chumash Tribal/Cultural area. There are not currently any federally recognized Indian Tribes, Indian land currently or historically held in trust by the U.S. government, or smaller Reservation or Rancheria areas in the Oxnard Plain. FCGMA recognizes that the Chumash culture and associated cultural resources are important in Ventura County. Several active local groups and individuals representing the interests of tribal communities in Ventura County have been added to the list of interested parties, including representatives from the Barbareno/Ventureno Band of Mission Indians (Chumash) and the Wishtoyo Chumash Foundation. FCGMA has reached out to the DWR Southern Region Office Tribal Liaison, Jennifer Wong, and added her to the list of interested parties. The San Gabriel Band of Mission Indians has also shown an interest in the groundwater sustainability planning process and has been added to the list of interested parties.

Disadvantaged Communities. The majority of the Disadvantaged Communities (DACs) within the Oxnard Plain receive water from cities, special districts, or mutual water companies. FCGMA works closely with these water agencies and mutuals that represent the interests of the DACs. The Watersheds Coalition of Ventura County has established a DAC Involvement Committee to discuss DAC needs and project opportunities related to Integrated Regional Water Management. FCGMA staff participates in the DAC Involvement Committee. Representatives from Integrated

Regional Water Management and the DAC Involvement Committee have participated in FCGMA public meetings and are on the list of interested parties who receive electronic newsletters regarding the status and development of the Subbasin GSP.

1.8.3 Public Meetings Summary

FCGMA has been discussing the development of a GSP since March 2015. Table 1-12 lists the FCGMA public meetings in which the participants discussed or took action on the Subbasin GSP. Note that the list will be updated as additional meetings occur.

1.8.4 Summary of Comments and Responses

The FCGMA Board approved release of a Preliminary Draft GSP in January 2018, with a 90-day comment period. An evening public workshop was held on February 8, 2018, to present the Preliminary Draft GSP, answer questions, and solicit comments. Formal comments were accepted in writing only. The comments were submitted in person at the public workshop and electronically via email to fcgma-gsp@ventura.org. A total of 32 comment letters were received by FCGMA on all three GSPs. A summary of the comments was presented to the FCGMA Board at the May 23, 2018, meeting. In consideration of these comments, FCGMA completed an independent peer review of the numerical groundwater models, completed additional analysis for the water quality approach, and extended the timeline for completion of the GSP. Comments on the Preliminary Draft GSP and direction from the FCGMA Board after consideration of public comments have been incorporated in the Draft GSP.

Before completing the Draft GSP, additional information was made available to the public to enhance understanding of the technical information and processes used for the development of the Draft GSP. The following documents were posted on the FCGMA website, discussed in public FCGMA meetings, and sent to the list of interested parties in electronic newsletters:

- Minimum Thresholds and Measurable Objectives Data, March 2019
- Peer Review of the United Water Conservation District and Calleguas Municipal Water District Models for the Oxnard Subbasin, Pleasant Valley Basin, and Las Posas Valley Basin, March 2019
- Approach for GSP Modeling of Future Conditions in the Oxnard Subbasin, Pleasant Valley Basin and Las Posas Valley Basin, January 2019
- Minimum Thresholds and Measurable Objectives in the Las Posas Valley Basin, Oxnard Subbasin, and Pleasant Valley Basin, January 2019
- Assessing the Sustainable Yield of the Oxnard Subbasin, Pleasant Valley Basin, and Las Posas Valley Basin, January 2019

A public workshop was held on March 15, 2019, to discuss the estimated sustainable yield, minimum thresholds, and measurable objectives proposed for the Draft GSP. Comments received at the public workshop were incorporated into the Draft GSP. The Draft GSP was approved by the FCGMA Board and released for a 60-day public comment period on July 29, 2019, during which time FCGMA solicited formal comments on the Draft GSP.

Before completing this Final GSP, the public comments received on the Draft GSP were reviewed and where appropriate incorporated into this Final GSP. Public comments on the Draft GSP are included in Appendix A.

1.8.5 Summary of Initial Information on Relationships between State and Federal Regulatory Agencies

FCGMA has not entered into any formal agreements with the federal government regarding preparation or administration of this GSP or groundwater management pursuant to SGMA, Section 10720.3(c). The U.S. Navy is a current beneficial user of water within the Subbasin and has initiated informal coordination with FCGMA staff, including a presentation to the FCGMA Board on May 24, 2017, detailing the Navy's interests and operations related to water use within the FCGMA boundaries. There are no federally recognized Indian Tribes within the Subbasin boundaries.

FCGMA recognizes the need for both formal and informal consultation with state and federal regulatory agencies throughout the implementation of the GSP. FCGMA received a formal request from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service on October 11, 2016, to be added to the list of interested parties for the development of the GSP. FCGMA has added National Marine Fisheries Service to the list of interested parties, as well as the following state and federal regulatory agencies:

- Los Angeles Regional Water Quality Control Board
- U.S. Fish and Wildlife Service
- California Department of Fish and Wildlife
- California Department of Water Resources

1.8.6 Communication

A public outreach and engagement plan was developed for all of the GSPs that FCGMA is developing (included as Appendix B to this GSP). The purpose of the public outreach and engagement plan was to create a common understanding and transparency throughout the groundwater sustainability planning process, including fulfilling the requirements of SGMA as described in DWR 2016b, Section 354.10.d. The public outreach and engagement plan discusses the FCGMA decision-making process; identifies opportunities for public engagement and

provides a discussion of how public input and response will be used; describes how FCGMA encourages the active involvement of diverse social, cultural, and economic elements of the population within the Subbasin; and describes the method FCGMA shall follow to inform the public about progress implementing the public outreach and engagement plan, including the status of projects and actions.

FCGMA has provided ongoing and innovative opportunities for stakeholders to engage in the GSP development process. FCGMA has provided regular updates to interested parties through monthly electronic newsletters highlighting monthly progress on the GSP development, upcoming meetings, and opportunities for engagement. Monthly updates and opportunities for public comment were provided at FCGMA Regular Board Meetings, FCGMA Special Board Meetings, and TAG Meetings. Meeting agendas and minutes, as well as video recordings of all FCGMA Board Meetings and Workshops, were made available on the FCGMA website. Additional technical information about the GSP development was made available on the FCGMA website including the Preliminary Draft GSP, Technical Memoranda, and TAG Meeting Materials. The Preliminary Draft GSP was available online for more than 120 days, including an official 90-day public comment period. FCGMA encouraged active participation from stakeholders through four public workshops (November 15, 2016; September 20, 2017; February 8, 2019; and March 15, 2019), a survey for input on sustainability indicators, and a public call for project ideas for incorporation into the GSP.

1.9 REFERENCES CITED

Bureau of Reclamation. 2013. *Los Angeles Basin Stormwater Conservation Study: Task 3.1. Development of Climate-Adjusted Hydrologic Model Inputs.* U.S. Department of the Interior, Technical Service Center, Bureau of Reclamation. October 2013.

CIMIS (California Irrigation Management Information System). 2018. "Historical climate data provided for the Oxnard weather station" [data]. California Irrigation Management Information System. Accessed 12 Dec. 2018. http://wwwcimis.water.ca.gov/WSNReportCriteria.aspx.

City of Camarillo. 2016. *2015 Urban Water Management Plan for the City of Camarillo*. Final Draft. Prepared by Water Systems Consulting Inc. August 2016.

City of Oxnard. 2011. *2030 General Plan Goals and Policies*. October 2011.

City of Oxnard. 2015. *City of Oxnard 2015 Urban Water Management Plan*. Prepared by MNS Engineers Inc. July 1, 2016.

City of Oxnard. 2016a. Planning Division Quarterly Projects List. Updated October 2016. https://www.oxnard.org/wp-content/uploads/2016/10/October-Project-List.pdf.

City of Oxnard. 2016b. *Salt and Nutrient Management Plan (SNMP) for the Oxnard Plain and Pleasant Valley Basins – Preliminary Draft.* Prepared by Hydrometrics WRI and Carollo. July 2016.

City of Port Hueneme. 2016a. "Fact Sheet." Accessed on October 25, 2016. http://www.ci.port-hueneme.ca.us/index.aspx?nid=919.

City of Port Hueneme. 2016b. *City of Port Hueneme 2015 Urban Water Management Plan.* Final. Prepared by Water Consultancy. August 2016.

City of Ventura. 2016. *2015 Urban Water Management Plan for the City of Ventura*. Final. Prepared by Kennedy/Jenks Consultants. June 2016.

CMWD (Calleguas Municipal Water District). 2016. *2015 Urban Water Management Plan*. Final. Prepared by Black and Veatch. June 2016.

County of Ventura. 2016. "Ventura County, California – Code of Ordinances. Division 4, Chapter 8, Article 1, Section 4813 – Well Permits." September 27, 2016. Accessed November 14, 2016. https://www.municode.com/library/ca/ventura_county/codes/code_of_ordinances?nodeId=DIV4PUHE_CH8WA_ART1GRCO_4813WEPE.

CWD (Camrosa Water District). 2016. *2015 Agricultural Water Management Plan*. Adopted March 10, 2016.

DWR (California Department of Water Resources). 2016a. *California's Groundwater, Bulletin 118*. 2016 Interim Update. Accessed May 29, 2019, 2016. https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118.

DWR. 2016b. "Approved Groundwater Sustainability Plan Emergency Regulations." May 18, 2016. Accessed November 14, 2016. http://water.ca.gov/groundwater/sgm/pdfs/GSP_Emergency_Regulations.pdf.

DWR. 2016c. *2015 Urban Water Management Plans Guidebook for Urban Water Suppliers*. Final. March 2016.

DWR. 2019. Sustainable Groundwater Management Act 2018 Basin Prioritization Process and Results. January 2019.

FCGMA. 2011. "Ordinance No. 8.4. An Ordinance to Amend the Fox Canyon Groundwater Management Agency Ordinance Code Relating to Annual Efficiency Extraction Allocations." Resolution 2011-04. October 26, 2011. Accessed October 2017. http://www.fcgma.org/images/ordinances_legislation/Ord_8.4_AMENDS_-_adopted_10-26-2011_web.pdf.

FCGMA. 2014a. "A Resolution Establishing the Conejo Creek Water Pumping Program Involving Camrosa Water District and Pleasant Valley County Water District Using the Conejo Creek Diversion." Adopted March 26, 2014. Accessed January 15, 2018. http://fcgma.org/images/ordinances_legislation/Resolutions/Resolution_2014-01_optimized.pdf.

FCGMA. 2014b. "Emergency Ordinance E: An Ordinance Limiting Extractions from Groundwater Extraction Facilities, Suspending Use of Credits and Prohibiting Construction of any Groundwater Extraction Facility and/or the Issuance of any Permit Therefor." Adopted April 11, 2014. Accessed October 24, 2016. http://www.fcgma.org/images/ordinances_legislation/Emergency_Ordinance_E_-_Orig._Signed_optimized.pdf.

FCGMA. 2016. "Wells by Water Use Sector."

FCGMA. 2019a. "Organizational Chart." Fox Canyon Groundwater Management Agency, About. Accessed May 29, 2019. http://www.fcgma.org/about-fcgma/organizational-chart.

FCGMA. 2019b. "Board of Directors." Fox Canyon Groundwater Management Agency, About. Accessed May 29, 2019. http://www.fcgma.org/about-fcgma/board-of-directors.

FCGMA. 2019c. "Ordinances and Legislation." Accessed May 29, 2019. http://www.fcgma.org/public-documents/ordinances-legislation.

FCGMA. 2019d. "Fox Canyon Groundwater Management Agency Boundary." [Map.] http://www.fcgma.org/charts-maps/fcgma-boundary. Accessed June 20, 2019.

FCGMA, UWCD, and CMWD (Fox Canyon Groundwater Management Agency, United Water Conservation District, and Calleguas Municipal Water District). 2007. *2007 Update to the Groundwater Management Agency Groundwater Management Plan.* May 2007.

Hanson, R.T., P. Martin, and K.M. Koczot. 2003. *Simulation of Ground-Water/Surface-Water Flow in the Santa Clara–Calleguas Ground-Water Basin, Ventura County, California.* U.S. Geological Survey Water-Resources Investigations Report 02-4136. Sacramento: U.S. Geological Survey.

MWD (Metropolitan Water District). 2016. *2015 Urban Water Management Plan.* June 2016.

PHWA (Port Hueneme Water Agency). 2016. *Port Hueneme Water Agency 2015 Urban Water Management Plan.* Final. Prepared by Water Consultancy. August 2016.

NBVC (Naval Base Ventura County). 2015. *Naval Base Ventura County Joint Land Use Study*. Prepared by Matrix Design Group. September 2015.

SCAG (Southern California Association of Governments). 2005. "land_use_scag_2005.lpk" (GIS Data: Land Use Data [1990, 1993, 2001, 2005]). Accessed October 20, 2016. http://gisdata.scag.ca.gov/SitePages/GIS%20Library.aspx.

SCAG. 2016. *2016–2040 Regional Transportation Plan/ Sustainable Communities Strategy*. Appendix: Demographics and Growth Forecast. Adopted April 2016.

SWRCB (State Water Resources Control Board). 1956. *Bulletin No. 12: Ventura County Investigation Volume I*. October 1953. Revised April 1956.

U.S. Census Bureau. 2016. 2010 Census [GIS data]. Accessed October 2016. http://www.census.gov/geo/maps-data/.

UWCD (United Water Conservation District). 2014. "Groundwater and Surface Water Conditions Report – 2013." UWCD Open-File Report 2014-02.

UWCD. 2016. 2015 *Urban Water Management Plan for the Oxnard–Hueneme System*. Westlake Village, California: MNS Engineering. June 28, 2016.

UWCD. 2018. Administrative Draft *Multiple Species Habitat Plan*. United Water Conservation District, September 7, 2018.

VCFB (Ventura County Farm Bureau). 2016. *Ventura County's 2015 Crop & Livestock Report.* December 13, 2016. Accessed January 15, 2018. http://www.farmbureauvc.com/county-crop-data.

VCPD (Ventura County Planning Department). 2005. *Final Subsequent Environmental Impact Report for Focused General Plan Update and Related Amendments to the Non-Coastal Zoning Ordinance and Zone Change ZN05-0008*. June 22, 2005.

VCPD. 2015. *Ventura County General Plan: Goals Policies and Programs*. Amended October 20, 2015.

VCWPD (Ventura County Watershed Protection District). 2006. *Inventory of Public and Private Water Purveyors in Ventura County*. March 2006.

VCWPD. 2009. *Calleguas Creek IWPP Phase II Management Strategy Study*. Prepared by CH2MHill. August 19, 2009.

VCWPD. 2015. *Lower Santa Clara River Salt and Nutrient Management Plan*. Prepared by Larry Walker Associates, Carollo, Hydrometrics WRI, Rincon Consulting, and Dr. Norm Brown. April 2015.

VCWPD. 2016. "VCWPD Mapped Reaches" [shapefile dataset]. Provided by Richard Mendez (VCWPD) to Dudek. August 17, 2016.

Table 1-1
Estimate of Project Cost and Water Supply for First 5 Years

Proposed Project	Estimated Annual Costs	Estimated Acre-Feet of Water	Estimated Cost per Acre-Foot
Oxnard Groundwater Recovery Enhancement and Treatment Program Advanced Water Purification Facility	$7,000,000	2,000	$3,500
RiverPark–Saticoy Groundwater Replenishment Reuse Project Recycled Water Project	$6,885,000	4,500	$1,530
Freeman Diversion Expansion	$6,426,000	7,400	$870
Temporary Land Fallowing	$954,000	530	$1,800
Total	**$21,265,000**	**14,430**	**—**

Table 1-2
Groundwater Sustainability Plan Estimated Implementation Cost through 2040

Fiscal Year	Operations and Monitoring Costs	Management, Administration and Other Costs	5-Year GSP Evaluation[a]	10% Contingency	Total[b]
2020	$1,000,000	$1,455,000	$300,000	$275,500	$3,030,500
2021	$1,028,000	$1,495,740	$308,400	$283,214	$3,115,354
2022	$1,056,784	$1,537,621	$317,035	$291,144	$3,202,584
2023	$1,086,374	$1,580,674	$325,912	$299,296	$3,292,256
2024	$1,116,792	$1,624,933	$335,038	$307,676	$3,384,439
2025	$1,148,063	$1,670,431	$114,806	$293,330	$3,226,630
2026	$1,180,208	$1,717,203	$118,021	$301,543	$3,316,976
2027	$1,213,254	$1,765,285	$121,325	$309,986	$3,409,851
2028	$1,247,225	$1,814,713	$124,723	$318,666	$3,505,327
2029	$1,282,148	$1,865,525	$128,215	$327,589	$3,603,476
2030	$1,318,048	$1,917,759	$65,902	$330,171	$3,631,881
2031	$1,354,953	$1,971,457	$67,748	$339,416	$3,733,573
2032	$1,392,892	$2,026,658	$69,645	$348,919	$3,838,113
2033	$1,431,893	$2,083,404	$71,595	$358,689	$3,945,581
2034	$1,471,986	$2,141,739	$147,199	$376,092	$4,137,016
2035	$1,513,201	$2,201,708	$75,660	$379,057	$4,169,626
2036	$1,555,571	$2,263,356	$77,779	$389,671	$4,286,376
2037	$1,599,127	$2,326,730	$79,956	$400,581	$4,406,394
2038	$1,643,903	$2,391,878	$82,195	$411,798	$4,529,773
2039	$1,689,932	$2,458,851	$168,993	$431,778	$4,749,553
2040	$1,737,250	$2,527,699	$86,862	$435,181	$4,786,992
Total[b]	**$28,067,603**	**$40,838,363**	**$3,187,009**	**$7,209,297**	**$79,302,272**

Notes: GSP = Groundwater Sustainability Plan.
Costs are in 2020 dollars.

[a] The 5-year update costs include costs for the Oxnard Subbasin as well as the PVB and LPVB, for which FCGMA is the GSA.

[b] Amounts may not sum precisely due to rounding.

Table 1-3
Groundwater Sustainability Agencies in the Oxnard Subbasin

GSA Name	Total Area of GSA (Acres)	% of GSA area within Oxnard Subbasin	Acres within Oxnard Subbasin	% of Oxnard Subbasin
Fox Canyon Groundwater Management Area	117,280	46.0	53,941	94.1
Camrosa Water District–Oxnard Subbasin	3,880	4.4	171	0.3
Oxnard Subbasin Outlying Areas (Ventura County)	3,236	100	3,236	5.6
		Total	**57,348**	**100**

Notes: GSA = Groundwater Sustainability Agency.

Table 1-4
Summary of Land Ownership in the Oxnard Subbasin

Ownership	Jurisdiction	Description	Acres within Subbasin	% of Total
Private Land				
Private	County of Ventura	Privately owned land under County jurisdiction, largely agriculture and open space.	31,825	55.5%
Private	City of Oxnard	Privately owned land under municipal jurisdiction, largely consisting of urban development.	15,959	27.8%
Private	Port Hueneme	Privately owned land under municipal jurisdiction, largely consisting of urban development.	1,134	2.0%
Private	City of Ventura	South edge of the City consisting of an office park/warehouse/retail/commercial district (water served by Ventura Water Department)	407	0.7%
Private	City of Camarillo	Consists of the western end of the Camarillo Airport and part of a commercial+mobile/pre-fab home subdivision	281	0.5%
		Subtotal (Private Land)	*49,606*	*86.5%*
Public Land				
Municipal	City of Oxnard, City of Ventura, City of Camarillo, Port Hueneme	Parks, and/or Golf Courses (Buenaventura Golf Course uses recycled water for irrigation)	663	1.2%
County	County of Ventura	Mandalay County Park	8	0.01%
State	California Department of Park and Recreation, California State University, California Department of Corrections and Rehabilitation	State Beaches (McGrath State Beach, Mandalay State Beach), California State University Channel Islands, Ventura Youth Correctional Facility	230	0.4%

Table 1-4
Summary of Land Ownership in the Oxnard Subbasin

Ownership	Jurisdiction	Description	Acres within Subbasin	% of Total
Federal	U.S. Navy	Naval Base Ventura County (Naval Construction Battalion Center Port Hueneme and Point Mugu Naval Air Station)	6,046	10.5%
Non-Profit	The Nature Conservancy	Lower Santa Clara River/Ormond Beach	795	1.4%
		Subtotal (Public Land)	*7,742*	*13.5%*
		Total	**57,348**	**100%**

Table 1-5
Oxnard Plain Stream Gauge Information

Station Number	Station Name	Record Start	Record End	Active?	Latitude	Longitude	Elevation (ft msl)	Station Type
Santa Clara River								
708	Santa Clara River at Montalvo Highway 101	1927	1993	No	34.241944	−119.189	70	Recording Stream Gauge
708A	Santa Clara River at Saticoy Highway 118	1967	2004	No	34.278889	−119.141	105	Recording Stream Gauge
723	Santa Clara River at Victoria Avenue	2007	N/A	Yes	34.234917	−119.217	62	Recording Stream Gauge
724	Santa Clara River at Freeman Diversion	2004	2005	No	34.299222	−119.108	161	Recording Stream Gauge
Revolon Slough Watershed								
776	Revolon Slough at Laguna Road	1979	2006	No	34.176072	−119.100	11	Recording Stream Gauge
776A	Revolon Slough at Pleasant Valley Road	2005	N/A	Yes	34.192592	−119.108	20	Recording Stream Gauge
780	Beardsley Wash at Central Avenue	1993	N/A	Yes	34.2305	−119.112	60	Recording Stream Gauge
782	Las Posas Estates Drain	1999	2008	No	34.230816	−119.106	76	Recording Stream Gauge
Calleguas Creek								
805	Calleguas Creek at California State University Channel Islands	1968	N/A	Yes	34.179028	−119.040	58	Recording Stream Gauge

Sources: VCWPD 2009, 2016.
Notes: ft msl = feet above mean sea level. N/A = not applicable, because gauge is active.

Table 1-6
Oxnard Plain Precipitation Station Information

Station Number	Station Name	Record Start	Record End	Active?	Latitude	Longitude	Elevation (ft msl)	Station Type	Mean Annual Rainfall (inches) for Period of Record
017	Hueneme Lighthouse near Port Hueneme	1890	1972	No	34.143333	−119.21	10	Standard Precipitation	13.4
017A	Port Hueneme–U.S. Navy	1972	1982	No	34.146389	−119.205	10	Standard Precipitation	15.6
017B	Port Hueneme–U.S. Navy	1982	1996	No	34.146389	−119.204	10	Standard Precipitation	14.9
017C	Port Hueneme–Oxnard Sewer Plant	1996	N/A	Yes	34.141684	−119.187	10	Recording Precipitation Gauge	11.4
032	Oxnard–Water Department	1902	2003	No	34.201389	−119.175	53	Standard Precipitation	14.7
032A	Oxnard Civic Center	2003	N/A	Yes	34.200087	−119.18	53	Recording Precipitation Gauge	10.0
168	Oxnard Airport	1956	N/A	Yes	34.201647	−119.208	34	Recording Precipitation Gauge	14.1
156	Oxnard CIMIS Station	2001	N/A	Yes	34.2233639	−119.196920	77	CIMIS Station	12.4
177	Camarillo–Pacific Sod	1956	2004	No	34.156446	−119.079	20	Standard Precipitation	12.7
177A	Camarillo–Pacific Sod	2004	N/A	Yes	34.155471	−119.073	20	Recording Precipitation Gauge	9.9
215	Channel Islands Harbor	1963	N/A	Yes	34.162042	−119.223	5	Standard Precipitation	13.4
215A	Channel Islands Harbor–Kiddie Beach	2015	N/A	Yes	34.158944	−119.222	15	Recording Precipitation Gauge	2.5
223	Point Mugu–U.S. Navy	1946	1976	No	34.118333	−119.107	5	Standard Precipitation Midnight	10.0
223A	Point Mugu–U.S. Navy	1976	N/A	Yes	34.112778	−119.119	12	Standard Precipitation Midnight	13.8
231	El Rio–County Yard	1966	2006	No	34.241111	−119.177	79	Standard Precipitation	16.7
231A	El Rio–Riverpark	2006	2008	No	34.245417	−119.181	Unknown (near sea level)	Recording Precipitation Gauge	8.8

Table 1-6
Oxnard Plain Precipitation Station Information

Station Number	Station Name	Record Start	Record End	Active?	Latitude	Longitude	Elevation (ft msl)	Station Type	Mean Annual Rainfall (inches) for Period of Record
239	El Rio–UWCD Spreading Grounds	1972	N/A	Yes	34.239405	−119.153	105	Recording Precipitation Gauge	15.2
257	Oxnard South–Vance	1979	1989	No	34.171944	−119.192	27	Standard Precipitation	15.7
261	Saticoy–Recharge Facility	1984	N/A	Yes	34.278889	−119.123	145	Standard Precipitation	16.0
267	Ormond Beach–Occidental Chemical	1989	1993	No	34.140556	−119.171	10	Standard Precipitation	14.1
273A	Oxnard NWS	2010	N/A	Yes	34.207207	−119.137	63	National Weather Service Site	8.6
403	Silverstrand Alert (Type B)	2008	N/A	Yes	34.15271	−119.219	18	Non-Standard Recorder	8.2
412	El Rio–Mesa School APCD	2012	N/A	Yes	34.252361	−119.143	131	Recording Precipitation Gauge	6.7
503	Oxnard Plain–Laguna Road (Type B)	2008	2010	No	34.176072	−119.1	28	Non-Standard Recorder	6.6

Notes: APCD = Air Pollution Control District; CIMIS = California Irrigation Management Information System; ft msl = feet above mean sea level; N/A = not applicable, because gauge is active; NWS = National Weather Service; UWCD = United Water Conservation District.

Table 1-7
Drought Periods in the Oxnard Plain

Drought Period	Duration (years)	Cumulative Deficit (inches)
1918–1936	18	−47.2
1944–1951	7	−31.5
1958–1964	6	−25.2
1969–1977	8	−24.8
1986–1991	5	−25.1
2011–2016	5	−27.7

Table 1-8
Past and Present Land Uses within the Oxnard Plain, 1990–2015

Land Use Category	1990		1993		2001		2005		2015	
	Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Agriculture										
Orchards and Vineyards	4,863	8%	5,088	9%	4,438	8%	2,491	4%	—	—
Cropland and Improved Pasture Land	23,080	40%	22,921	40%	21,917	38%	22,188	39%	—	—
Nurseries	698	1%	743	1%	1,343	2%	1,677	3%	—	—
Horse Ranches	9	0%	9	0%	5	0%	8	0%	—	—
Other Agriculture	252	0%	245	0%	271	0%	265	0%	—	—
Dairy/Livestock	66	0%	66	0%	37	0%	25	0%	—	—
Total	**28,969**	**51%**	**29,073**	**51%**	**28,011**	**49%**	**26,654**	**47%**	**26,636**	**47%**
Vacant/Open Space										
Open Space	5,070	9%	4,713	8%	4,247	7%	4,007	7%	—	—
Water	358	1%	472	1%	461	1%	533	1%	—	—
Total	**5,429**	**9%**	**5,185**	**9%**	**4,707**	**8%**	**4,540**	**8%**	**3,662**	**6%**
Urban/Built-Up										
Residential	8,061	14%	8,211	14%	8,810	15%	9,339	16%	—	—
Mixed Commercial and Industrial	2,399	4%	2,340	4%	2,403	4%	3,156	6%	—	—
Commercial and Services	8,136	14%	8,277	14%	8,556	15%	8,795	15%	—	—
Industrial	1,977	3%	1,835	3%	2,083	4%	2,111	4%	—	—
Transportation, Communication, and Utilities	2,335	4%	2,384	4%	2,734	5%	2,695	5%	—	—
Total	**22,907**	**40%**	**23,047**	**40%**	**24,586**	**43%**	**26,096**	**46%**	**26,542**	**47%**

Sources: SCAG 2005 (for 1990–2005); VCPD 2015 (for 2015).
Notes: Acres and percentages are rounded to the nearest whole number. The land use data for 2015 is based on the Ventura County General Plan land use map (VCPD 2015), which has a lower geographic resolution and uses fewer land use categories than data provided by SCAG for prior years; therefore, only the total amounts/percentages for the larger land use categories are provided for 2015.
The Naval Base Ventura County is primarily included in the "Commercial and Services" category.

Table 1-9
Past, Current, and Projected Population for Ventura County, the Cities of Oxnard and Port Hueneme, and the Oxnard Plain

Population	1990	2000	2010	2012	2015	2040
Ventura County	669,016	756,902	825,378	833,000	853,188	965,210
Oxnard	142,216	170,358	197,899	200,100	206,908	237,300
Port Hueneme	20,322	21,845	21,723	21,800	22,399	22,400
Oxnard Plain	—	—	237,871	—	—	—

Sources: SCAG 2016 (for Ventura County 1990–2040, Oxnard 2012 and 2040, and Port Hueneme 1990–2012 and 2040); City of Oxnard 2011 (for Oxnard 1990–2010); City of Port Hueneme 2016a (Port Hueneme 2015); U.S. Census Bureau 2016 (Oxnard Plain 2010); U.S. Census Bureau 2015 (Oxnard 2015).
Note: — = not available or unknown.

INTENTIONALLY LEFT BLANK

Table 1-10
Oxnard Subbasin Existing Water Resources Monitoring Programs

Program	Program Agency	Program Description	Parameter	Multi-Basin Program	Source	Link
Surface Water Monitoring Programs						
Ventura County Precipitation Monitoring	VCWPD	Collection of real-time and historical data from a network of precipitation gauges throughout Ventura County (approximately 22 within the Oxnard Subbasin). Data is available on the Web, along with some statistical reports. Gauge data are available in various time increments, depending on gauge type.	Precipitation	LPVB, PVB, ASRVB, Oxnard Subbasin	VCWPD. 2016. Hydrology Section Website. Accessed September 15, 2016.	http://vcwatershed.net/hydrodata/gmap.php?param=rain
Ventura County Streamflow Monitoring Program	VCWPD, in cooperation with USGS	Approximately 64 stream locations are monitored county wide (approximately 13 active and inactive gauges in the Oxnard Subbasin). Available data include average daily flow, event hydrographs, and peak flows.	Streamflow	LPVB, PVB, ASRVB, Oxnard Subbasin	VCWPD. 2016. Hydrology Section Website. Accessed September 15, 2016.	http://vcwatershed.net/hydrodata/gmap.php?param=rain
Ventura County Stream Gauging Program	USGS, UWCD	Approximately 64 stream locations are monitored county wide. Available data include average daily flow, event hydrographs, and peak flows.	Streamflow	Oxnard Subbasin, PVB	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 31).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
Surface Water Quality Monitoring Program	UWCD	Monitoring of surface water quality at variable intervals. Parameters monitored include general minerals, temperature, and pH. Data are used to confirm that water quality is acceptable for groundwater recharge and agricultural irrigation.	Streamflow	Oxnard Subbasin, PVB	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 31).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
Los Angeles Regional Water Quality Control Board Surface Water Quality Sampling	—	—	—	—	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 32).	—
Existing Groundwater Monitoring Programs						
California Statewide Groundwater Elevation Monitoring (CASGEM)	DWR program implemented by VCWPD	DWR-mandated program (Senate Bill X7-6) to track seasonal and long-term groundwater elevation trends.	Groundwater Elevation	LPVB, PVB, ASRVB, Oxnard Subbasin	DWR. 2016. California Statewide Groundwater Elevation Monitoring (CASGEM) Program. 2016. Accessed September 15, 2016.	http://www.water.ca.gov/groundwater/casgem/
Groundwater Ambient Monitoring and Assessment Program (GAMA)	SWRCB	SWRCB Program implemented in 2000 (modified by Assembly Bill 599 in 2001) to monitor and assess groundwater basins throughout the state.	Groundwater Quality	LPVB, PVB, ASRVB, Oxnard Subbasin	SWRCB. 2016. GAMA – Groundwater Ambient Monitoring and Assessment Program Website. Accessed September 22, 2016.	http://www.swrcb.ca.gov/gama/
Ventura County Groundwater Elevation Monitoring Program	VCWPD	Quarterly measurement of approximately 200 groundwater well elevations (approximately 38 within the Oxnard Subbasin) throughout Ventura County by VCWPD staff.	Groundwater Elevation	Oxnard Subbasin, LPVB, PVB, ASRVB	VCWPD. 2015. 2014 Annual Report of Groundwater Conditions (p. 12.)	http://pwaportal.ventura.org/WPD/docs/Groundwater-Resources/2014%20Annual%20Report-Web.pdf
Ventura County Groundwater Quality Monitoring Program	VCWPD	Approximately 150 wells sampled throughout the County (approximately 46 in the Oxnard Subbasin) and analyzed for general minerals and other constituents.	Groundwater Quality	Oxnard Subbasin, LPVB, PVB, ASRVB	VCWPD. 2015. 2014 Annual Report of Groundwater Conditions (p. 12).	http://pwaportal.ventura.org/WPD/docs/Groundwater-Resources/2014%20Annual%20Report-Web.pdf
UWCD Groundwater Quality Monitoring Program	UWCD	Measurement of groundwater water quality throughout the UWCD boundaries to comply with state standards for aesthetics and safety, monitor saltwater intrusion and saline migration, and track changes to water quality. Approximately 120 wells are sampled in the Oxnard Subbasin.	Groundwater Quality	Oxnard Subbasin, PVB	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 26).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
FCGMA Groundwater Extraction Reporting Program (1985)	FCGMA	Since 1985, FCGMA has collected extraction records from well operators on a semi-annual basis. Requirements include periodic calibration of meters.	Groundwater Extraction	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA, UWCD, and CMWD. 2007. 2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan. May 2007 (p. 17).	http://www.fcgma.org/component/content/article/20-public-documents/plans/95-groundwater-management-plan

Table 1-10
Oxnard Subbasin Existing Water Resources Monitoring Programs

Program	Program Agency	Program Description	Parameter	Multi-Basin Program	Source	Link
Basin Management Objectives Monitoring	FCGMA	FCGMA has established a set of Basin Management Objectives that pertain to the overall health of the groundwater basins, including water levels and water quality. Each year, FCGMA publishes a report tracking the progress toward meeting the objectives.	Groundwater Conditions	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA, UWCD, and CMWD. 2007. 2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan. May 2007 (p. iii).	http://www.fcgma.org/component/content/article/20-public-documents/plans/95-groundwater-management-plan
Other Existing Programs						
Ventura County Evaporation Monitoring	VCWPD	There is an evaporation gauge that records monthly evaporation from El Rio Spreading Grounds.	Evaporation	Oxnard Subbasin	VCWPD. 2016. Hydrology Section Website. Accessed September 15, 2016.	http://vcwatershed.net/hydrodata/gmap.php?param=rain
California Irrigation Management Information System (CIMIS)	DWR	CIMIS manages a network of over 145 automated weather stations in California.	Temperature, Precipitation, Evapo-transpiration	LPVB, PVB	CIMIS. 2018. CIMIS Data Website. Accessed January 15, 2018.	http://www.cimis.water.ca.gov
California Water Rights Permit 18908	UWCD, Water Rights Decision	Specifies conditions of release and diversion for habitat conservation.	Surface Water, Environmental	—	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 18).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
Salt Nutrient Management Plans	VCWPD	Complies with the SWRCB Recycled Water Policy.	Water Quality	Oxnard Forebay	VCWPD. 2015. Lower Santa Clara River Salt and Nutrient Management Plan. Prepared by Larry Walker Associates. April 2015.	http://www.waterboards.ca.gov/losangeles/water_issues/programs/salt_and_nutrient_management/docs/2015/May/DraftSaltandNutrientManagementPlan/Section1IntroductionandGoals.pdf

Notes: ASRVB = Arroyo Santa Rosa Valley Basin; CIMIS = California Irrigation Management Information System; CMWD = Calleguas Municipal Water District; DWR = California Department of Water Resources; FCGMA = Fox Canyon Groundwater Management Agency; LPVB = Las Posas Valley Basin; PVB = Pleasant Valley Basin; SWRCB = State Water Resources Control Board; USGS = U.S. Geological Survey; UWCD = United Water Conservation District; VCWPD = Ventura County Watershed Protection District.

Table 1-11
Oxnard Subbasin Existing Water Resources Management Projects, Programs, and Strategies

Program/Project	Program Agency	Program Description	Parameter	Conjunctive Use Program?	Multi-Basin Program	Source	Link
Existing Surface Water Management Projects, Programs, and Strategies							
Ventura County Stormwater Quality Monitoring Program	Ventura County Watershed Protection District, Camarillo, Moorpark, Oxnard, Port Hueneme, and others.	Program meets the requirements of the Ventura County Stormwater Permits. Includes water quality sampling, watershed assessments, business inspections, and pollution prevention programs.	Surface Water Quality	No	Oxnard Subbasin, LPVB, PVB, ASRVB	Ventura Countywide Stormwater Quality Management Program Website. Accessed September 15, 2016.	http://www.vcstormwater.org/
State Water Project Importation	DWR, Ventura County, UWCD, CMWD, and City of Ventura	Purchase of up to 5,000 AFY of Ventura County's 20,000 AFY State Water Project allocation for release and percolation from Lake Piru, the Freeman Diversion, and surface deliveries to Pleasant Valley through the PTP. The water reaching the Freeman Diversion is considered a "foreign water supply" and is credited to UWCD.	Supplemental Water	Yes	Oxnard, LPVB, PVB, ASRVB	UWCD. 2014. Groundwater and Surface Water Conditions Report - 2013. UWCD Open-File Report 2014-12 (p. 36). FCGMA, UWCD, and CMWD. 2007. 2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan. May 2007 (p. 50).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf

Table 1-11
Oxnard Subbasin Existing Water Resources Management Projects, Programs, and Strategies

Program/Project	Program Agency	Program Description	Parameter	Conjunctive Use Program?	Multi-Basin Program	Source	Link
Importation of Metropolitan Water District Water	CMWD	Import and deliver water from wholesaler Metropolitan Water District. Water purchased by water retailers such as the City of Oxnard to supplement water supply instead of pumping groundwater.	Supplemental Water	Yes	Oxnard Subbasin, PVB, LPVB	CMWD. 2015. Urban Water Management Plan – Final, pp. 1-1, 4-1, 4-2 (Figure 4-1), 6-1, 6-13.	http://www.mwdh2o.com/Who%20We%20Are%20%20.2007Fact%20Sheets/Member%20Agency%20Map.pdf http://www.mwdh2o.com/WhoWeAre/Member-Agencies/.2007Pages/default.aspx http://www.mwdh2o.com/WhoWeAre/History/Pages/default.aspx http://www.calleguas.com/images/docs-documents-reports/cmwdfinal2015uwmp.pdf
Salinity Management Pipeline	CMWD	A brine disposal pipeline that collects brine generated by desalting facilities in the LPVB, PVB, and Oxnard Subbasin and conveys it to an ocean outfall for disposal. Future construction of the pipeline is expected to serve additional facilities, including those in the ASRVB.	Surface Water	Yes	Oxnard Subbasin, LPVB, PVB, ASRVB	CMWD. 2015. Urban Water Management Plan – Final, p. 6-1.	http://www.calleguas.com/images/docs-documents-reports/cmwdfinal2015uwmp.pdf
Existing Groundwater Management Projects, Programs, and Strategies							
Basin Management Objective Program	FCGMA	FCGMA has established a set of Basin Management Objectives that pertain to the overall health of the groundwater basins, including water levels and water quality. Each year, FCGMA publishes a report tracking the progress toward meeting the objectives.	Groundwater Conditions	No	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA, UWCD, and CMWD. 2007. 2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan. May 2007 (p. iii).	http://www.fcgma.org/component/content/article/20-public-documents/plans/95-groundwater-management-plan
FCGMA Groundwater Storage (including In-Lieu) Credit Program	FCGMA	This is a program by which credits are issued to the deliverer in equal amounts to the amount of delivered "newly available" water, imported water from outside the County, recycled water, or diverted surface water that would otherwise be wasted to the ocean. Delivered water used in lieu of pumping.	Groundwater	Yes	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA. 2015. Fox Canyon Groundwater Management Agency, Calendar Year 2014 Annual Report (p. 23).	http://www.fcgma.org/public-documents/reports
FCGMA Groundwater Injection Credit Program	FCGMA	This is a program by which credits are issued to operators that inject "newly available" water, water from outside the County, or recycled water.	Groundwater	Yes	LPVB, PVB, ASRVB, Oxnard Subbasin	FCGMA. 2015. Fox Canyon Groundwater Management Agency, Calendar Year 2014 Annual Report (p. 23).	http://www.fcgma.org/public-documents/reports
Salinity Management Pipeline	CMWD	A brine disposal pipeline that collects brine generated by desalting facilities in the LPVB, PVB, and Oxnard Subbasin and conveys it to an ocean outfall for disposal. Future construction of the pipeline is expected to serve additional facilities, including those in the ASRVB.	Groundwater	Yes	Oxnard Subbasin, LPVB, PVB, ASRVB	CMWD. 2015. Urban Water Management Plan – Final, p. 6-1.	http://www.calleguas.com/images/docs-documents-reports/cmwdfinal2015uwmp.pdf
Groundwater Supply Policy (Formerly Brackish Groundwater Policy)	FCGMA	The FCGMA Board of Directors adopted Resolution No. 2016-05, a policy for evaluating and authorizing proposals for groundwater supply projects. It allows for consideration of development of brackish groundwater for supply projects subject to monitoring requirements and other constraints and restrictions including compliance with SGMA.	Groundwater	Yes	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA. n.d. Draft Brackish Groundwater Project Pumping Policy.	http://www.fcgma.org/images/Erin/Draft%20Brackish%20Groundwater%20Project%20Pumping%20Policy%20revised%2020160720.pdf

Table 1-11
Oxnard Subbasin Existing Water Resources Management Projects, Programs, and Strategies

Program/Project	Program Agency	Program Description	Parameter	Conjunctive Use Program?	Multi-Basin Program	Source	Link
Extraction Fee Program	FCGMA	Groundwater extractors are assessed fees per acre-foot of extraction. Fees have been used by FCGMA to finance its management activities since its enabling legislation in 1983.	Groundwater	No	Oxnard Subbasin, LPVB, PVB, ASRVB	Assembly Bill No. 2995, Article 9.	http://www.fcgma.org/fcgma.old/publicdocuments/ordinances/ordinanceAB-2995.pdf
Groundwater Extraction Limitation Program	FCGMA	FCGMA has implemented a program of reduced allocations.	Groundwater	No	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA, UWCD, and CMWD. 2007. 2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan. May 2007 (p. 45).	http://www.fcgma.org/component/content/article/20-public-documents/plans/95-groundwater-management-plan
Extraction Surcharge Program	FCGMA	FCGMA charges a fee to well operators for groundwater extractions in excess of annual allocation amounts	Groundwater	No	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA, UWCD, and CMWD. 2007. 2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan. May 2007 (p. 45).	http://www.fcgma.org/component/content/article/20-public-documents/plans/95-groundwater-management-plan
Prohibition of export of groundwater	FCGMA	FCGMA Ordinance requires Board of Directors approval for the export of groundwater from within the FCGMA boundary for use outside of the boundary	Groundwater	No	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA Ordinance Code, Chapter 5, 5.2.2.1.	http://www.fcgma.org/images/ordinances_legislation/Ord_Code_FINAL_-_amended_01-09-2015.pdf
Other Existing Programs							
IRWM Program	WCVC	Initiated with Proposition 50 in 2006, the program provides competitive grant funds for projects and studies in accordance with a comprehensive IRWM Plan.	Groundwater, Surface Water	No	Oxnard Subbasin, LPVB, PVB, ASRVB	Ventura County Watersheds Coalition. 2016. WCVC. Accessed September 15, 2016.	http://www.ventura.org/wcvc/IRWMP/2014IRWMP.htm
Oxnard–Hueneme Pipeline (1954)	UWCD	Pumping of Oxnard Forebay wells to supply water to the Cities of Oxnard and Port Hueneme, thus avoiding coastal pumping and exacerbation of seawater intrusion.	Groundwater Quality	Yes	Oxnard Subbasin	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (pp. 7–8).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
Pumping Trough Pipeline (1986)	UWCD	Supplies agriculture on the Oxnard Subbasin with a combination of surface water diverted from the Santa Clara River and groundwater, thus reducing the need for groundwater pumpage in the central Oxnard Plain pumping depression (1986).	Surface/ Groundwater	Yes	Oxnard Subbasin and PVB	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 5).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
The Freeman Diversion (1991)	UWCD	Diversion of Santa Clara River flood flows to Saticoy, El Rio, and Noble Basins for groundwater recharge and surface deliveries through the PTP and PVP. The Freeman Diversion allows for surface water supply in place of groundwater pumping, thus reducing the risk of seawater intrusion.	—	Yes	Oxnard Subbasin and PVB	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 39).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
The Noble Spreading Grounds (1995)	UWCD	Diversion of Santa Clara River flows to spreading grounds recharging both the UAS and LAS.	—	Yes	—	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 5).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
Saticoy Well Field (2003)	UWCD	Draws from the mound beneath the Saticoy Spreading Grounds and allows for additional Santa Clara River recharge.	—	Yes	—	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 5).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf

Table 1-11
Oxnard Subbasin Existing Water Resources Management Projects, Programs, and Strategies

Program/Project	Program Agency	Program Description	Parameter	Conjunctive Use Program?	Multi-Basin Program	Source	Link
Rose and Ferro Spreading Grounds	UWCD	Diversion of Santa Clara River Water to former mining pits for the recharge of groundwater.	—	Yes	—	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 6).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
El Rio Spreading Grounds	UWCD	Diversion of Santa Clara River flows to spreading grounds recharging both the UAS and LAS.	—	Yes	—	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 5).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
Pleasant Valley Pipeline	UWCD	Water diverted from Santa Clara River is provided to the PVCWD via a pipeline that terminates at the Pleasant Valley Reservoir. This water is supplied to agricultural users and offsets the need for groundwater pumping.	—	Yes	Oxnard Subbasin and PVB	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 8).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
Conejo Creek Diversion (2002)	CWD	PVCWD receives surface water from CWD's Conejo Creek Diversion.	Surface Water	Yes	—	UWCD. 2014. Groundwater and Surface Water Conditions Report – 2013. UWCD Open-File Report 2014-12 (p. 9).	http://www.unitedwater.org/images/stories/reports/GW-Conditions-Reports/2013%20GW%20and%20SW%20Conditions%20Report%20(UWCD%202014)%20FINAL.pdf
FCGMA M&I Allocation Program	FCGMA	The current M&I allocation program, also known as a Temporary Extraction Allocation, was implemented with the passage of Ordinance E in 2014. It was implemented for M&I users, replacing HA and BA.	Groundwater	Yes	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA. 2015. Calendar Year 2014 Annual Report (p. 10).	http://www.fcgma.org/public-documents/reports
FCGMA Irrigation Allocation Program	FCGMA	Requirement for agricultural irrigation efficiency as compared to FCGMA calculations for required irrigation for specific crop types with consideration of weather conditions.	Groundwater Extractions	Yes	Oxnard Subbasin, LPVB, PVB, ASRVB	FCGMA. 2015. Calendar Year 2014 Annual Report (p. 10).	http://www.fcgma.org/public-documents/reports
Groundwater Recovery Enhancement and Treatment (GREAT) Program – 2013	City of Oxnard	A desalination facility, recycled water system, ASR facility, and brine disposal line combine to provide non-potable M&I water and agricultural irrigation water, to reduce pumping of LAS groundwater.	Groundwater/ Surface Water	Yes	Oxnard Subbasin and Oxnard Forebay	FCGMA, UWCD, and CMWD. 2007. 2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan. May 2007 (p. 54).	http://www.fcgma.org/component/content/article/20-public-documents/plans/95-groundwater-management-plan
Various Water Conservation Programs	Ventura County, Cities, and Water Districts	There are numerous conservation programs conducted by Cities, Ventura County, and other entities within FCGMA jurisdiction that provide education, incentives, and regulations to encourage water savings from both the M&I and agricultural sectors. The exact configuration of these programs change with climate and local and state requirements.	Surface Water, Groundwater	No	Oxnard Subbasin, LPVB, PVB, ASRVB	—	—

Notes: AFY = acre-feet per year; ASR = aquifer storage and recovery; ASRVB = Arroyo Santa Rosa Valley Basin; BA = Baseline Allocation; CMWD = Calleguas Municipal Water District; CWD= Camrosa Water District; DWR = California Department of Water Resources; FCGMA = Fox Canyon Groundwater Management Agency; HA = Historical Allocation; IRWM = Integrated Regional Water Management; LPVB = Las Posas Valley Basin; M&I = municipal and industrial; PTP = Pumping Trough Pipeline; PVB = Pleasant Valley Basin; PVCWD= Pleasant Valley County Water District; PVP = Pleasant Valley Pipeline; UWCD = United Water Conservation District; WCVC = Watersheds Coalition of Ventura County.

INTENTIONALLY LEFT BLANK

Table 1-12
FCGMA Public Meetings on Oxnard Subbasin GSP

Meeting	Date
FCGMA Special Board Meeting	November 8, 2019
TAG Meeting	October 31, 2019
FCGMA Regular Board Meeting	August 28, 2019
GSP Work Shops	August 21,22, 2019
TAG Meeting	August 1, 2019
FCGMA Regular Board Meeting	July 24, 2019
FCGMA Regular Board Meeting	June 26, 2019
FCGMA Special Board Meeting	May 22, 2019
TAG Meeting	May 5, 2019
FCGMA Regular Board Meeting	April 24, 2019
FCGMA GSP Public Workshop No. 4	March 15, 2019
FCGMA Special Board Meeting	March 15, 2019
FCGMA Regular Board Meeting	February 27, 2019
Special TAG Meeting	February 19, 2019
FCGMA Special Board Meeting	February 8, 2019
Special TAG Meeting	February 6, 2019
FCGMA Regular Board Meeting	January 23, 2019
Special TAG Meeting	January 17, 2019
TAG Meeting	December 6, 2018
FCGMA Regular Board Meeting	December 5, 2018
FCGMA Special Board Meeting	November 20, 2018
TAG Meeting	November 1, 2018
FCGMA Regular Board Meeting	October 24, 2018
FCGMA Special Board Meeting	October 12, 2018
TAG Meeting	October 4, 2018
FCGMA Regular Board Meeting	September 26, 2018
FCGMA Special Board Meeting	September 14,2018
TAG Meeting	September 6, 2018
FCGMA Special Board Meeting	August 29, 2018
FCGMA Special Board Meeting Oxnard and Pleasant Valley Pumping Allocation Workshop	July 25, 2018
FCGMA Regular Board Meeting	July 25, 2018
TAG Meeting	July 5, 2018
FCGMA Special Board Meeting	June 20, 2018
Special TAG Meeting	June 19, 2018
TAG Meeting	June 14, 2018
FCGMA Regular Board Meeting	May 23, 2018
TAG Meeting	May 3, 2018
FCGMA Regular Board Meeting	April 25, 2018
TAG Meeting	April 5, 2018
FCGMA Regular Board Meeting	March 28, 2018

Table 1-12
FCGMA Public Meetings on Oxnard Subbasin GSP

Meeting	Date
FCGMA Special Board Meeting	March 9, 2018
TAG Meeting	March 1, 2018
FCGMA Regular Board Meeting	February 28,2018
FCGMA Special Board Meeting	February 26, 2018
FCGMA GSP Public Workshop No. 3	February 8, 2018
TAG Meeting	February 1, 2018
Special TAG Meeting	January 30, 2018
FCGMA Regular Board Meeting	January 24, 2018
TAG Meeting	January 4, 2018
FCGMA Special Board Meeting	January 3, 2018
Special TAG Meeting	December 14, 2018
FCGMA Special Board Meeting	November 13, 2017
TAG Meeting	November 2, 2017
TAG Meeting	October 6, 2017
FCGMA Special Board Meeting	October 13, 2017
FCGMA Regular Board Meeting	October 25, 2017
FCGMA Regular Board Meeting	September 27, 2017
FCGMA GSP Public Stakeholder Workshop No. 2A – Oxnard and Pleasant Valley	September 20, 2017
FCGMA Operations Committee Meeting	September 14, 2017
TAG Meeting	September 7, 2017
FCGMA Special Board Meeting	August 11, 2017
FCGMA Operations Committee Meeting	August 10, 2017
TAG Meeting	August 3, 2017
Special TAG Meeting – Sustainability Objective Concepts	July 27, 2017
FCGMA Regular Board Meeting	July 26, 2017
FCGMA Fiscal Committee Budget Workshop	July 25, 2017
Water Market Pilot Program Ad Hoc Committee Meeting	July 24, 2017
FCGMA Board Executive Committee Meeting	July 12, 2017
TAG Meeting	July 6, 2017
Special TAG Meeting – Groundwater-Dependent Ecosystems	June 29, 2017
FCGMA Regular Board Meeting	June 28, 2017
FCGMA Board Executive Committee Meeting	June 15, 2017
TAG Meeting	June 1, 2017
FCGMA Regular Board Meeting	May 24, 2017
TAG Meeting	May 4, 2017
Special TAG Meeting – Groundwater Models	April 27, 2017
FCGMA Regular Board Meeting	April 26, 2017
Special TAG Meeting	March 24, 2017
Special TAG Meeting – Groundwater Models	March 24, 2017
FCGMA Regular Board Meeting	March 22, 2017

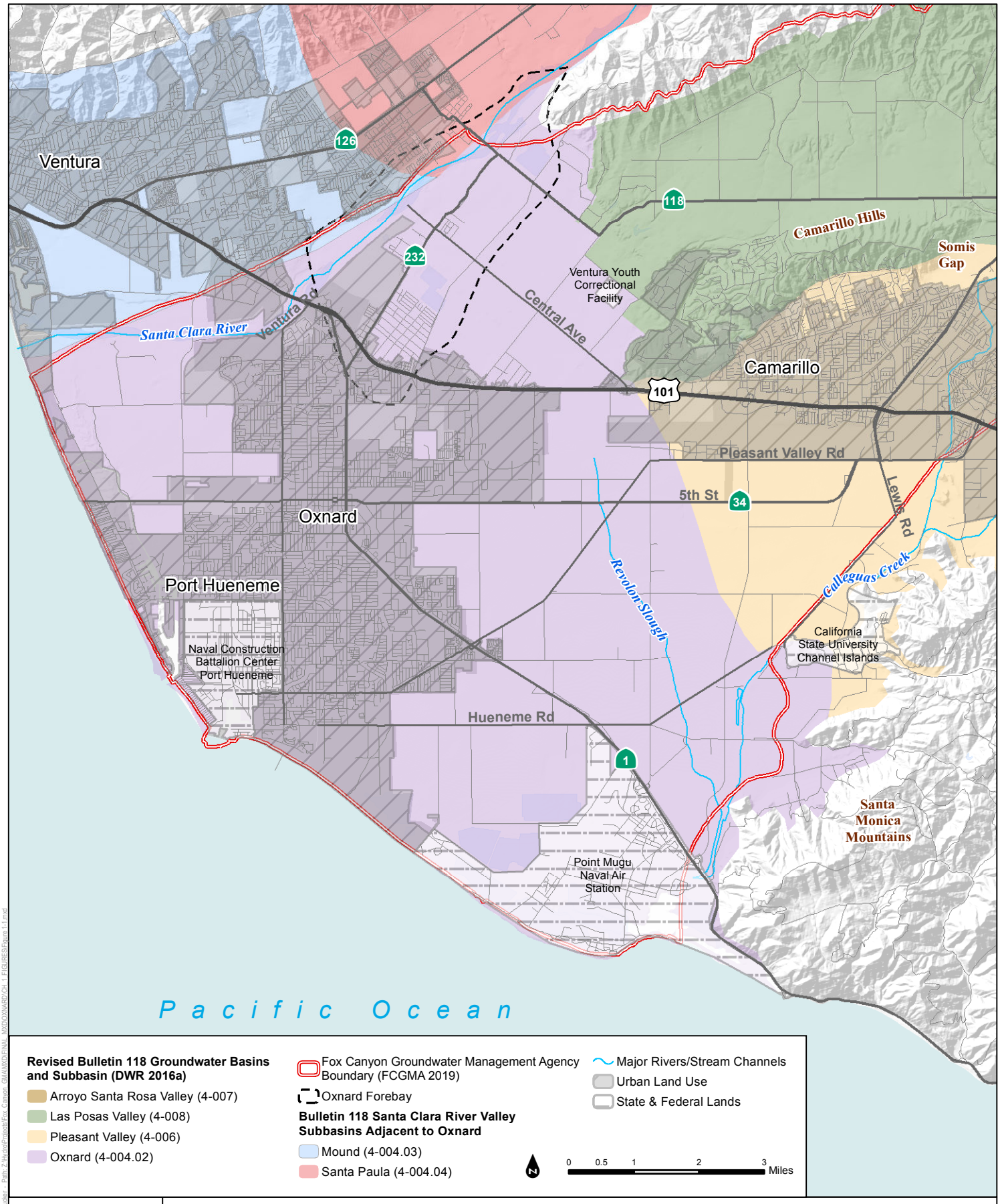
Table 1-12
FCGMA Public Meetings on Oxnard Subbasin GSP

Meeting	Date
TAG Meeting	March 3, 2017
FCGMA Regular Board Meeting	February 22, 2017
TAG Meeting	February 2, 2017
FCGMA Regular Board Meeting	January 25, 2017
TAG Meeting	December 16, 2016
FCGMA Regular Board Meeting	December 9, 2016
TAG Meeting	November 18, 2016
FCGMA GSP Public Workshop No. 1	November 15, 2016
FCGMA Regular Board Meeting	October 26, 2016
TAG Meeting	October 7, 2016
FCGMA Executive Committee	October 3, 2016
FCGMA Regular Board Meeting	September 28, 2016
TAG Meeting	August 26, 2016
TAG Meeting	July 29, 2016
FCGMA Regular Board Meeting	July 20, 2016
FCGMA Regular Board Meeting	June 22, 2016
TAG Meeting	May 27, 2016
FCGMA Regular Board Meeting	May 25, 2016
FCGMA Special Board Meeting	May 13, 2016
TAG Meeting	April 29, 2016
FCGMA Regular Board Meeting	April 27, 2017
TAG Meeting	March 25, 2016
FCGMA Regular Board Meeting	March 23, 2016
FCGMA Special Board Meeting	March 11, 2016
TAG Meeting	February 26, 2016
TAG Meeting	January 29, 2016
FCGMA Regular Board Meeting	January 27, 2016
TAG Meeting	December 18, 2015
FCGMA Regular Board Meeting	December 11, 2015
TAG Meeting	November 20, 2015
FCGMA Special Board Meeting	November 13, 2015
TAG Meeting	October 30, 2015
FCGMA Regular Board Meeting	October 28, 2015
TAG Meeting	September 25, 2015
FCGMA Regular Board Meeting	September 23, 2015
TAG Meeting	August 28, 2015
FCGMA Special Board Meeting	August 13, 2015
TAG Meeting	July 30, 2015
FCGMA Regular Board Meeting	July 22, 2015
FCGMA Regular Board Meeting	June 24, 2015

Table 1-12
FCGMA Public Meetings on Oxnard Subbasin GSP

Meeting	Date
FCGMA Regular Board Meeting	May 27, 2015
FCGMA Regular Board Meeting	April 22, 2015
FCGMA Regular Board Meeting	March 25, 2015

Notes: FCGMA = Fox Canyon Groundwater Management Agency; GSP = Groundwater Sustainability Plan; TAG = Technical Advisory Group.



SOURCE: DWR; County of Ventura; FCGMA

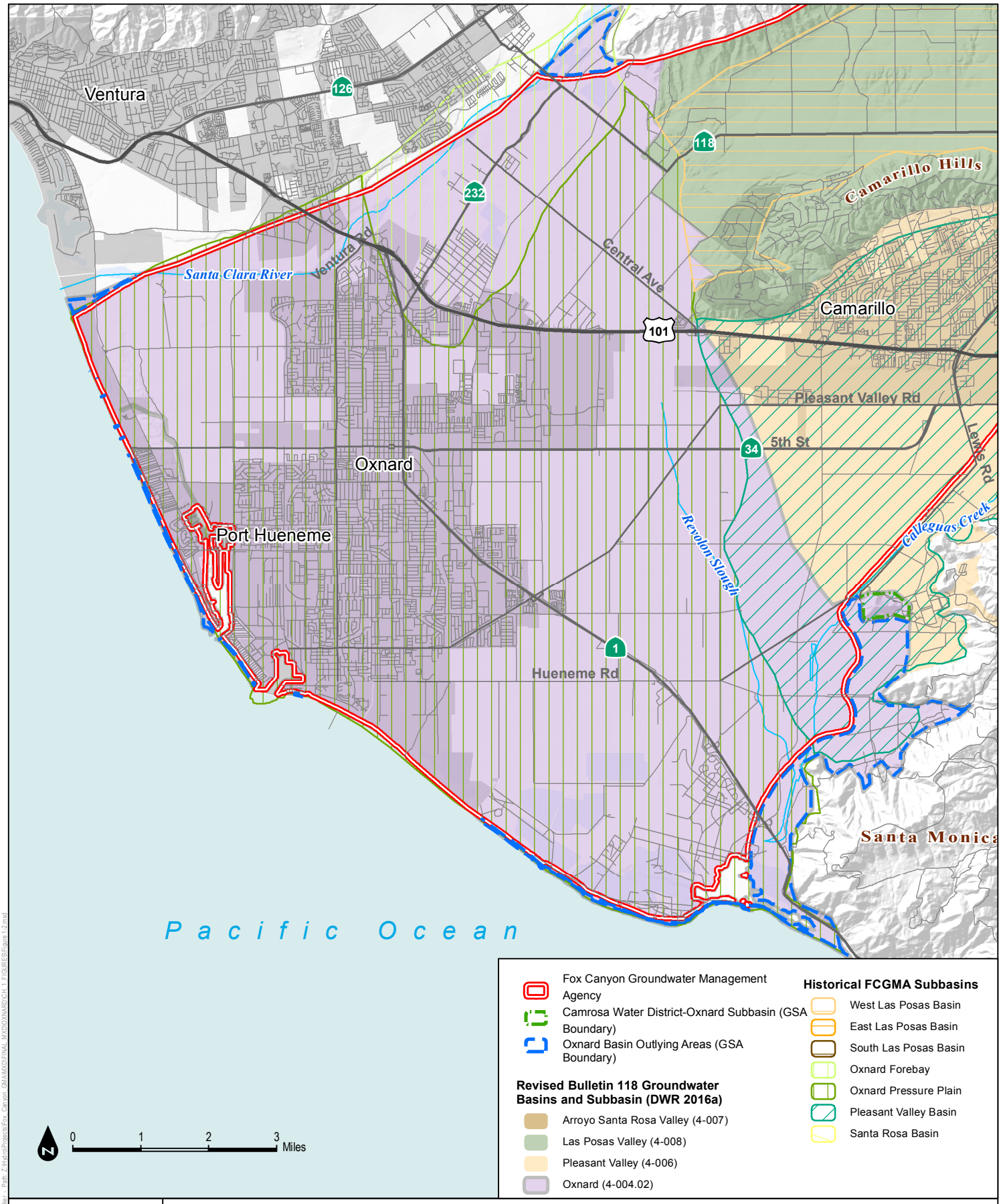
FIGURE 1-1

Vicinity Map for the Oxnard Subbasin

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: DWR; County of Santa Barbara; FCGMA

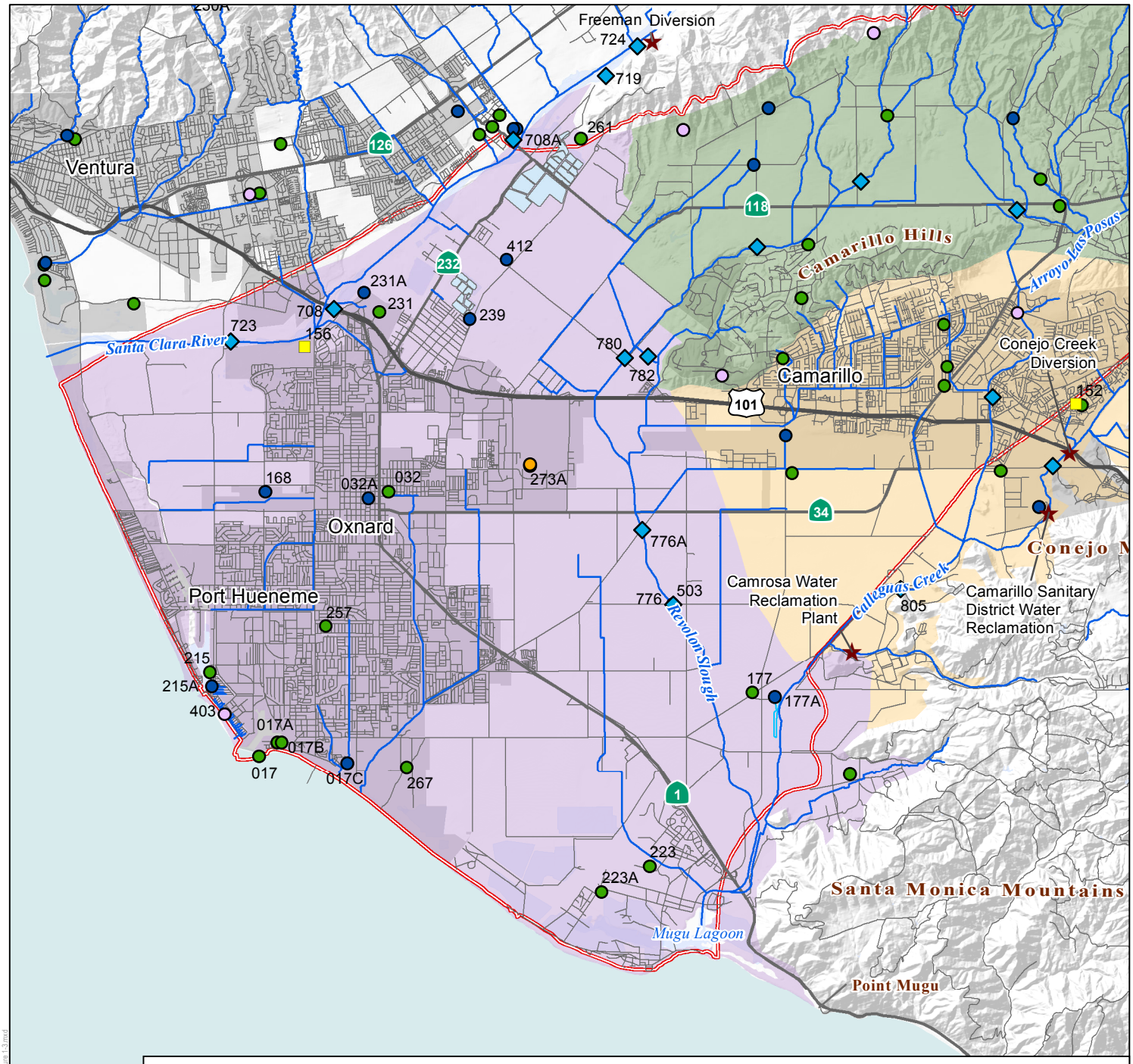
FIGURE 1-2

Administrative Boundaries for the Oxnard Subbasin

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: DWR; County of Santa Barbara; VCWPD; USGS NHD

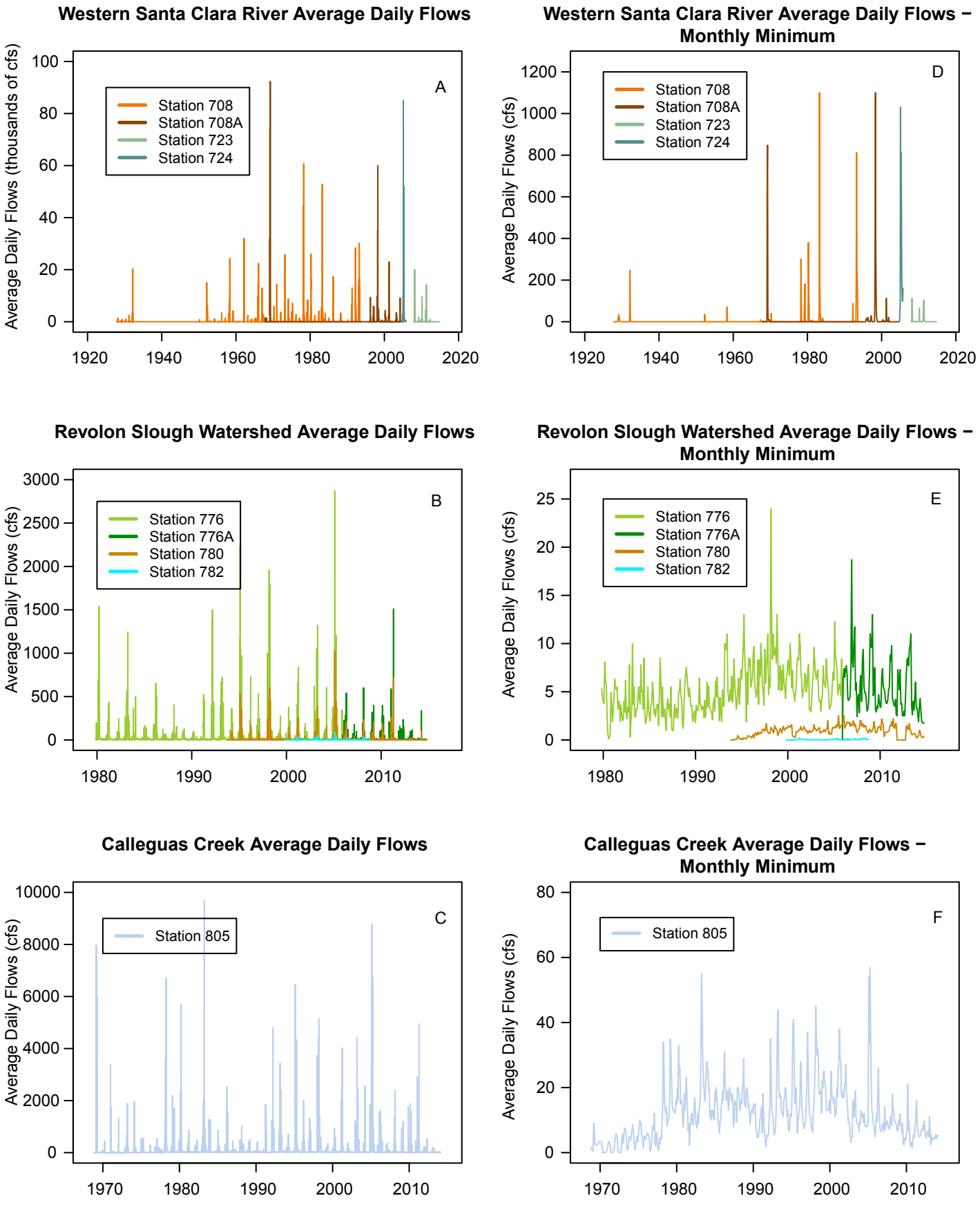
FIGURE 1-3

Weather Station and Stream Gauge Locations

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: Ventura County Watershed Protection District

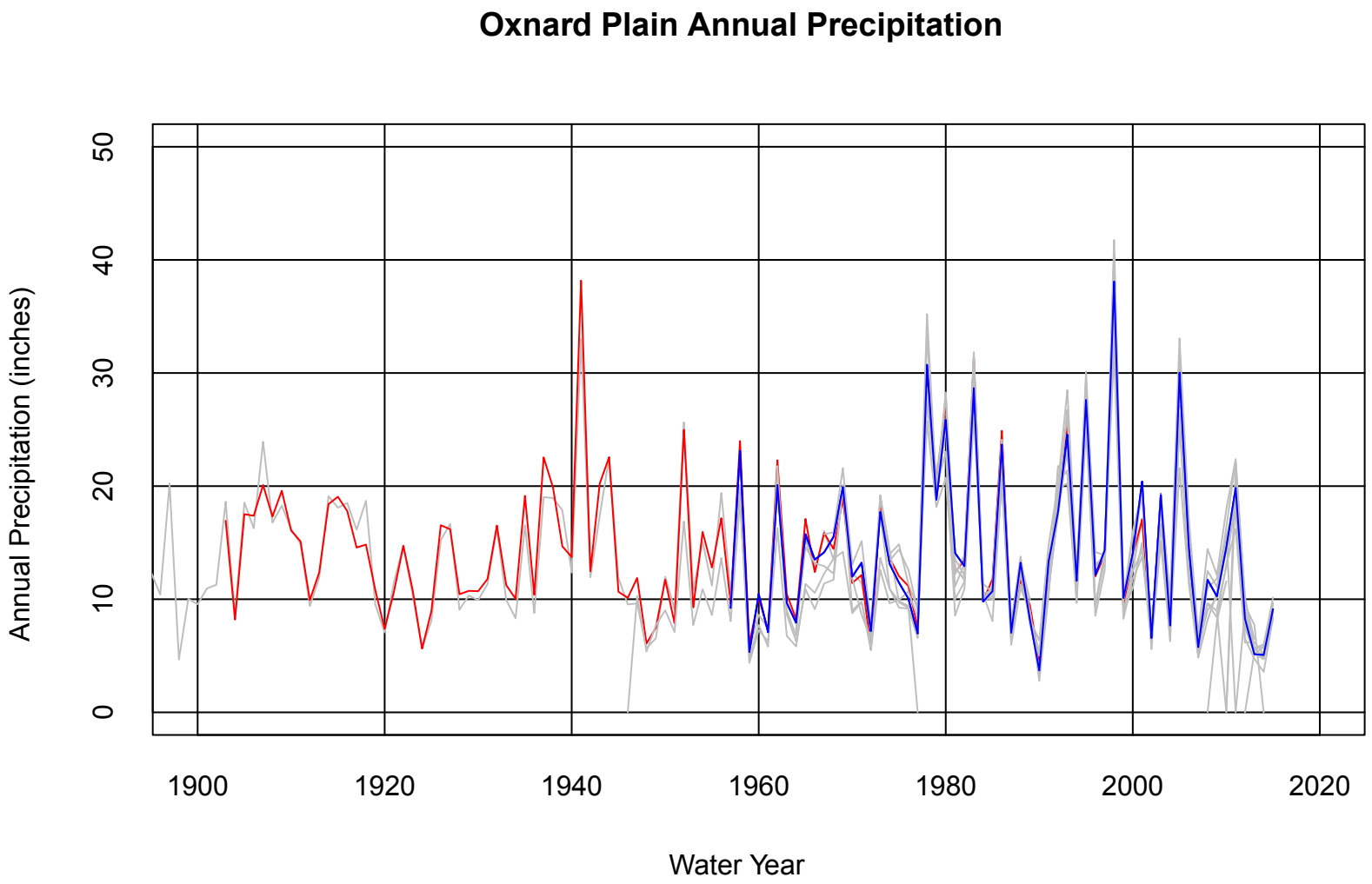
FIGURE 1-4

Average Daily Flows (ADF) and Monthly Minimum ADF in Oxnard Surface Waters

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



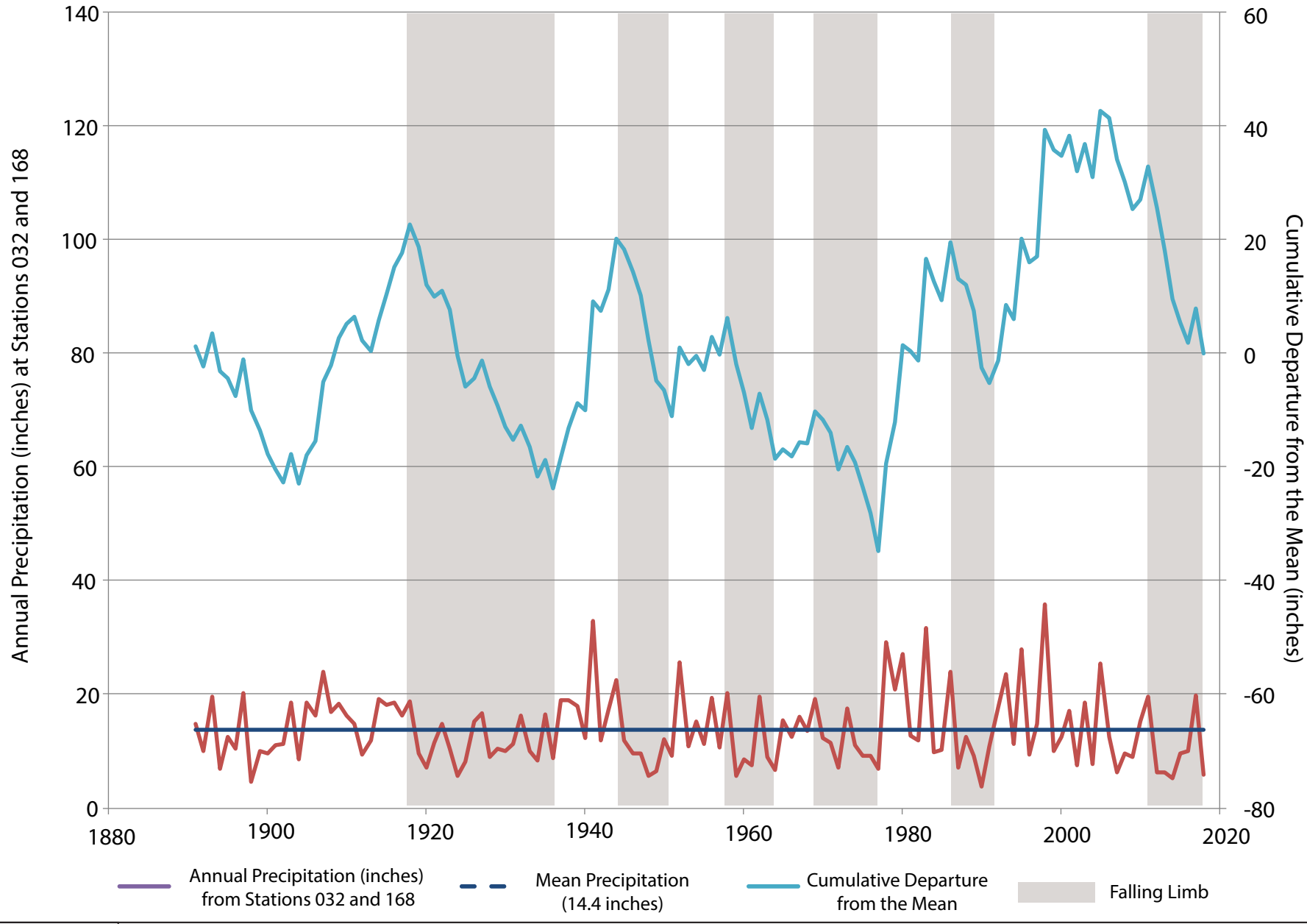
Note: Annual precipitation values recorded at rain gauges within the Oxnard Plain are shown. The majority of the precipitation records are depicted as gray lines. The two gauges used to create a long-term precipitation record, Stations 032 (Oxnard Water Department) and 168 (Oxnard Airport), are displayed in red and blue, respectively. Records plotted in gray are for Stations 017 (and 017A, B and C), 032A, 177 and 177A, 215 and 215A, 223 and 223A, 231A, 239, 257, 261, 267, 273A, 403, 412, and 503.

SOURCE: Ventura County Watershed Protection District

DUDEK

FIGURE 1-5
Oxnard Plain Annual Precipitation

INTENTIONALLY LEFT BLANK



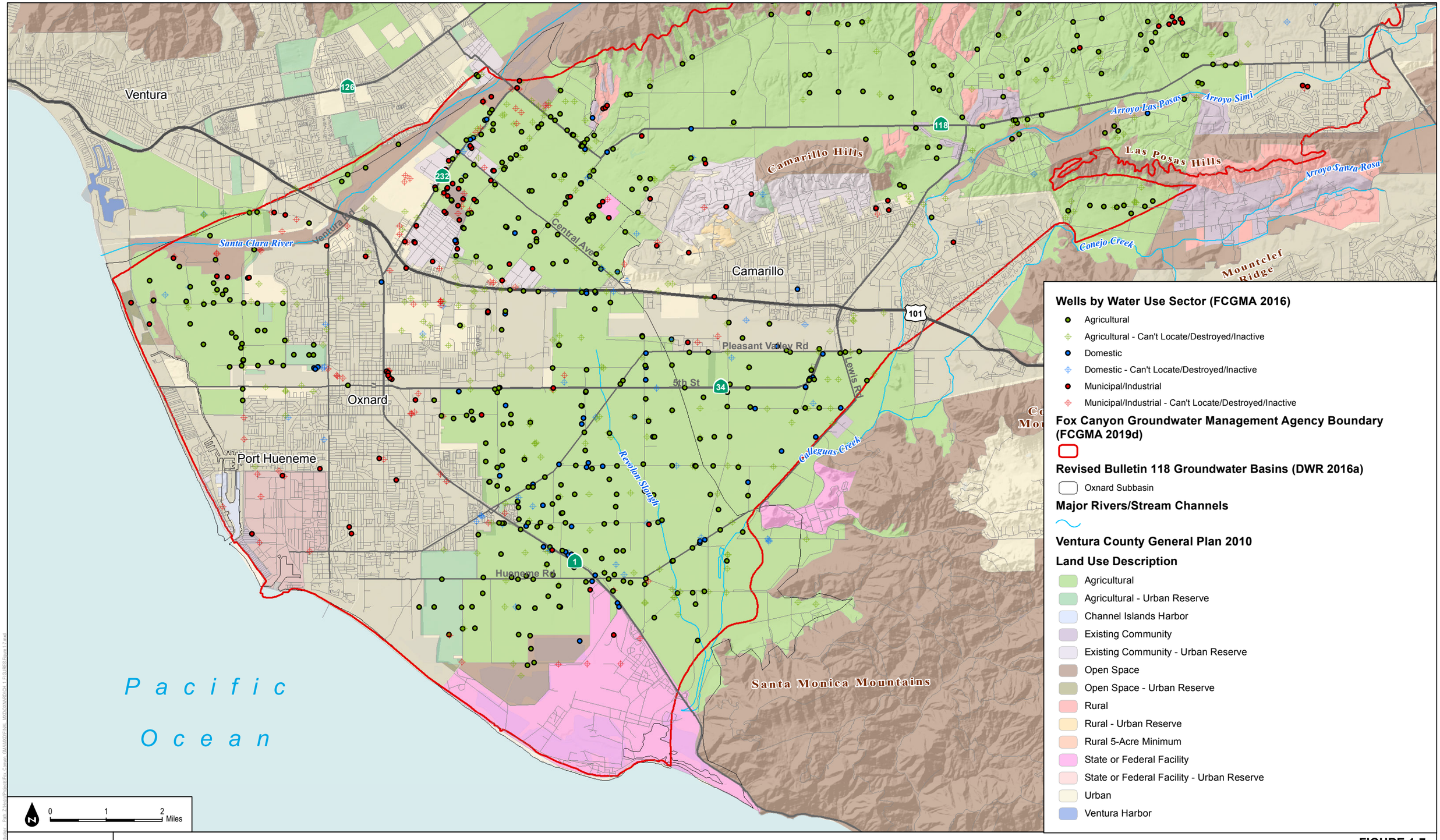
SOURCE: Ventura County Watershed Protection District

DUDEK

FIGURE 1-6

Long-Term Precipitation Trends in the Oxnard Plain

INTENTIONALLY LEFT BLANK



DUDEK

SOURCE: DWR; County of Ventura; FCGMA

FIGURE 1-7

Land and Water Use

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

Ventura County Water Purveyors

CALLEGUAS WHOLESALE DISTRICT

SUPPLIER	WATER COMPANY
Calleguas (CAL-001)	ACADEMY MWC
Calleguas (CAL-002)	ARROYO LAS POSAS MWC
Calleguas (CAL-003)	BALCOLM BIXBY MWA
Calleguas (CAL-004)	BERYLWOOD HEIGHTS MWC
Calleguas (CAL-005)	BRANDES-BARDIN MWC
Calleguas (CAL-006)	CONEJO TRAILER PARK
Calleguas (CAL-007)	CALIFORNIA WATER SERVICE COMPANY
Calleguas (CAL-008)	CALIFORNIA AMERICAN WATER COMPANY
Calleguas (CAL-009)	CALLEGUAS MWD
Calleguas (CAL-011)	CAMROSA WATER DISTRICT
Calleguas (CAL-012)	CITY OF CAMARILLO
Calleguas (CAL-013)	CITY OF OXNARD
Calleguas (CAL-014)	CITY OF THOUSAND OAKS
Calleguas (CAL-015)	CRESTVIEW MWC
Calleguas (CAL-016)	DEL NORTE MWC
Calleguas (CAL-017)	EPWORTH MWC
Calleguas (CAL-019)	FOXFIELD RIDING CLUB
Calleguas (CAL-020)	FULLER FALLS MWC
Calleguas (CAL-022)	SUNSHINE RANCH
Calleguas (CAL-023)	LA LOMA RANCH MWC
Calleguas (CAL-024)	LAKE SHERWOOD CSD
Calleguas (CAL-025)	LAS LOMAS WATER SYSTEM
Calleguas (CAL-026)	MESA WATER COMPANY
Calleguas (CAL-027)	OAK PARK WATER SERVICE
Calleguas (CAL-028)	OXNARD UNION HIGH SCHOOL DISTRICT
Calleguas (CAL-029)	PLEASANT VALLEY MWC
Calleguas (CAL-030)	RANCHO CANADA WATER COMPANY
Calleguas (CAL-031)	TOM GRETHER FARMS, Inc
Calleguas (CAL-036)	GOLDEN STATE WATER CO - Simi Valley
Calleguas (CAL-038)	THERMIC MWC
Calleguas (CAL-038)	VENTURA COUNTY WATERWORKS DISTRICT NO. 1
Calleguas (CAL-039)	VENTURA COUNTY WATERWORKS DISTRICT NO. 8
Calleguas (CAL-040)	VENTURA COUNTY WATERWORKS DISTRICT NO.17
Calleguas (CAL-041)	VENTURA COUNTY WATERWORKS DISTRICT NO.19
Calleguas (CAL-042)	WATERS ROAD USERS GROUP
Calleguas (CAL-044)	ZONE MWC
Calleguas (CAL-179)	BUTLER RANCH MWC
Calleguas (CAL-190)	BALCOM CANYON WATER WELL
Calleguas (CAL-195)	EL CAMPECN RANCH
Calleguas(CAL-196)	COMMANDA RANCH

CASITAS WHOLESALE DISTRICT

SUPPLIER	WATER COMPANY
Casitas (CAS-046)	CASITAS MWD
Casitas (CAS-047)	CASITAS MWC
Casitas (CAS-048)	CITY OF SAN BUENAVENTURA
Casitas (CAS-049)	DENNISON PARK WATER SYSTEM
Casitas (CAS-051)	ORDLEY ROAD WATER GROUP*
Casitas (CAS-052)	HERMITAGE MWC
Casitas (CAS-053)	HIROTONA INSTITUTE OF THEOSOPHY
Casitas (CAS-054)	MEINERS OAKS CWD
Casitas (CAS-055)	NORTH FORK SPRINGS MWC
Casitas (CAS-056)	OJAI
Casitas (CAS-057)	OLD CREEK ROAD MWC
Casitas (CAS-058)	OVANT WATER ASSOCIATION
Casitas (CAS-060)	RANCHO del CIELO MWC
Casitas (CAS-061)	RANCHO MATILIJA MWC
Casitas (CAS-062)	SANTA WATER AND ROADWORKS
Casitas (CAS-063)	OJAI WATER CONSERVATION DISTRICT
Casitas (CAS-064)	SENIOR CANYON MWC
Casitas (CAS-065)	SHERIFF'S HONOR FARM
Casitas (CAS-066)	SIETE ROBLES MWC
Casitas (CAS-067)	SSAR MWC
Casitas (CAS-068)	GOLDEN STATE WATER CO - Ojai
Casitas (CAS-069)	SULPHUR MOUNTAIN ROAD WATER ASSOCIATION
Casitas (CAS-070)	TICO MWC
Casitas (CAS-071)	TRES CONDADOS
Casitas (CAS-072)	VENTURA RIVER COUNTY WATER DISTRICT
Casitas (CAS-073)	VILLANOVA ROAD WATER WELL ASSOCIATION

UNITED WHOLESALE DISTRICT

SUPPLIER	WATER COMPANY
United (U-074)	ALISO MWC
United (U-075)	ALTA MWC
United (U-076)	BEECH STREET WELL
United (U-079)	BROWNSTONE MWC
United (U-080)	CAMARILLO AIRPORT UTILITY ENTERPRISE
United (U-081)	CHANNEL ISLANDS BEACH COMMUNITY SERVICES DISTRICT
United (U-082)	CITY OF FILLMORE
United (U-083)	CITY OF PORT HUENEME
United (U-084)	CLOVERDALE MWC
United (U-086)	COMMUNITY MWC
United (U-087)	CYPRESS MWC
United (U-088)	SUNSHINE TRAILER PARK
United (U-089)	DEMPSEY ROAD MWC
United (U-091)	SEACOAST COOLING
United (U-092)	ELKINS RANCH COMPANY
United (U-093)	EVERGREEN TRAILER PARK
United (U-094)	FARMERS IRRIGATION COMPANY
United (U-095)	FILLMORE IRRIGATION COMPANY
United (U-096)	FILLMORE WEST MOBILE HOME PARK
United (U-097)	GARDEN ACRES MWC
United (U-099)	GLENVIEW MOBILE HOME PARK
United (U-101)	GOODENOUGH MWC
United (U-102)	HALWOOD, INC.
United (U-103)	CB SOUTH
United (U-104)	PORRETTA STOCK FARM
United (U-106)	LAKE PIRU RECREATION AREA
United (U-107)	LIMONEIRA ASSOCIATED
United (U-108)	LINDA VISTA JUNIOR ACADEMY
United (U-109)	MIDDLE ROAD MWC
United (U-110)	MONTALVO MWC
United (U-111)	NAVALAIR MOBILEHOME COURT
United (U-112)	NYELAND ACRES MWC
United (U-113)	OCEAN VIEW MWC
United (U-114)	OCEAN VIEW SCHOOL DISTRICT (LAGUNA VISTA SCHOOL)
United (U-115)	OXNARD LEMON MWC
United (U-119)	PLEASANT VALLEY CWD
United (U-121)	RIO MANOR MWC
United (U-122)	RIO PLAZA WATER COMPANY
United (U-123)	RIO REALRIO DEL VALLE SCHOOLS
United (U-126)	SAN CAYETANO MWC
United (U-127)	CITY OF SANTA PAULA
United (U-128)	SAVIERS ROAD MWC
United (U-130)	SILVER WHEEL RANCH MOBILE HOME PARK
United (U-131)	SOUTH MOUNTAIN MWC
United (U-132)	SOUTHSIDE IMPROVEMENT CO
United (U-133)	STORKE MWC
United (U-134)	STRICKLAND MWC
United (U-135)	TEAGUE-McKEVETT CO- LIMONEIRA
United (U-136)	THERMAL BELT MWC
United (U-137)	THOMAS AQUINAS COLLEGE
United (U-138)	TIMBER CANYON MWC
United (U-139)	TOBOCK RANCH MWC
United (U-140)	U.S.N.A.S. - Point Mugu
United (U-141)	U.S.N.C.B.C. - Port Hueneme
United (U-142)	UNITED WCD
United (U-144)	VENTURA COUNTY WATERWORKS DISTRICT NO.16
United (U-145)	G.P. RESOURCES
United (U-146)	VENTURA SCHOOL
United (U-147)	VINEYARD AVENUE ACRES MWC
United (U-148)	THE MUTUAL WATER COMPANY OF VINEYARD AVENUE ESTATES
United (U-149)	VINEYARD MWC
United (U-150)	WARRING WATER SERVICE
United (U-181)	PIRU MWC
United (U-183)	VENTURA COUNTY PROPERTY ADMINISTRATOR
United (U-184)	VENTURA COUNTY DEPT. of AIRPORTS
United (U-185)	HARDSCRABBLE MWC
United (U-186)	SESPE AGRICULTURAL WATER
United (U-187)	GUADALASCA MWC
United (U-191)	SANTA CLARA HIGH SCHOOL
United (U-192)	CITRUS MWC
United (U-200)	LLOYD-BUTLER MWC
United (U-201)	OXNARD MWC
United (U-202)	RANCHO SESPE WORKERS IMPROVEMENT ASSOCIATION
United (U-203)	TOLAND ROAD WATER SYSTEM
United (U-204)	THORNHILL MWC
United (U-205)	SANTA CLARA RESOURCES
United (U-206)	HOLWELING'S NURSERY
United (U-207)	PYRAMID FLOWERS
United (U-208)	SATICOY COUNTRY CLUB
United (U-209)	VUJOVICH RANCH
United (U-210)	BOUQUET MULTIMEDIA

SUPPLIERS WITHOUT WHOLESALE DISTRICT

SUPPLIER	WATER COMPANY
None (W-152)	ANTELOPE VALLEY - EAST KERN WATER AGENCY
None (W-153)	WILSHIRE BLVD. TEMPLE CAMPS & CONFERENCE CENTER
None (W-154)	CAMP SCHEIDECH LODGE
None (W-155)	CAMP THREE FALLS - ESA
None (W-156)	CASTAC LAKE WATER AGENCY
None (W-157)	CHANNEL ISLANDS NATIONAL MONUMENT
None (W-158)	CHUCHUPATE CAMPGROUND
None (W-159)	CHUCHUPATE RANGER STATION
None (W-160)	COMPTON HUNTING and FISHING CLUB
None (W-163)	HIDDEN VALLEY MWD
None (W-164)	LAZY J RANCH
None (W-166)	CIRCLE V RANCH
None (W-168)	NEW CAMP BARTLETT
None (W-170)	OZENA RANGER STATION
None (W-171)	PINE MOUNTAIN INN
None (W-174)	SWEETWATER SPRING RANCH
None (W-178)	YERBA BUENA WATER COMPANY
None (W-182)	U.S. NAVY - San Nicolas Island
None (W-188)	FONT NATURAL BY PASS
None (W-193)	LAKE OF THE WOODS MWC
None (W-194)	OZENA VALLEY SPORTSMANS CLUB

DWR Bulletin 118 Groundwater Basins

1. Las Posas Valley
2. Arroyo Santa Rosa Valley
3. Pleasant Valley
4. Santa Clara River Valley - Santa Paula
5. Santa Clara River Valley - Mound
6. Santa Clara River Valley - Oxnard

Pacific Ocean

N W E S

San Nicolas Island Inset

W-182

Northern Ventura County Inset

Inventory of Public & Private
Water Purveyors In Ventura County
Figure 3.0

Plate 1

Ventura County Watershed Protection District

Water & Environmental Resources Division
Groundwater Section
800 South Victoria Ave.
Ventura, CA 93009-1600
Ph: (805) 654-2088
Fx: (805) 677-8762

Created: Feb 2006
By: JPD

Legend

DWR Bull. 118 GW Basins; Roads; Casitas MWD; Water Bodies; County Boundary
FoxCynGMA-bdy; Calleguas MWD; UWCD

1:87,500

1 inch equals 3 miles

0 1.5 3 6 Miles

DISCLAIMER: The information contained herein was created by the Ventura County Watershed Protection District solely for its own use. The VCWPD assumes no liability for damages incurred directly or indirectly as a result of errors, omissions or discrepancies.

SOURCE: Ventura County Watershed Protection District;
FCGMA , UWCD, and CMWD. 2007. "2007 Update to the Groundwater Management Agency Groundwater Management Plan." May 2007. Plate 1.

DUDEK

FIGURE 1-8
Ventura County Water Purveyors

Groundwater Sustainability Plan in the Oxnard Subbasin

Z:\Projects\

INTENTIONALLY LEFT BLANK

CHAPTER 2
BASIN SETTING

2.1 INTRODUCTION TO BASIN SETTING

Physical Setting and Characteristics

The Oxnard Subbasin (Subbasin) of the Santa Clara River Valley Groundwater Basin is located near the western edge of the Transverse Ranges Geomorphic Province, which extends from the San Bernardino Mountains in the east to the San Miguel, Santa Rosa, and Santa Cruz Islands in the west (Figure 2-1, Oxnard Subbasin Vicinity Map; CGS 2002). The Transverse Ranges Geomorphic Province is characterized by a series of east-to-west-trending mountain ranges and valleys that are formed by north–south compression across a restraining bend in the San Andreas Fault (Hadley and Kanamori 1977; Bohannon and Howell 1982; Eberhart-Philips et al. 1990; Nicholson et al. 1994). Compression across this restraining bend is responsible for rapid, ongoing uplift of the mountain ranges (Yeats 1988; Feigl et al. 1993; Marshall et al. 2008) and extensive folding and faulting of the Pleistocene and older geologic formations in the province (Rockwell et al. 1988; Huftile and Yeats 1995).

The Oxnard Subbasin underlies the Oxnard Plain, an approximately 58,000-acre coastal plain formed by deposition of sediments from the Santa Clara River and Calleguas Creek, in southwestern Ventura County (DWR 1965, 2006). The northern boundary of the Oxnard Subbasin is the Oak Ridge Fault, and the southern boundary is the contact between permeable alluvium and semipermeable rocks of the Santa Monica Mountains (SWRCB 1956; DWR 2006). The eastern boundary of the Oxnard Subbasin lies against the Las Posas Valley Basin (LPVB) and Pleasant Valley Basin (PVB). The western boundary of the Oxnard Subbasin is the Pacific Ocean (SWRCB 1956; DWR 2006).

The stratigraphic sequence underlying the Oxnard Plain comprises an upper unit of younger and older alluvial deposits that unconformably overlies the San Pedro and Santa Barbara Formations (Table 2-1). The San Pedro Formation is a lower to middle Pleistocene shallow marine deposit that grades upward from a white-gray sand and gravel basal layer into an overlying series of interbedded silts, clays, and gravels. The Santa Barbara Formation is a lower Pleistocene marine sand and clay deposit (SWRCB 1956; Weber and Kiessling 1976; Turner 1975). The primary water-bearing units in the Oxnard Subbasin are the alluvial deposits that compose the Oxnard and Mugu Aquifers and the white-gray sand and gravel layer of the San Pedro Formation that composes the Fox Canyon Aquifer (FCA; Table 2-1). In addition, wells in the Oxnard Subbasin also produce water from the Hueneme Aquifer in the Upper San Pedro Formation and the Grimes Canyon Aquifer (GCA) in the Santa Barbara Formation.

The shallowest aquifer in the Oxnard Subbasin is a semi-perched aquifer comprising sands and gravels deposited by the Santa Clara River. This unit is underlain by a clay layer, commonly referred to as the "clay cap," that is nearly continuous throughout the Subbasin, with the notable exception of an approximately 10-square-mile area in the northeastern part of the Subbasin, adjacent to and south of the Santa Clara River, referred to as the "Forebay area" (Figure 2-1; Mukae and Turner 1975). In this region, the Oxnard and underlying Mugu Aquifers are unconfined. In the areas where the clay cap separates the semi-perched aquifer from the underlying Oxnard Aquifer, the Oxnard Aquifer is confined. The area in which the Oxnard Aquifer is confined is referred to as the "pressure plain area" of the Oxnard Subbasin (Figure 2-1; Mukae and Turner 1975).

The majority of the Oxnard Subbasin lies within the jurisdiction of the Fox Canyon Groundwater Management Agency (FCGMA), with two exceptions (Figure 2-1). These exceptions include an area in the northeastern corner of the Oxnard Subbasin, at the western end of South Mountain, and along the southeastern edge of the Oxnard Subbasin adjacent to the foothills of the Santa Monica Mountains. The reason for the discrepancy is that the FCGMA boundary was established based on a vertical projection of the FCA as defined by the Fox Canyon Groundwater Management Agency Act in 1982, whereas the Oxnard Subbasin boundary is based on the surface extent of the alluvium in the Oxnard Plain, and the location of both geologic structures and facies changes that impede flow between the Oxnard Subbasin and neighboring groundwater basins (DWR 2006). The geologic and hydrologic descriptions of the Oxnard Subbasin in this Groundwater Sustainability Plan (GSP) are based on the boundaries of the Oxnard Subbasin, including the areas to the northeast and southeast which are outside of the FCGMA jurisdictional boundaries.

2.2 HYDROGEOLOGIC CONCEPTUAL MODEL

The six commonly recognized water-bearing units in the Oxnard Subbasin are the semi-perched aquifer and the Oxnard, Mugu, Hueneme, Fox Canyon, and Grimes Canyon Aquifers (DWR 1965, 2006; Turner 1975). Of the six commonly recognized water-bearing units, five are considered primary aquifers in the Oxnard Subbasin. The semi-perched aquifer is a water-bearing unit, but is not considered a primary aquifer in the Subbasin. The five aquifers are grouped into an Upper Aquifer System (UAS) and Lower Aquifer System (LAS), with the Oxnard and Mugu Aquifers composing the UAS and the Hueneme, Fox Canyon, and Grimes Canyon Aquifers composing the LAS. The UAS primarily comprises recent to upper Pleistocene age alluvial deposits of the Santa Clara River system. The LAS is primarily composed of upper to lower Pleistocene age marine sediments.

The Forebay area is the primary recharge area for the primary aquifers in the Oxnard Subbasin. In this area, the UAS rests directly on the folded and eroded upper surface of the Hueneme Aquifer and FCA. Water that recharges the UAS in the Forebay area is able to migrate throughout the Subbasin. Both the lithologic units and geologic structures present in the Oxnard Subbasin affect the hydrology of the Subbasin. These features are discussed in more detail in Sections 2.2.1 through 2.2.5.

2.2.1 Geology

Geologic Units and Variation

Tertiary Sedimentary and Igneous Formations

Tertiary sedimentary and igneous rocks that underlie the Oxnard Subbasin are generally considered semipermeable or non-water-bearing (Turner and Mukae 1975). These tertiary formations include the Oligocene/Eocene-age Sespe Formation, the lower Miocene Conejo Volcanics, the upper Miocene Modelo and Monterey Formations, and the Pliocene Pico Formation (Table 2-1; Weber and Kiessling 1976; Dibblee 1992a, 1992b). These formations have been sampled in deep wells drilled in the Oxnard Subbasin (Figure 2-2, Geology of the Oxnard Subbasin; Turner 1975; Weber and Kiessling 1976). These formations are not considered an important source of groundwater in the Oxnard Subbasin (Turner 1975).

Quaternary Sedimentary Formations

Santa Barbara Formation (Lower Pleistocene; Marine)

The Santa Barbara Formation typically comprises laminated, poorly indurated blue-gray marine mud- and siltstone with sand and gravel (Table 2-1; Turner and Mukae 1975). The upper clay-rich sediments act as an aquitard between the Santa Barbara Formation and the overlying San Pedro Formation (Weber and Kiessling 1976). The localized basal conglomerate within the upper member of the Santa Barbara Formation hosts the GCA (Weber and Kiessling 1976).

San Pedro Formation (Lower to Middle Pleistocene; Marine and Nonmarine)

The San Pedro Formation is an interbedded, poorly lithified fine marine, silty sandstone, shale, and mudstone with local pebble conglomerate and an extensive basal sand unit that unconformably overlies the Santa Barbara Formation in the Oxnard Subbasin (Mukae and Turner 1975; Weber and Kiessling 1976).

The upper and lower parts of the San Pedro Formation are separated by a laterally extensive clay marker bed (Turner 1975). Overlying the clay marker bed are lenticular layers of sand, gravel, and silt (Mukae and Turner 1975). The lenticular deposits of sand and gravel in the Upper San Pedro Formation are known as the Hueneme Aquifer in the Oxnard Subbasin. The sediments of the Upper San Pedro Formation coarsen to the west, with a larger percentage of sand and gravel in the western part of the Subbasin and a larger percentage of fines in the eastern part of the Subbasin, particularly in the area adjacent to the boundary with the LPVB.

In contrast, the basal unit of the San Pedro Formation fines to the west. This unit comprises a 100- to 600-foot-thick continuous white or gray fine to medium marine sand with stringers of gravel

and local silt and clay lenses (Turner 1975).[1] The lower part of the San Pedro Formation is the FCA, which is an important source of groundwater supply in the Oxnard Subbasin (Turner 1975).

Older Alluvium (Upper Pleistocene; Terrestrial)

The older alluvium, which comprises gravel, sand, silt, and clay, unconformably overlies the Upper San Pedro Formation. The older alluvium can be divided into two units: an upper clay zone and a lower sand and gravel zone (Mukae and Turner 1975). The Mugu Aquifer occurs in the sand and gravel zone at the base of the older alluvium (Mukae and Turner 1975).

Recent Alluvium (Holocene; Terrestrial)

The recent alluvium in the Oxnard Subbasin comprises sands and gravels interbedded with silt and clay (DWR 1965). These sediments, which unconformably overlie the older alluvium, reach a thickness of up to 300 feet. The basal unit includes coarse sands and gravels intercalated with clay layers (Mukae and Turner 1975). Overlying the basal unit throughout much of the Subbasin is a laterally continuous clay layer that reaches a thickness of up to 160 feet locally. The Oxnard aquifer occurs in the sand and gravel layer below the clay. Above the clay is the semi-perched aquifer.

Geologic Structure

Wright Road Fault

The Wright Road Fault is an active oblique right reverse fault that generally parallels the eastern jurisdictional boundary of the Oxnard Subbasin, separating the LPVB to the east from the Oxnard Subbasin to the west (Figure 2-2; DeVecchio et al. 2007). The fault trace is characterized by a 20-meter-high (66-foot-high) topographic scarp with up-to-the-east displacement along the north-northwest-trending fault (DeVecchio et al. 2007). There is no evidence that the Wright Road Fault impacts groundwater flow between the Oxnard Subbasin and the LPVB.

Oak Ridge and McGrath Faults

The Oak Ridge Fault is a high-angle, south-dipping, left-lateral reverse fault that juxtaposes water-bearing alluvium and older, semipermeable formations in the subsurface (Figure 2-2; SWRCB 1956). To the east of the Oxnard Subbasin, anticlinal folding in the hanging wall of the Oak Ridge Fault resulted in the Oak Ridge and South Mountain uplift (Yeats 1988). In the Oxnard Subbasin, the western extent of the Oak Ridge Fault is concealed beneath the recent alluvium (Mukae and Turner 1975).

[1] This marine sand has been identified as both the Saugus Formation (Kew 1924; Jakes 1979) and the Las Posas Sand (Pressler 1929, as cited in DeVecchio et al. 2012a.; Dibblee 1992a, 1992b; DeVecchio et al. 2012b). The term "San Pedro Formation" is used here for consistency with California Department of Water Resources nomenclature (DWR 2006).

The McGrath Fault, located approximately 1 mile south of the Oak Ridge Fault along the coast in the Oxnard Subbasin, is a branch of the Oak Ridge Fault system with the same sense of motion (Mukae and Turner 1975). The McGrath Fault defines the northerly limit of the Forebay area (Turner 1975). Together, the McGrath and Oak Ridge Faults limit hydraulic communication between the Oxnard Subbasin to the south and the Mound and Santa Paula Subbasins of the Santa Clara River Valley Groundwater Basin to the north.

Bailey Fault

Along the northern edge of the Santa Monica Mountains, the Bailey Fault Zone trends northeast–southwest through the Oxnard Subbasin (Figure 2-2; Turner 1975). The Bailey Fault is a near-vertical fault with up-to-the-south displacement in the subsurface that offsets quaternary sedimentary formations to the north with older formations to the south (Turner 1975). Groundwater elevation differences and chloride ion concentration differences across the fault suggest that it is a barrier to groundwater movement (Turner 1975). The FCA is absent to the south of the Bailey Fault.

Las Posas Syncline

The Las Posas syncline has resulted in thickening and downwarping of the San Pedro Formation and older formations in the central part of the Oxnard Subbasin (Figure 2-2). The axis of the Las Posas syncline trends northeast from its western mapped extent at the intersection of West 5th Avenue and Harbor Boulevard, through El Rio, and into the Las Posas Valley (Turner 1975). At the deepest part of the Las Posas syncline, the Upper San Pedro Formation reaches a thickness of approximately 1,150 feet (Mukae and Turner 1975).

Montalvo Anticline

Deformation in the hanging wall of the Oak Ridge and McGrath Faults has resulted in anticlinal structures on the northern boundary of the Oxnard Subbasin, including the Montalvo anticline (Figure 2-2). The Upper San Pedro Formation has been eroded away in the Forebay area of the Oxnard Subbasin along the axis of the anticline (Turner 1975). Erosion of the Upper San Pedro Formation results in direct communication between the alluvium and the white and gray marine sands of the Lower San Pedro Formation that compose the FCA.

2.2.2 Basin Bottom

The bottom of the Oxnard Subbasin generally corresponds to the base of the San Pedro Formation and the base of the FCA in the northern and western parts of the Subbasin, where the Santa Barbara Formation is absent (Figure 2-2 and Figure 2-3, Cross Section A–A′; Turner 1975). In the southern and eastern parts of the Subbasin, where the Santa Barbara Formation is present, the bottom of the

Subbasin is defined by the contact between the upper member of the Santa Barbara Formation, the GCA, and the underlying strata that have poor water quality (Figure 2-4, Cross Section B–B′).

In general, the bottom of the Oxnard Subbasin is shallower in the east and deeper in the west. Along the eastern margin of the Subbasin, the Subbasin bottom has been mapped at elevations between 0 feet above mean sea level (msl) and −1,200 feet msl (Turner 1975). Along the western edge of the Subbasin, the Subbasin bottom depth ranges from −400 to more than −1,800 feet msl (Turner 1975). The deepest part of the Subbasin occurs along the axis of the Las Posas syncline in the north-central part of the Subbasin.

2.2.3 Principal Aquifers and Aquitards

Semi-Perched Aquifer

River-deposited sands and gravels interbedded with minor silt and clay compose the semi-perched aquifer in the Oxnard Subbasin (DWR 1965; Turner 1975). The term "semi-perched aquifer" is used in this GSP as the name for the uppermost unit of the Oxnard Subbasin, which overlies the extensive clay cap in the pressure plain area of the Oxnard Subbasin (Figure 2-2 and Table 2-1). This name was used in the State Water Resources Control Board's Bulletin 12 (SWRCB 1956) to distinguish the water-bearing sedimentary units in the pressure plain area from those in the Forebay area, and this terminology has been adopted by subsequent investigators (Mukae and Turner 1975; Turner 1975; Hanson et al. 2003; DWR 2006). Water-level data indicate that the sediments underlying the semi-perched aquifer are saturated. Therefore, the term "semi-perched aquifer" is used in this GSP to denote the limited migration of water from the uppermost aquifer to the underlying confined aquifer in the pressure plain area. It is not used to denote a discontinuity in saturation. Furthermore, there is limited groundwater production (<50 acre-feet per year [AFY]) from this unit (see Section 2.4, Water Budget). Therefore, although this unit is referred to as the "semi-perched aquifer," it is not considered to be a principal aquifer in the Subbasin.

The semi-perched aquifer is part of the recent alluvium described in Section 2.2.1, Geology. This aquifer extends from the base of developed soil horizons to a depth of approximately 75 feet throughout most of the Subbasin (Turner 1975). Notably, this aquifer is absent in the Forebay area of the Oxnard Subbasin adjacent to and south of the present course of the Santa Clara River. The permeable sand and gravel deposits of the semi-perched aquifer tend to be continuous in a northeast–southwest orientation, which is similar to the present orientation of the Santa Clara River and lenticular to the northwest and southeast (Turner 1975).

The lenticular shape of the semi-perched aquifer deposits limits flow in the northwest–southeast direction and facilitates flow in the northeast–southwest direction. These deposits have not been affected by faulting or folding in the Subbasin, and there are no structural restrictions to flow through the semi-perched aquifer (UWCD Model Report [2018], provided as Appendix C to this GSP).

Agricultural return flows, saline connate water, and coastal flooding affect both groundwater quality and groundwater elevation in the semi-perched aquifer (Mukae and Turner 1975). The highest water levels in the aquifer, which are typically within a few feet of land surface, are found in heavily irrigated areas (Turner 1975). Tile drains are used throughout the Oxnard Subbasin to alleviate the high groundwater conditions. Agricultural return flows that cause the high water conditions have resulted in high concentrations of total dissolved solids (TDS) and chloride (as high as 23,000 milligrams per liter [mg/L]) in the semi-perched aquifer (Turner 1975; USGS 1996).

Clay Cap

Underlying the semi-perched aquifer is a clay layer that separates the semi-perched aquifer from the Oxnard Aquifer below (Turner 1975). The thickness of the clay cap is approximately 160 feet adjacent to the Pacific Ocean. The clay cap is absent in the Forebay area (DWR 1968; Mukae and Turner 1975). Although the clay cap functions as an aquitard, water can migrate vertically through the clay cap under conditions of differential head (Turner 1975), and in some cases, through casings of wells that have been improperly abandoned.

Oxnard Aquifer

The Oxnard Aquifer is a laterally continuous layer of upper Pleistocene and Holocene nonmarine gravel and cobbles (up to 6 inches in diameter); coarse to fine sand; and interbedded clay, silty clay, and silt lenses (Turner 1975). The deposits that compose this aquifer are part of the recent alluvium and are found beneath the entire Oxnard Subbasin and extend several miles offshore, where they are exposed in the walls of the Hueneme and Mugu submarine canyons (DWR 1965, 1968). The deposits tend to be finer near the coast and coarsen to the east (Turner 1975; DWR 2006). The local silty clay and silt lenses restrict both horizontal and vertical movement of water through the aquifer, and distinct permeable horizons have been identified in logs (DWR 1971).

The top of the Oxnard Aquifer has been shaped by differential erosion and sedimentation of the Santa Clara River (Turner 1975). Throughout much of the Oxnard Subbasin, a clay-rich aquitard that ranges in thickness from 10 to 100 feet separates the Oxnard Aquifer system from the underlying Mugu Aquifer (Mukae and Turner 1975). The basal surface of the clay is more uniform than the upper surface and generally deepens to the west–southwest (DWR 1968). The thickness of the Oxnard Aquifer also generally increases to the west-southwest, with a minimum thickness of less than 50 feet in the vicinity of the Forebay area and reaching a maximum thickness of greater than 150 feet in the vicinity of Point Mugu (DWR 1968; Turner 1975).

Flow of groundwater through the Oxnard Aquifer is controlled by lithologic variability. The only structural feature that restricts flow in this aquifer is the Bailey Fault, in the southern Oxnard Subbasin (Appendix C). The Oxnard Aquifer crops out offshore in the Hueneme and Mugu canyons, making it susceptible to seawater intrusion. The chloride concentration of native water

in the Oxnard Aquifer is approximately 40 mg/L (similar to background values in the Mugu and Hueneme Aquifers), although this concentration varies with geographic location in the Subbasin (USGS 1996). In the vicinity of the Hueneme and Mugu submarine canyons, chloride concentrations have been affected by seawater intrusion. In 2016, the chloride concentration in the vicinity of Hueneme Canyon was as high as 4,800 mg/L, and in the vicinity of Mugu Canyon the chloride concentration was as high as 16,600 mg/L (FCGMA 2016).

The specific yield of the gravels of the Oxnard Aquifer is about 16% in the Forebay area where there are few clay deposits and the aquifer is unconfined (SWRCB 1956; DWR 2006). Wells screened in the Oxnard Aquifer are typically screened in multiple aquifers, including the underlying Mugu Aquifer. (For information on well construction requirements intended to prevent degradation of water quality of the aquifers in the LAS—referred to as requirements for "sealing zone"—see DWR 1968). The California Department of Water Resources (DWR) reports that the average well yield in the Oxnard Aquifer is about 900 gallons per minute (gpm; DWR 2006). Aquifer test results for two wells screened solely within the Oxnard Aquifer, however, have a higher average well yield, of approximately 1,500 gpm, with an average specific capacity of 47 gpm per foot (Hopkins, pers. comm. 2016). Storage coefficients of 6.18×10^{-4} and 3×10^{-4} were estimated from pumping test data at these two wells, and the transmissivity was estimated to be approximately 20,400 feet squared per day (Hopkins, pers. comm. 2016). The well yield and specific capacity were measured at three additional wells screened solely in the Oxnard Aquifer, although aquifer tests were not performed at these wells. The average well yield and specific capacity for these wells is 2,450 gpm and 108 gpm per foot. Based on these measurements, the average transmissivity is approximately 32,000 feet squared per day (Hopkins, pers. comm. 2016).

Water quality in the Oxnard Aquifer has been degraded by seawater intrusion and leakage of agricultural return flows through the clay cap separating the Oxnard Aquifer from the overlying semi-perched aquifer (UWCD 2016a). Seawater intrusion has been documented in both the Port Hueneme and Port Mugu areas (Turner 1975; UWCD 2016a). Water produced from this aquifer is used for agricultural and municipal and industrial (M&I) purposes.

Mugu Aquifer

The sediments that compose the Mugu Aquifer are upper Pleistocene age fine to coarse sands and gravels (DWR 1965; Turner 1975). These sand and gravel deposits are laterally extensive throughout the Subbasin and represent the basal deposits of the older alluvium. In general, the sediments of the Mugu Aquifer are finer near the coast and coarsen to the east (Turner 1975). A low-permeability clay deposit that ranges in thickness from 10 to 100 feet separates the Mugu Aquifer from the overlying Oxnard Aquifer throughout much of the Oxnard Subbasin. However, the clay layer is absent in the Forebay area of the Subbasin near the Santa Clara River (DWR 1965; SWRCB 1979; Turner 1975). The Mugu Aquifer ranges in thickness from approximately 30 feet in the Forebay to approximately 270 feet in the vicinity of Point Mugu (DWR 1965; Turner 1975).

The Mugu Aquifer extends several miles offshore and crops out offshore in the Hueneme and Mugu canyons, making it susceptible to seawater intrusion. The chloride concentration of native water in the Mugu Aquifer is approximately 40 mg/L (USGS 1996). In the vicinity of the Hueneme and Mugu submarine canyons, however, chloride concentrations have been affected by seawater intrusion. In 2016, the chloride concentration in the vicinity of Mugu Canyon was as high as 3,200 mg/L (FCGMA 2016).

The base of the Mugu Aquifer was deposited over an irregular surface that has been affected by both folding and erosion (Turner 1975). The extensive folding of the aquifers underlying the Mugu Aquifer, however, has not been documented within the sediments of the Mugu Aquifer. Within the boundaries of the DWR Bulletin 118 basin, the only documented fault that acts as a barrier to flow is the Bailey Fault in the southern part of the Subbasin. Offshore, however, additional faults that act as barriers to flow exist in the vicinity of the Mugu submarine canyon (Hanson et al. 2003; Appendix C).

Wells screened in the Mugu Aquifer are typically screened in multiple aquifers, including the overlying Oxnard Aquifer. DWR does not report aquifer properties specifically for the Mugu Aquifer (DWR 2006). In the Forebay, Well 02N22W36E04S, screened solely within the Mugu Aquifer, has a well yield of 1,500 gpm, a specific capacity of 17.8 gpm per foot, and an estimated transmissivity of 7,900 feet squared per day (Hopkins, pers. comm. 2016). For wells screened in both the Oxnard and Mugu Aquifers, the average yield is 2,300 gpm, the average specific capacity is 110 gpm per foot, and the average estimated transmissivity is 29,000 feet squared per day (Hopkins, pers. comm. 2016). Water produced from this aquifer is used for agricultural and M&I purposes.

Hueneme Aquifer

The Hueneme Aquifer comprises a series of lenticular silts, sands, and gravels in the Upper San Pedro Formation. This aquifer is present in the northern part of the Oxnard Subbasin but is absent to the south of Hueneme Roads (Mukae and Turner 1975). Within the Oxnard Subbasin, the Hueneme Aquifer is up to 1,150 feet thick along the axis of the Las Posas syncline (Turner 1975). The Hueneme Aquifer extends several miles offshore and crops out in the Hueneme and Mugu submarine canyons.

Changes in lithologic composition, with the aquifer generally containing a higher percentage of fine materials adjacent to the LPVB and PVB, affect flow through the aquifer. The change in composition is accompanied by an increase in the lenticular nature of the deposits that compose the Hueneme Aquifer along the eastern boundary of the Oxnard Subbasin. These changes limit subsurface flow between the Oxnard Subbasin and the LPVB and PVB to the east.

In addition to changes in lithology, structural folding of the Hueneme Aquifer also affects subsurface flow (Turner 1975). Folding, subsequent erosion, and recent deposition have resulted in a direct hydraulic connection between the Hueneme Aquifer and the overlying Mugu Aquifer throughout much of the Oxnard Subbasin (Turner 1975). However, in the southwestern portion of the basin, where seawater intrusion has affected the Mugu Aquifer, the Mugu and Hueneme Aquifers are not in direct hydraulic communication. As a result, water quality in the Hueneme Aquifer has not been affected by seawater intrusion in this area (Turner 1975; Hanson et al. 2003). Offshore faulting in the Hueneme Aquifer also limits direct seawater intrusion into the aquifer in the vicinity of Mugu Canyon, and faulting along the northern and southern boundaries of the Oxnard Subbasin limit flow out of the Hueneme Aquifer to the Mound Basin or to the south of the Bailey Fault (Hanson et al. 2003; Appendix C).

The chloride concentration of native water in the Hueneme Aquifer is approximately 40 mg/L (USGS 1996). In the vicinity of Point Hueneme, the chloride concentration of the Hueneme Aquifer was as high as 9,900 mg/L in 2016 (FCGMA 2016).

Wells screened solely within the Hueneme Aquifer have an average yield of approximately 2,500 gpm and an average specific capacity of 38 gpm per foot (Hopkins, pers. comm. 2016). Storage coefficients of 2×10^{-4} and 3×10^{-4} were estimated from pumping test data at two wells and the transmissivity was estimated to be approximately 13,400 feet squared per day (Hopkins, pers. comm. 2016). Water produced from this aquifer is used for agricultural and M&I purposes.

Fox Canyon Aquifer

The FCA is a 100- to 600-foot-thick marine sand and gravel deposit in the Lower San Pedro Formation (Mukae and Turner 1975). The water-bearing deposits of the FCA fine toward the west (Turner 1975). This unit is laterally continuous throughout the Oxnard Subbasin except at the western tip of South Mountain, where the Santa Barbara Formation is in direct contact with the Mugu Aquifer, and in the southwestern part of the Subbasin, where uplift and erosion have removed the FCA (Turner 1975). In the northern and western parts of the Subbasin, the FCA defines the base of the freshwater zone.

In the Oxnard Subbasin, the FCA is thickest along the axis of the Las Posas syncline. In this area, the FCA reaches thickness in excess of 500 feet, and the base of the aquifer is below −2,000 feet msl (Turner and Mukae 1975; Turner 1975). The primary source of freshwater recharge to the FCA is infiltration through the Oxnard and Mugu Aquifer systems in the Forebay area (Turner 1975; FCGMA 2007).

As with the other primary aquifers in the Oxnard Subbasin, the FCA extends several miles offshore and water quality in the FCA has been impacted by seawater intrusion. The native water in the FCA had a chloride concentration of 40 mg/L (USGS 1996). Chloride concentration measured in

2002 from a well in the southeastern part of the Subbasin ranged from 183 to 367 mg/L (Izbicki et al. 2005). However, the concentration of chloride measured in Well 01N21W32Q04, located inland of Mugu Canyon in the southern part of the Subbasin, was 5,070 mg/L in 2015.

Offshore faulting in the vicinity of Mugu Canyon is thought to limit direct seawater intrusion into the FCA (Hanson et al 2003; Appendix C). Instead, increasing concentrations of chloride in the FCA near Mugu Canyon are thought to originate in the aquifers of the UAS and migrate vertically into the FCA.

There are no aquifer-specific hydraulic parameter measurements for the FCA. Several specific capacity aquifer tests have been conducted in the Oxnard Subbasin, but typically these tests occur in wells screened across multiple aquifers (Appendix C). More detail on the limitations of hydraulic parameter measurements is found in the UWCD model documentation report (Appendix C). Well 02N22W20J02S, in the northern Oxnard Subbasin, is screened in both the FCA and overlying Hueneme Aquifer. This well has a yield of 3,030 gpm, a specific capacity of 95.3 gpm per foot, and a transmissivity of 40,100 feet squared per day (Hopkins, pers. comm. 2016). Water produced from this aquifer is used for agricultural and M&I purposes.

Grimes Canyon Aquifer

The GCA comprises lower Pleistocene age sand with minor amounts of gravel. This aquifer corresponds with the basal conglomerate within the upper member of the Santa Barbara Formation and is only found underlying the southern and eastern parts of the Oxnard Subbasin (Turner 1975). In the southern part of the Subbasin, the GCA is found in a band approximately 5 miles wide along the base of the Santa Monica Mountains from the Pacific Ocean to the boundary with the PVB to the east (Turner 1975). Throughout the rest of the Subbasin, the Grimes Canyon member of the Santa Barbara Formation is absent. As with the other aquifers in the Subbasin, the GCA extends several miles offshore.

The GCA, where present in the Oxnard Subbasin, is in hydraulic communication with the overlying FCA, and there are no production wells perforated solely in the GCA (Turner 1975; VCWPD 2013). As a result, there is little information on the water quality or aquifer properties of the GCA. Water quality has been sampled in some basal portions of the aquifer, and has been found to have brackish water that is likely a result of limited flushing since deposition and upward migration of brines from underlying formations (Mukae and Turner 1975; Turner 1975; Hanson et al. 2003).[2, 3] In addition, seawater intrusion may have impacted some wells screened in the GCA (see Section 2.3.3, Seawater Intrusion). Direct seawater flow into the GCA in the vicinity of Mugu Canyon is thought to be limited

[2] Brackish water is typically defined as water with a concentration of total dissolved solids (TDS) between 3,000 and 10,000 mg/L.

[3] Brines typically have concentrations of TDS greater than 35,000 mg/L.

by offshore faulting (Hanson et al 2003; Appendix C). Concentrations of chloride have been increasing in this area since the 1990s. In 2016 the groundwater concentration measured in a sample collected from Well 01S21W08L03S was 6,428 mg/L (FCGMA 2016). Measured aquifer properties specific to the GCA are not currently available.

2.2.4 Data Gaps and Uncertainty in the Hydrogeologic Conceptual Model

The primary data gaps in the hydrogeologic conceptual model are as follows:

- Distributed measurements of aquifer properties from wells screened solely in a single aquifer
- Distributed measurements of groundwater quality from wells screened solely in a single aquifer
- Measurements of groundwater quality that distinguish the sources of high TDS concentrations in the FCA and the GCA
- Temporal limitations on groundwater elevation data
- Spatial limitations on groundwater elevation data
- The relative impacts of production from areas within the Subbasin on seawater intrusion
- Connection between the semi-perched aquifer and potential groundwater-dependent ecosystems (GDEs)
- Potential impacts of increased production in the semi-perched aquifer

The data gaps listed above create uncertainty in the understanding of the impacts of water level changes on change in storage in the aquifer and on the inland extent of seawater intrusion in the aquifers. Additional aquifer tests, groundwater elevations, and groundwater quality sampling in the future would help reduce the uncertainty associated with these data gaps. Closing the data gaps is discussed further in Chapter 4, Monitoring Networks, of this GSP.

2.3 GROUNDWATER CONDITIONS

2.3.1 Groundwater Elevation Data

Groundwater elevations in the Oxnard Subbasin were first measured in agricultural wells in the 1930s, and multiple entities, including the United Water Conservation District (UWCD), DWR, and the County of Ventura (the County), have recorded water elevations in the Oxnard Subbasin over the intervening decades. In the early 1990s, after the U.S. Geological Survey (USGS) installed a series of nested monitoring wells during the Regional Aquifer System Analysis (Densmore 1996), an annual groundwater monitoring program was initiated in the Subbasin by the County, UWCD, and USGS (FCGMA 2007). The groundwater monitoring programs conducted by the

Ventura County Watershed Protection District and other agencies, including UWCD, include production wells and multiple-completion nested monitoring wells. Many of the production wells included in the monitoring program are screened across multiple aquifers. Historically, the FCGMA annual reports have included potentiometric surface maps for wells screened in the UAS and wells screened in the LAS since 2013 (FCGMA 2015).

To conform with the DWR GSP Regulations, Section 354.16, the following discussion of groundwater elevation is limited to production and monitoring wells screened in a single aquifer. Water level measurements collected between March 2 and March 29, 2015, are used to represent groundwater elevations in spring 2015. Water level measurements collected between October 2 and 29, 2015, are used to represent groundwater elevations in fall 2015.

Because many production wells within the Subbasin are screened across multiple aquifers and there are a limited number of dedicated monitoring wells, the depiction of representative regional potentiometric surfaces in each aquifer is limited. Similarly, the depiction of groundwater trends is also limited by spatial and temporal constraints that are imposed when only using wells screened in a single aquifer. Groundwater pumping data for the year 2015 were mapped to provide context for interpreting the potentiometric surfaces presented in this section (see Figure 2-5, Upper Aquifer System 2015 Extraction [acre-feet] in Oxnard and Pleasant Valley and Figure 2-6, Lower Aquifer System 2015 Extraction [acre-feet] in Oxnard and Pleasant Valley). Self-reported groundwater extraction data for 2015 are shown in Figures 2-5 and 2-6 for wells screened in the UAS and LAS, respectively. In the UAS, the location of the greatest amount of extraction is within the Forebay, with additional extraction areas both west and southeast of the City of Oxnard (Figure 2-5). The majority of the production from the LAS is in the southeastern portion of the Subbasin (Figure 2-6). The volume of groundwater extracted from the LAS is greater than that extracted from the UAS.

Current and historical groundwater elevations are discussed below by aquifer. Full hydrographs for all Oxnard Subbasin wells in which five or more water level measurements have been recorded are included in Appendix D, Water Elevation Hydrographs. In general, climate cycles, management actions, and the construction of water conservation facilities have impacted water elevations in the Oxnard Subbasin. The Freeman Diversion, completed in 1991, allows UWCD to divert surface water from the Santa Clara River to spreading basins, where it can infiltrate into the aquifers of the UAS and be transported via pipelines to other areas. This additional recharge enhanced aquifer recovery in the 1990s after a period of drought (FCGMA 2007). Additionally, UWCD's Pumping Trough Pipeline (PTP), constructed in 1986, which delivers diverted Santa Clara River water to agricultural parcels on the Oxnard Plain in lieu of groundwater production from that area, resulted in rising groundwater elevations during the late 1980s. In 1991, Ventura County adopted Ordinance 3991, which provided a temporary prohibition on drilling of new wells in the UAS, which also contributed to water elevation recovery in the UAS in the 1990s.

2.3.1.1 Oxnard Aquifer

Spring and Fall 2015 Groundwater Elevations

In the spring of 2015, recorded groundwater elevations in the Oxnard Aquifer wells ranged from −27.2 to 46.3 feet msl (Figure 2-7, Groundwater Elevation Contours in the Oxnard Aquifer, March 2–29, 2015). In the fall of 2015, recorded groundwater elevations ranged from −30.7 to 37.9 feet msl (Figure 2-8, Groundwater Elevation Contours in the Oxnard Aquifer, October 2–29, 2015).

Groundwater flows from areas of high groundwater elevation to areas of low groundwater elevation. The highest groundwater elevations in the Oxnard Aquifer are found in the Forebay in both the fall and spring of 2015 (Figures 2-5 and 2-7). The hydraulic gradient in the Forebay in the spring of 2015 was approximately 0.005 feet/feet with groundwater flowing to the south and southwest, toward the pumping centers west and southeast of the City of Oxnard. In the fall of 2015, the hydraulic gradient was approximately 0.005 feet/feet with groundwater flowing to the southwest and southeast.

Elsewhere in the Subbasin, groundwater elevations in the Oxnard Aquifer are higher on the western and eastern boundaries of the Subbasin than they are in the center of the Subbasin. In this central area, groundwater elevations are more than −20 feet msl in both the spring and fall of 2015, though the areal extent of lower elevations is much greater in fall than in spring (Figures 2-7 and 2-8). In general, elevations in the UAS in the central Oxnard Subbasin are above sea level during wet climatic periods and fall below sea level during droughts (UWCD 2016a). Artesian conditions can occur in the western Oxnard Subbasin during wet climatic cycles (UWCD 1999).

The central area of low elevations reflects the groundwater production from wells southeast of the City of Oxnard in the central Oxnard Subbasin (Figure 2-5). The hydraulic gradient, directed toward the production wells, was less than approximately 0.001 feet/feet in both the spring and fall of 2015. Coastal elevations were measured below or near sea level in both spring and fall of 2015, and consequently, the hydraulic gradient was generally landward at the coast (Figures 2-7 and 2-8).

There is uncertainty associated with the groundwater elevation contours, hydraulic gradient, and groundwater flow direction in the Oxnard Aquifer in the spring and fall of 2015. Fewer wells are screened solely within the Oxnard Aquifer than are producing groundwater from the Oxnard Aquifer. The majority of the wells that produce groundwater in the Oxnard Aquifer are screened across multiple aquifers. These wells were not used to create the contour maps in order to conform with the DWR GSP Regulations, Section 354.14. The uncertainty in hydraulic gradient, flow direction, and groundwater elevation within the Oxnard Aquifer is particularly pronounced in the southern Oxnard Subbasin, where there are few wells screened solely within the Oxnard Aquifer but several production wells screened in multiple aquifers (Figures 2-7 and 2-8).

Vertical Gradients

Groundwater elevations in the Oxnard Aquifer are higher than those in the underlying Mugu Aquifer, resulting in a downward vertical gradient from the Oxnard Aquifer to the Mugu Aquifer in all areas of the Oxnard Subbasin for which Mugu-specific elevation data are available (Table 2-2). The magnitude of the vertical gradient varies with distance from the coast. The downward vertical gradient between the Oxnard and Mugu Aquifers was calculated for five wells in the fall of 2015 (Table 2-2). The wells in Table 2-2 were selected from a larger group of nested groundwater monitoring wells to represent the vertical gradient at different geographic locations in the Subbasin.

In the spring of 2015, the vertical gradient from the Oxnard Aquifer to the underlying Mugu Aquifer ranged from 0.004 feet/feet at the coast near Port Hueneme to 0.278 feet/feet inland of Point Mugu (Table 2-2). In the fall of 2015, the vertical gradient from the Oxnard Aquifer to the underlying Mugu Aquifer ranged from 0.002 feet/feet at the coast near Port Hueneme to 0.468 feet/feet inland of Point Mugu (Table 2-2). The vertical gradients along the coast are lower than they are inland, possibly reflecting the influence of seawater in the aquifer, moderating water levels at the coast. Alternatively, the vertical gradients may be lower at the coast because there is less pumping near the coast (Figures 2-5 and 2-6), and gradients may be higher in some inland areas that are closer to the Forebay area, as recharge in the Forebay affects water pressure in the Oxnard Aquifer more than the other aquifers.

The vertical gradient between the Oxnard and Mugu Aquifers was higher in the fall than in the spring, except at the coast where it was the same in the spring and fall (Wells 01N22W20M02S and 01N22W20M03S), and in the Forebay where the gradient was higher in the spring than in the fall (Wells 02N22W23B07S and 02N22W23B08S). The vertical gradient in the Forebay was higher in the spring because of surface water spreading grounds in the Forebay that are primarily used during periods of higher flow in the Santa Clara River.

Vertical gradients within the Oxnard Aquifer were determined from monitoring well clusters 01N21W19L, 02N22W23B, and 01N22W28G, which have two screen intervals within the Oxnard Aquifer (Table 2-2). For each of these locations, the vertical hydraulic gradient within the Oxnard Aquifer was directed downward. The downward vertical hydraulic gradient ranged from 0.009 to 0.278 feet/feet in the spring of 2015. In the fall of 2015, the downward vertical gradient ranged from 0.016 to 0.643 feet/feet. The downward vertical hydraulic gradient was larger in the fall than in the spring, and the largest downward vertical hydraulic gradient was in the Oxnard Forebay (Forebay). The smallest downward vertical hydraulic gradient within the Oxnard Aquifer was adjacent to the coast (Table 2-2; Figure 2-8).

Historical Groundwater Elevation Trends

Groundwater elevations in the Oxnard Aquifer have declined and recovered over climatic cycles since the 1930s (Figure 2-9a, Groundwater Well Hydrographs in the Oxnard Aquifer – Oxnard Plain). Management policies and the construction and operation of water conservation facilities have also impacted historical groundwater elevations (see Section 2.3.1, Groundwater Elevation Data). Full hydrographs for Oxnard Subbasin wells with five or more groundwater elevation measurements are included in Appendix D.

Groundwater elevation trends in Well 01N21W07H01S, the well with the longest historical groundwater elevation record in the Oxnard Subbasin, track with the trends observed in the record of cumulative departure from the mean precipitation on the Oxnard Plain (Figure 2-9a). Declines in groundwater elevation occurred between 1941 and 1966, 1970 and 1977, 1984 and 1990, and 2011 and 2016, coincident with periods of drought shown in the declining limb of the cumulative departure from the mean precipitation curve (Figure 2-9a). Groundwater elevations recovered after each historical drought period, but have not yet recovered from the drought beginning in 2011. The amount of historical recovery depended on the length of time between droughts and the amount of precipitation received in each of the water years between the droughts, as well as management measures, including surface water spreading and deliveries, operative during the various periods. By 1980, the groundwater elevation recovered to within 10 feet of the previous maximum measured in 1941, and by 1999, water levels exceeded the 1941 maximum (Figure 2-9a), likely due to several wet years during the 1990s and the influence of management actions taken, and water conservation facilities constructed, in the 1980s and 1990s (see Section 2.3.1). In the late 1990s, artesian conditions were documented in the western Oxnard Subbasin (UWCD 1999). Since 2011, groundwater elevations in this well have declined approximately 40 feet.

The patterns of water level decline and recovery observed in Well 01N21W07H01S are observed in Oxnard Aquifer wells throughout the Oxnard Subbasin, although absolute changes in water level vary geographically within the Oxnard Subbasin (Figure 2-9a and Figure 2-9b, Groundwater Well Hydrographs in the Oxnard Aquifer – Forebay Area). Wells in the Forebay area and northeastern Oxnard Subbasin have experienced water level declines of approximately 90 feet since 2011 (Figure 2-9b), while water levels in wells adjacent to the coast and in wells farther south have declined between 18 and 40 feet over the same period (Figure 2-9a). The larger water level changes observed in the northeastern Oxnard Subbasin reflect the influence of UWCD's managed aquifer recharge activities in the Forebay area; additionally, water level changes at the coast may be smaller due to the fact that seawater may be intruding and occupying volume within the aquifer as freshwater recedes.

Although groundwater elevations in the Oxnard Subbasin recover to some degree after each drought period, elevations in coastal wells do not always recover to mean sea level. Historical elevations of coastal wells over time in relation to sea level are discussed in Section 2.3.3.

2.3.1.2 Mugu Aquifer

Spring and Fall 2015 Groundwater Elevations

In the spring of 2015, recorded groundwater elevations in the Mugu Aquifer in the Oxnard Subbasin ranged from −60.7 to 8.2 feet msl (Figure 2-10 Groundwater Elevation Contours in the Mugu Aquifer, March 2–29, 2015). In the fall of 2015, groundwater elevations ranged from −97.7 to −12.1 feet msl (Figure 2-11, Groundwater Elevation Contours in the Mugu Aquifer, October 2–29, 2015).

The highest groundwater elevations in the Mugu Aquifer are found in the Forebay in both the fall and spring of 2015 (Figures 2-10 and 2-11). The hydraulic gradient in the Forebay in the spring of 2015 was approximately 0.003 feet/feet with groundwater flowing to the south and southwest. In the fall of 2015, the hydraulic gradient was approximately 0.002 feet/feet with groundwater flowing to the south and southwest. These gradients are based on the wells that are screened solely within the Mugu Aquifer, which are primarily located in the eastern part of the Subbasin. Groundwater elevations in the Mugu Aquifer are lowest in the southeastern area of the Subbasin. In general, elevations in the UAS in the southernmost corner of the Subbasin tend to be lower than in the central Subbasin (by as much as 40 to 80 feet), regardless of climatic cycles (FCGMA 2013).

In the southeastern area of the Subbasin, groundwater elevations were −30 to −100 feet msl in 2015 (Figures 2-10 and 2-11). The hydraulic gradient, directed toward the area of low groundwater elevations, was approximately 0.002 feet/feet to the southeast in the spring of 2015. In the fall of 2015, the hydraulic gradient directed toward the area of low groundwater elevations ranged from approximately 0.004 to 0.009 feet/feet to the east-southeast. Coastal groundwater elevations were measured below or near sea level in both spring and fall of 2015, creating a presumably landward hydraulic gradient at the coast (Figures 2-10 and 2-11).

There is uncertainty associated with the groundwater elevation contours, hydraulic gradient, and groundwater flow direction in the Mugu Aquifer in the spring and fall of 2015. The gradient is unknown in the northwestern area of the Subbasin, where there are no wells screened solely within the Mugu Aquifer. Additionally, fewer wells are screened solely within the Mugu Aquifer than are producing groundwater from the Mugu Aquifer. The majority of the wells that produce groundwater in the Mugu Aquifer are screened across multiple aquifers. These wells were not used to create the contour maps, in order to conform with the DWR GSP Regulations, Section 354.14. For the central and eastern areas of the Subbasin in which there are well data in the Mugu Aquifer, the uncertainty in hydraulic gradient, flow direction, and groundwater elevation within the aquifer is particularly pronounced. In this area, groundwater appears to flow to the south-southeast from the Oxnard Subbasin to the PVB (Figures 2-10 and 2-11).

Vertical Gradients

Groundwater elevations in the Mugu Aquifer are lower than those in the overlying Oxnard Aquifer, resulting in a downward vertical gradient from the Oxnard Aquifer to the Mugu Aquifer throughout the Oxnard Subbasin (Table 2-2; Section 2.3.1.1, Oxnard Aquifer). Groundwater elevations in the Mugu Aquifer are higher than those in the underlying Hueneme Aquifer, resulting in a downward vertical gradient from the Mugu Aquifer to the Hueneme Aquifer in the Forebay and adjacent to Port Hueneme (Table 2-2). At monitoring well cluster 01N22W20M, adjacent to Port Hueneme, the downward vertical hydraulic gradient was 0.033 feet/feet in the spring of 2015 and 0.039 feet/feet in the fall of 2015. At monitoring well cluster 02N22W23B, in the Forebay, the downward vertical hydraulic gradient was 0.012 feet/feet in the spring of 2015 and 0.028 feet/feet in the fall of 2015.

Within the Mugu Aquifer, a downward vertical gradient of 0.365 feet/feet was calculated in the spring of 2015 between Wells 01N21W32Q07S and 01N21W32Q05S (Figure 2-10). In the fall of 2015, the downward vertical gradient was 0.560 feet/feet (Table 2-2; Figure 2-11).

Historical Groundwater Elevation Trends

Groundwater elevations in the Mugu Aquifer have declined and recovered over climatic cycles since the 1970s (Figure 2-12, Groundwater Well Hydrographs in the Mugu Aquifer). Management policies and the construction and operation of water conservation facilities have also impacted historical groundwater elevations (see Section 2.3.1). Full hydrographs for Oxnard Subbasin wells with five or more groundwater elevation measurements are included in Appendix D.

Groundwater elevation trends in Well 02N22W24P01S, the well with the longest historical groundwater elevation record in the Mugu Aquifer, track with the trends observed in the record of cumulative departure from the mean precipitation on the Oxnard Plain (Figure 2-12). Declines in groundwater elevation occurred between 1974 and 1977, 1984 and 1990, and 2011 and 2016, coincident with periods of drought shown in the declining limb of the cumulative departure from the mean precipitation curve (Figure 2-12). Groundwater elevations recovered after each historical drought period, but have not yet recovered from the drought beginning in 2011. The amount of historical recovery depends on the length of time between droughts and the amount of precipitation received in each of the water years between the droughts, as well as management measures, including artificial recharge and surface water deliveries, operative during the various periods. In 1996, water levels exceeded the previous maximum in 1980 (Figure 2-12), likely due to several wet years during the 1990s and the influence of management actions taken, and water conservation facilities constructed in the 1980s and 1990s (see Section 2.3.1). In the late 1990s, artesian conditions were documented in the western Oxnard Subbasin (UWCD 1999). Since 2011, groundwater elevations in this well have declined approximately 100 feet.

The patterns of water level decline and recovery observed in Well 02N22W24P01S are observed in Mugu Aquifer wells throughout the Oxnard Subbasin, although absolute changes in water level vary geographically within the Subbasin (Figure 2-12). Well 02N22W24P01S is located near the Forebay area. Other wells in the Forebay area experienced similar water level declines and recoveries to those observed in Well 02N22W24P01S (Figure 2-12). Water levels in wells adjacent to the coast and in wells farther south, however, tend to have larger intra-annual variation (variation that occurs within a single year) in groundwater level, but a smaller drought response (e.g., Wells 01N21W32Q05S and 01N21W19L11S; see Figure 2-12). The groundwater elevation in these wells declined between 20 and 80 feet between 2011 and 2015, whereas the groundwater elevation in wells in the Forebay area declined approximately 100 feet over the same period. The larger groundwater level changes observed in the northeastern Oxnard Subbasin likely reflect the influence of groundwater recharge from spreading basins in the Forebay area; additionally, groundwater level changes at the coast may be smaller due to the fact that seawater may be intruding and occupying volume within the aquifer as freshwater recedes.

Although groundwater elevations in the Oxnard Subbasin recover after each drought period, groundwater elevations in coastal Mugu-specific wells in the southern Subbasin typically remain below mean sea level. Historical elevations of coastal wells over time in relation to sea level are discussed in Section 2.3.3.

2.3.1.3 Hueneme Aquifer

Spring and Fall 2015 Groundwater Elevations

In the spring of 2015, recorded groundwater elevations in the Hueneme Aquifer in the Oxnard Subbasin ranged from −89.4 to 10.2 feet msl (Figure 2-13, Groundwater Elevation Contours in the Hueneme Aquifer, March 2–29, 2015). In the fall of 2015, groundwater elevations ranged from −115.5 to 2.1 feet msl (Figure 2-14, Groundwater Elevation Contours in the Hueneme Aquifer, October 2–29, 2015). There are fewer wells screened solely in the Hueneme Aquifer than are screened in the Oxnard Aquifer, Mugu Aquifer, or FCA in the Oxnard Subbasin. The small number of wells screened solely within the Hueneme Aquifer creates uncertainty in the groundwater elevation contours, hydraulic gradient, and groundwater flow direction (Figures 2-13 and 2-14). This aquifer is present in the northern part of the Oxnard Subbasin but is absent to the south of Etting and Hueneme Roads (Mukae and Turner 1975).

The highest groundwater elevations in the Hueneme Aquifer are found in the Forebay in both the fall and spring of 2015 (Figures 2-13 and 2-14). The hydraulic gradient in the Forebay in the spring of 2015 was approximately 0.008 feet/feet, with groundwater flowing to the southwest. In the fall of 2015 the hydraulic gradient was approximately 0.007 feet/feet, with groundwater flowing to the south-southwest.

Groundwater elevations in the Hueneme Aquifer are lowest south of the Forebay and west of Central Avenue (Figures 2-13 and 2-14). In this area, groundwater elevations were −80 to −100 feet msl in 2015 (Figures 2-13 and 2-14). This area of lower groundwater elevations coincides with the location of several production wells that are screened solely within the Hueneme Aquifer (Figure 2-6). The hydraulic gradient, directed toward the area of low groundwater elevations, ranged from approximately 0.003 feet/feet to the southeast in the spring of 2015 to approximately 0.008 feet/feet to the east-southeast in the fall of 2015. Coastal groundwater elevations were below or near sea level in both spring and fall of 2015, resulting in a landward hydraulic gradient at the coast (Figures 2-13 and 2-14).

Vertical Gradients

Groundwater elevations in the Hueneme Aquifer are lower than those in the overlying Mugu Aquifer, resulting in a downward vertical gradient from the Mugu Aquifer to the Hueneme Aquifer (Table 2-2; Section 2.3.1.2, Mugu Aquifer). Groundwater elevations in the Hueneme Aquifer were higher than those in the underlying FCA in both the spring and fall of 2015, except in the Forebay at Wells 02N22W23B03 and 02N22W23B04. In these wells, the groundwater elevation in the Hueneme Aquifer was higher than it was in the FCA in the spring of 2015, and lower than that in the FCA in the fall of 2015 (Table 2-2). In the spring of 2015, the downward vertical hydraulic gradient between the Hueneme Aquifer and FCA ranged from 0.014 feet/feet to 0.040 feet/feet. In the fall of 2015, the vertical hydraulic gradient between the Hueneme Aquifer and FCA ranged from 0.050 feet/feet downward adjacent to the coast, to 0.032 upward in the Forebay (Table 2-2).

Within the Hueneme Aquifer, a downward vertical gradient of 0.017 feet/feet was calculated for Wells 01N22W20M03S and 01N22W20M02S in the spring of 2015 (Figure 2-13). In the fall of 2015, the gradient in these wells was 0.019 feet, which is the same as it was in the spring. Farther north, in Wells 01N23W01C03S and 01N23W01C04S, the vertical gradient within the Hueneme Aquifer was similar to that calculated for Wells 01N22W20M03S and 01N22W20M02S. In the spring of 2015, the downward vertical hydraulic gradient was 0.009 feet/feet in Wells 01N23W01C03S and 01N23W01C04S. In the fall, the downward vertical hydraulic gradient was 0.010 feet/feet between Wells 01N23W01C03S and 01N23W01C04S (Table 2-2).

In Wells 02N22W23B07S and 02N22W23B08S, in the Forebay, the downward vertical gradient is greater in the upper Hueneme Aquifer than in the lower Hueneme Aquifer (Table 2-2). The gradients within the Hueneme Aquifer in the Forebay are similar to those within the Hueneme Aquifer along the coast.

Historical Groundwater Elevation Trends

Groundwater elevations in the Hueneme Aquifer have declined and recovered over climatic cycles (Figure 2-15, Groundwater Well Hydrographs in the Hueneme Aquifer). Management policies and

the construction and operation of water conservation facilities have also impacted historical groundwater elevations (see Section 2.3.1). Full hydrographs for Oxnard Subbasin wells with five or more groundwater elevation measurements are included in Appendix D.

Groundwater elevation trends in Well 02N21W31P03S, the well with the longest historical groundwater elevation record in the Hueneme Aquifer, track with the trends observed in the record of cumulative departure from the mean precipitation on the Oxnard Plain (Figure 2-15). Declines in groundwater elevation occurred between 1974 and 1977, 1984 and 1990, and 2011 and 2016, coincident with periods of drought shown in the declining limb of the cumulative departure from the mean precipitation curve (Figure 2-15). Groundwater elevations largely recovered after each historical drought period, but have not yet recovered from the drought beginning in 2011. The amount of historical recovery depends on the length of time between droughts and the amount of precipitation received in each of the water years between the droughts, as well as the management measures, including artificial recharge and surface water deliveries, operative during the various periods. Since 2011, groundwater elevations in this well have declined approximately 60 feet (Figure 2-15).

The patterns of water level decline and recovery observed in Well 02N21W31P03S are also observed in Hueneme Aquifer Wells 01N22W03F05S and 01N22W26M03S, although the magnitude of the change in groundwater levels varies between the wells (Figure 2-15). Ignoring seasonal variations reflecting pumping, the spring high elevations between 1996 and 2010 were relatively stable in Well 01N22W26M03S and declined by approximately 32 feet in Well 01N22W03F05S. Between 2011 and 2015, during a period of drought, groundwater elevations declined approximately 47 feet in Well 01N22W26M03S and approximately 55 feet in Well 01N22W03F05S (Figure 2-15).

Although groundwater elevations in the Oxnard Subbasin recover after each drought period, groundwater elevations in coastal wells can remain below mean sea level, resulting in a landward gradient near the coast.

2.3.1.4 Fox Canyon Aquifer

Spring and Fall 2015 Groundwater Elevations

In the spring of 2015, recorded groundwater elevations in the FCA in the Oxnard Subbasin ranged from −107.3 to 3.9 feet msl (Figure 2-16, Groundwater Elevation Contours in the Fox Canyon Aquifer, March 2–29, 2015). In the fall of 2015, groundwater elevations ranged from −156.3 to −24.6 feet msl (Figure 2-17, Groundwater Elevation Contours in the Fox Canyon Aquifer, October 2–29, 2015).

The highest groundwater elevations in the FCA are found in the Forebay in both the fall and spring of 2015 (Figures 2-16 and 2-17). The lowest recorded groundwater elevations are found at Well 01N21W06J05S, south of 5th Street, west of Pleasant Valley Road (Figures 2-16 and

2-17). The low groundwater elevations in this well reflects the production from the FCA at this location (Figure 2-6). However, there are several wells in the surrounding areas that produced more groundwater in 2015, but are screened across multiple aquifers in the LAS. The hydraulic gradient in the FCA was directed toward Well 01N21W06J05S in both the spring and fall of 2015. In the spring of 2015, the hydraulic gradient was approximately 0.001 to 0.002 feet/feet. In the fall of 2015, the hydraulic gradient ranged from approximately 0.002 to approximately 0.005 feet/feet. These gradients may not fully depict the direction and magnitude of flow within the FCA because more production wells are screened across multiple aquifers in the LAS than are screened solely within the FCA, and consequently production is occurring in areas of the aquifer that lack aquifer-specific groundwater elevation data. Coastal groundwater elevations were measured below or near sea level in both spring and fall of 2015, resulting in a landward hydraulic gradient (Figures 2-16 and 2-17).

Vertical Gradients

Groundwater elevations in the FCA are generally lower than those in the overlying aquifers (Figures 2-16 and 2-17; Table 2-2). In the spring of 2015, the downward vertical gradient from the Mugu Aquifer to the FCA ranged from 0.012 feet/feet in the Forebay to 0.390 feet/feet adjacent to Highway 1 (Figure 2-16; Table 2-2). In the fall of 2015, the downward vertical gradient from the Mugu Aquifer to the FCA ranged from 0.620 feet/feet in the Forebay to 0.028 feet/feet south of Hueneme Road.

In the spring of 2015, the downward vertical gradient from the Hueneme Aquifer to the FCA was similar geographically, ranging from 0.014 feet/feet in the Forebay and along the coast north of Port Hueneme to 0.040 feet/feet adjacent to the coast at Port Hueneme (Table 2-2). In the fall of 2015, the vertical hydraulic gradient between the Hueneme Aquifer and FCA ranged from 0.050 feet/feet downward along the coast near Port Hueneme to 0.032 feet/feet upward in the Forebay (Table 2-2).

Within the FCA, a downward vertical gradient of 0.005 feet/feet was calculated for Wells 01N22W36K06S and 01N22W36K07S in the spring of 2015. The vertical hydraulic gradient in these wells, near Point Mugu, was 0.019 feet/feet downward in the fall of 2015. In the Mugu area the vertical flow to the FCA is a major mechanism for seawater intrusion. In the Forebay area, the vertical hydraulic gradient within the FCA was 0.014 feet/feet downward in the spring of 2015 and 0.022 feet/feet upward in the fall of 2015 (Table 2-2; Wells 02N21W07L04S and 02N21W07L06S).

Groundwater elevations in the FCA are higher than those in the underlying GCA, except adjacent to Port Hueneme in Wells 01N22W28G04S and 01N22W28G05S (Table 2-2).

Historical Groundwater Elevation Trends

Groundwater elevations in the FCA have declined and recovered over climatic cycles (Figure 2-18, Groundwater Well Hydrographs in the Fox Canyon Aquifer). Management policies and the construction and operation of water conservation facilities have also impacted historical groundwater elevations (see Section 2.3.1). Full hydrographs for Oxnard Subbasin wells with five or more groundwater elevation measurements are included in Appendix D.

Groundwater elevation trends in Well 01N22W26K04S, the well with the longest historical groundwater elevation record in the FCA, track with the trends observed in the record of cumulative departure from the mean precipitation on the Oxnard Plain (Figure 2-18). Declines in groundwater elevation occurred between 1974 and 1977, 1984 and 1990, and 2011 and 2016, coincident with periods of drought shown in the declining limb of the cumulative departure from the mean precipitation curve (Figure 2-18). Groundwater elevations recovered after each drought period prior to the most recent drought. Groundwater elevations have not yet recovered to pre-2011 levels.

The amount of historical recovery depends on the length of time between droughts and the amount of precipitation received in each of the water years between the droughts, as well as management measures, including artificial recharge and surface water deliveries, operative during the various periods. In 1999, water levels exceeded the previous maximum in 1983 (Figure 2-18), likely due to several wet years during the 1990s and the influence of management actions taken, and water conservation facilities constructed, in the 1980s and 1990s (see Section 2.3.1). In the late 1990s, artesian conditions were documented in the western Oxnard Subbasin (UWCD 1999).

The patterns of groundwater level decline and recovery observed in Well 01N22W26K04S are observed in FCA wells throughout the Oxnard Subbasin, although absolute changes in groundwater level vary geographically within the Oxnard Subbasin (Figure 2-18). Well 01N22W26K04S is located south of Hueneme Road. Other wells in this area experienced similar groundwater level declines and recoveries to those observed in Well 01N22W26K04S (Figure 2-18). Wells farther inland tend to have larger intra-annual variations in groundwater level (e.g., Wells 01N21W06J05S and 01N21W09C04S; see Figure 2-18). The groundwater elevation in these wells declines by 40 to 50 feet each year between the spring high and fall low groundwater levels. In contrast, Well 01N23W01C02S, adjacent to the coast, declines approximately 5 feet between the spring high and fall low groundwater level (Figures 2-16, 2-17, and 2-18). Groundwater level changes at the coast may be smaller due to the fact that seawater may be intruding and occupying volume within the aquifer as freshwater recedes.

Although groundwater elevations in the Oxnard Subbasin recover after each drought period, groundwater elevations in coastal FCA-specific wells in the southern Subbasin typically remain below mean sea level.

2.3.1.5 Grimes Canyon Aquifer

Spring and Fall 2015 Groundwater Elevations

The GCA is only found underlying the southern and eastern parts of the Oxnard Subbasin (Turner 1975). Only six wells in the Oxnard Subbasin are screened solely within the GCA. These wells are located in the southern part of the Subbasin, all located west of Revolon Slough (Figure 2-19, Groundwater Elevation Contours in the Grimes Canyon Aquifer, March 2–29, 2015). In the spring of 2015, recorded groundwater elevations in the GCA ranged from −31.3 to −75.6 feet msl (Figure 2-19). In the fall of 2015, groundwater elevations ranged from −38.6 feet msl to −114.2 feet msl (Figure 2-20, Groundwater Elevation Contours in the Grimes Canyon Aquifer, October 2–29, 2015).

Where measured, groundwater in the GCA flows to the east-northeast from the coast toward the Revolon Slough (Figures 2-19 and 2-20). In the spring of 2015, the hydraulic gradient in the vicinity of Point Mugu was approximately 0.003 feet/feet (Figure 2-19). In the fall of 2015, the hydraulic gradient was approximately 0.008 feet/feet (Figure 2-20).

There is a large degree of uncertainty associated with the groundwater elevation contours, hydraulic gradient, and groundwater flow direction in the GCA in the spring and fall of 2015 because so few wells are screened solely within the GCA. The direction of flow, as contoured by the wells that are screened within the GCA, likely reflects the LAS groundwater production south of Hueneme Road (Figure 2-6). However, no wells are screened solely within the GCA north of Hueneme Road; therefore, the groundwater elevation, hydraulic gradient, and direction of flow in the GCA is unknown for much of the Oxnard Subbasin. Coastal groundwater elevations were measured below or near sea level in both spring and fall of 2015, and consequently the hydraulic gradient was landward at the coast (Figures 2-19 and 2-20).

Vertical Gradients

Groundwater elevations in the GCA are generally lower than those in the overlying FCA, except adjacent to Port Hueneme in Wells 01N22W28G04S and 01N22W28G05S (Table 2-2). The downward vertical hydraulic gradient in the spring of 2015 ranged from 0.047 feet/feet downward at Wells 01N21W32Q04S and 01N21W32Q05S to 0.01 feet/feet upward Wells 01N22W28G04S and 01N22W28G05S (Table 2-2). Vertical hydraulic gradients were similar in the fall of 2015, ranging from 0.044 feet/feet downward to 0.019 feet/feet upward, in the same wells.

Only well cluster 01N21W32Q has two wells screened within the GCA (Wells 01N21W32Q02 and 01N21W32Q03; Figure 2-19). Within the GCA, the vertical hydraulic gradient was 0.084 feet/feet upward in both the spring and fall of 2015 (Table 2-2).

Historical Groundwater Elevation Trends

Groundwater elevations in the GCA have been measured since 1989. Similar to the water levels in the overlying FCA, the groundwater levels in the GCA recovered between 1990 and 1996 (Figure 2-21, Groundwater Well Hydrographs in the Grimes Canyon Aquifer). Between 1996 and 2010, groundwater elevations were relatively stable, with intra-annual variation of up to 80 feet per year, but with inter-annual variation (variation that occurs over a series of years) of 10 feet or less. Between 2011 and 2015 groundwater elevations in the GCA declined, coincident with a period of drought. Groundwater elevations in Wells 01N22W28G01S and 01N22W35E01S vary less than groundwater elevations in other GCA wells, potentially because they are relatively far from major centers of groundwater extraction or because they are adjacent to the coast, and the intrusion of seawater may moderate freshwater elevation changes (Figures 2-19 and 2-21).

Although groundwater elevations in the Oxnard Subbasin recover to some degree after each drought period, elevations in coastal GCA-specific wells in the southern Subbasin remain below mean sea level.

2.3.2 Estimated Change in Storage

Estimated monthly change in storage values for the Oxnard Subbasin were generated by the numerical groundwater flow model prepared by UWCD (Appendix C). Monthly data reported from the model was summed to get the annual change in storage for the period from water year 1986 to water year 2015. There are inherent uncertainties in using any numerical groundwater flow model. The uncertainty associated with the UWCD model estimates is explored in more detail in Appendix E, UWCD Model Peer Review. Model estimated change in storage for the aquifer, the UAS, and the LAS is presented below.

The annual change in storage in the semi-perched aquifer ranged from an increase of approximately 16,300 AF in water year 1995 to a decrease of approximately 11,000 AF in water year 2014. The average annual change in storage in the semi-perched aquifer was a loss of storage of approximately 410 AFY.

In the UAS, the annual change in storage ranged from an increase of approximately 63,000 AF in water year 2005 to a decrease of approximately 34,200 AF in water year 1987. The average annual change in storage in the UAS was a loss of approximately 2,800 AFY.

The LAS had a maximum annual increase in storage of approximately 7,300 AF in water year 2005 and a maximum annual decrease in storage of approximately 8,000 AF in water year 1987. The average annual change in the LAS was a loss of approximately 220 AFY.

Total average annual change in storage in the Oxnard Subbasin was a decrease in storage of approximately 3,400 AFY. For the entire Oxnard Subbasin, the annual change in storage ranged from an increase of approximately 81,000 AF in water year 2005 to a decrease of approximately 48,700 AF in water year 1987 (Figure 2-22, Oxnard Subbasin Annual Change in Storage).

The cumulative change in storage calculated by the model over the period of record, water years 1986 through 2015, is presented on Figure 2-23, Oxnard Subbasin Cumulative Change in Storage. For the semi-perched aquifer, the UAS, and the LAS, the cumulative change in storage was a loss of approximately 12,300 AF, 82,500 AF, and 6,600 AF, respectively. The total cumulative loss for the entire Oxnard Subbasin was approximately 101,400 AF (Figure 2-23). Groundwater extraction (pumping) in the FCGMA is reported on a calendar year basis, so pumping and artificial recharge in figures is per calendar year, while change in storage is per water year. Annual change in storage is not strongly correlated to groundwater pumping in the Oxnard Plain ($R^2 < 0.5$). In contrast, artificial groundwater recharge at the UWCD spreading grounds is correlated with change in storage ($R^2 > 0.8$; see Figures 2-22 and 2-23). Therefore, maintaining the ability to recharge groundwater via the UWCD spreading grounds is critical to maintaining groundwater production in the Subbasin.

The model results illustrated in Figures 2-22 and 2-23 represent the net change in groundwater storage in each of the aquifer systems in the Subbasin. These results, however, include flux of seawater into the coastal areas of the aquifer systems from offshore. The volume of seawater that intruded between 1986 and 2015 was calculated for the UAS and LAS. The volume of seawater calculated does not include coastal flux into or out of the semi-perched aquifer, as few production wells are screened solely in the semi-perched aquifer. In order to assess the change in freshwater storage in the Subbasin, the annual volume of seawater that intruded was subtracted from the annual total storage change discussed above.

In the UAS, the average annual change in freshwater storage is a loss of approximately 6,600 AFY, which is more than two times greater than the total average annual change in storage for the UAS (2,800 AFY), including seawater intrusion (Figure 2-24, Oxnard Subbasin Annual Change in Storage Without Coastal Flux). In other words, approximately 3,800 AFY of seawater intrusion occurred in the UAS between water years 1986 and 2015. The maximum annual increase in freshwater storage was approximately 61,500 AF in water year 2005 and the maximum annual decrease in freshwater storage was approximately 48,500 AF in water year 1990.

The average annual change in freshwater storage in the LAS is a loss of approximately 5,700 AFY, which is 26 times greater than the total average annual change in storage for the LAS (220 AFY), including seawater intrusion (Figure 2-24). Therefore, there was approximately 5,500 AFY of seawater intrusion into the LAS between water years 1986 and 2015. The maximum increase of freshwater in storage in the LAS was approximately 2,820 AF in water year 1998 and the maximum decrease of freshwater in storage was approximately 15,150 AF in water year 1990.

For the entire Oxnard Subbasin, there was an average decrease in freshwater storage of approximately 12,700 AFY, when coastal flux is removed, with a maximum increase in storage of approximately 74,700 AF in water year 2005 and a maximum decrease in storage of approximately 73,500 AF in water year 1990 (Figure 2-24). Cumulatively between 1986 and 2015, the loss of freshwater in storage in the UAS was approximately 197,200 AF and the loss of freshwater in storage in the LAS was approximately 170,200 AF. The cumulative change in freshwater storage for both the UAS and LAS was a loss of approximately 367,400 AF. The cumulative change in storage for the entire Oxnard Subbasin, including the semi-perched aquifer, calculated by the model over the period of record, was a loss of approximately 380,200 AF of freshwater in storage, excluding coastal flux (Figure 2-25, Oxnard Subbasin Cumulative Change in Storage Without Coastal Flux).

Estimates of model changes in storage have a level of uncertainty and are dependent on model input parameters. These parameters include groundwater pumping, artificial aquifer recharge, interbasin flows, recharge from precipitation and irrigation returns, stream leakage and groundwater discharge to streams, and inflows from the ocean. Numbers may also initially be biased due to assumptions about the initial groundwater levels used in the model, which are based on available well locations and measurements that may bias starting groundwater elevations modeled in the aquifers. These inputs were estimated using the best available data and calibrated to groundwater levels in the model to a reasonable extent (Appendix C). Changes in these input values from additional monitoring wells, the filling of data gaps, and model calibration and validation may result in changes in the modeled estimates of change in storage in the future.

2.3.3 Seawater Intrusion

Evidence of seawater intrusion in the Oxnard Subbasin was first documented in the 1930s in the vicinity of Port Hueneme and Point Mugu (DWR 1965). Since that time, the landward extent of the saline water impact front has been monitored and the causes and sources of increasing chloride concentrations have been studied. Table 2-3 lists historical seawater intrusion reports and studies on the Oxnard Subbasin.

An elevated risk of seawater intrusion has been found to exist near Port Hueneme and Point Mugu due to the near shore presence of the groundwater–seawater contact in deeply incised submarine canyons (UWCD 2016a).

Seawater intrusion has been documented in both aquifer systems, and in each primary aquifer, in the Oxnard Subbasin. Seawater preferentially intrudes the aquifers in permeable sand and gravel beds (UWCD 2016a). As a result, the eastward extent of the saline water impact front varies from north to south along the coastline and within each aquifer (UWCD 2016a). In the Oxnard Subbasin, seawater that has intruded the aquifers in the vicinity of Port Hueneme tends to flow southward toward Point Mugu even after groundwater elevations rise and the landward hydraulic gradient is reversed (UWCD 2016a). As a result, higher groundwater elevations in the aquifer do not tend to flush the seawater back out of the aquifer via the original intrusion pathway (UWCD 2016a). Consequently, impacts associated with seawater intrusion have not been eliminated during wetter-than-average climatic periods.

2.3.3.1 Causes of Saline Impacts in the Oxnard Subbasin

Under seaward groundwater gradients, groundwater in the Oxnard Subbasin generally flows south and west from the Oxnard Forebay area toward the Pacific Ocean and out to sea. When groundwater heads near the coast fall below sea level or, in confined aquifers, the sea-level-equivalent elevation according to the depth of the aquifer outcrop, the gradient reverses.[4]

In addition to seawater intrusion, low groundwater heads in confined zones in the Oxnard Subbasin can create conditions under which high-salinity waters from non-marine sources impact freshwater aquifers. These sources include connate (groundwater trapped in sedimentary rocks due their deposition) brines released during compaction of aquitards and older, higher-salinity groundwater upwelling from geologic formations deeper than the lower extent of the freshwater aquifers (Izbicki 1991, 1996; UWCD 2016a; Izbicki et al. 2005).

Thirdly, although the major aquifer units in the Oxnard Subbasin are commonly separated by low-permeability units, vertical gradients, long-screened wells, and areas of mergence between aquifers can result in vertical groundwater movement between major aquifers (UWCD 2016a). In particular, because water elevations are typically higher in the semi-perched aquifer than in the deeper confined aquifers, higher-salinity water from the semi-perched aquifer may reach confined aquifers via one or more of these mechanisms. Seawater intrusion also enters the FCA from vertical flow from the Mugu aquifer in the Mugu area.

Because zones of low groundwater head cause seawater intrusion and release of connate water from aquitards, and potentially influence non-marine brine migration into freshwater aquifers, distinguishing the source of salts in any given well is not always possible, particularly at chloride concentrations less than 500 mg/L (Izbicki 1996). In the southeastern Subbasin, near the Mugu

[4] Because seawater is approximately 1.025 times denser than freshwater (using the Ghyben-Herzberg theory [De Wiest 1998]), the elevation of confined freshwater necessary to counterbalance the pressure of the water in the sea can be several feet above sea level, and depends on the depth at which an aquifer crops out in the ocean (i.e., the deeper the outcrop, the higher the freshwater elevation necessary to counterbalance the pressure of seawater).

submarine canyon, upward migration of brines can cause chloride concentrations to increase before the saline water impact front reaches a well (Izbicki 1996). Because the chloride concentration measured in wells near the Mugu submarine canyon reflect the combined effects of brine migration and seawater intrusion, it is difficult to define the leading edge of the saline water impact front using chloride concentrations in this area (Izbicki 1996). The USGS and UWCD models included faults in the Mugu Lagoon area that limit the hydraulic connection of the LAS in the Oxnard Basin to the Pacific Ocean (Hanson et al. 2003; Appendix C).

2.3.3.2 Current Extent of Seawater Intrusion

The known extent of saline water intrusion in the UAS and LAS in 2015 generally occurred near and southeast of Port Hueneme and in the area surrounding Mugu Lagoon. As of 2015, although seawater intrusion had been reduced in the Oxnard Subbasin due to management actions and wet climatic conditions in the 1990s and 2000s, TDS and chloride concentrations as high as 49,600 and 20,700 mg/L, respectively, were found in wells inland of the southern Oxnard coast (both measured in Well 01N22W07R05S; see Appendix F, Coastal Seawater Intrusion WL vs. CL Plots, and recent water quality data in Section 2.3.4, Groundwater Quality). The extent of saline water intrusion in the Oxnard Subbasin in 2015 is shown in cross section on Figure 2-26 (Approximate 2015 North–South Saline Water Intrusion Extent) and in plan view on Figures 2-27 through 2-32 (Coastal Chloride Concentrations, Fall 2015).[5] As discussed, chloride concentrations above 500 mg/L in the area of the Mugu Lagoon can be caused by both seawater intrusion and brine migration. Although this section focuses on areas that are known to be susceptible to seawater intrusion, the precise extent of current seawater intrusion impacts is difficult to separate from the areas that are impacted by release of saline water from connate brines. Therefore, the current area of seawater intrusion is smaller than the area of high chloride concentrations shown in Figures 2-27 through 2-32.

Additionally, the inland extent of seawater intrusion varies by aquifer (see Figure 2-26). Between 1985 and 2015, UWCD groundwater model estimates suggest that approximately 1,800 AFY of groundwater flowed from the semi-perched aquifer to the Pacific Ocean. In the UAS (Oxnard and Mugu Aquifers), in years characterized by relatively high rainfall, groundwater flowed from the aquifers to the ocean in the spring, and the flow reversed in the fall; conversely, in dry years ocean water flowed into the aquifers in all seasons. On average, over the entire model period, there was approximately 3,900 AFY of seawater intrusion into the UAS in the Oxnard Subbasin. In the LAS, the direction of flow varied by aquifer. The direction of flow in the Hueneme Aquifer was primarily from the ocean to the aquifer, though there are some months in which the flow direction was seaward. In the FCA and the GCA, ocean water flowed into the aquifers in every month in the period of record. The average seawater intrusion in the LAS was approximately 5,500 AFY during the model period.

[5] Saline water is typically defined as groundwater with a TDS concentration between 10,000 and 35,000 mg/L.

2.3.3.3 Historical Progression of Seawater Intrusion

Chloride concentrations were first measured in the Oxnard Subbasin in the 1920s. Between 1920 and 1929, the chloride concentration in three wells in the UAS ranged from 40 to 81 mg/L, with the lowest chloride concentration detected at the coast near Port Hueneme (FCGMA 2007). Groundwater elevations at this time ranged from 2 to 22 feet msl (FCGMA 2007). By 1934, when groundwater elevations in the UAS declined to −2 to 9 feet msl, the chloride concentration at a coastal well near Port Hueneme was 1,346 mg/L (FCGMA 2007). This was the first evidence of a potential saline water impact front in the vicinity of Port Hueneme. Between 1935 and 1940, chloride concentrations at the coast declined again and remained below 50 mg/L from 1934 to 1949 (FCGMA 2007). By 1954, however, as groundwater elevations in the UAS had declined to as much as −35 feet msl, seawater intrusion is interpreted to have affected an approximately 1-square-mile area near Port Hueneme, where two UAS wells had chloride concentrations of 1,070 and 1,925 mg/L.

This area of seawater intrusion expanded to the north and east between 1954 and 1959, and by 1959 an additional area of seawater intrusion was identified in the UAS north and east of Point Mugu (FCGMA 2007). Chloride concentrations near Port Hueneme reached 27,350 mg/L and those near Point Mugu reached 11,475 mg/L (FCGMA 2007). As groundwater elevations remained below sea level, the two areas of seawater intrusion continued to expand through the 1960s and 1970s, with the saline water impact front eventually reaching as much as 3 miles inland near Port Hueneme by the early 1980s (Izbicki 1996; FCGMA 2007).

The implementation of management strategies and pumping allocations by the FCGMA, along with increased rainfall in the late 1970s and early 1980s, reduced the area of the UAS affected by seawater intrusion, even as groundwater elevations remained below sea level throughout much of the Subbasin (FCGMA 2007). With the completion of the Freeman Diversion, which allowed for increased aquifer recharge at the spreading basins operated by UWCD, and additional above-average rainfall years, groundwater elevations in much of the UAS rose above sea level and the area of the UAS affected by seawater intrusion decreased in the 1990s (FCGMA 2007).

At the same time that seawater intrusion in the UAS was being managed and mitigated in the 1980s and 1990s, seawater intrusion began to affect the LAS (FCGMA 2007). By 1989, chloride was detected at a concentration of 6,700 mg/L at a well near Port Hueneme (FCGMA 2007). By 1994, chloride concentrations between 1,000 and 7,000 mg/L were detected near both Port Hueneme and Point Mugu (FCGMA 2007). The area impacted by seawater intrusion remained smaller in the LAS than in the UAS throughout the 1980s and 1990s.

Between 2000 and 2013, groundwater elevations in the UAS remained above sea level and there was little change in the extent of seawater intrusion near Port Hueneme (UWCD 2016a). As

groundwater elevations dropped below sea level during the recent drought, however, chloride concentrations in UAS monitoring wells near the coast began to increase and the saline water impact front expanded eastward again (UWCD 2016a). Near the Mugu submarine canyon, the groundwater elevations in the UAS have remained below sea level and chloride concentrations in wells near the coast are close to those of seawater (UWCD 2016a). The current extent of saline water intrusion in both the UAS and the LAS is shown in Figures 2-27 through 2-32.

2.3.3.4 Relationships between Groundwater Elevation and Seawater Intrusion

The relationship between groundwater elevations and seawater intrusion, as measured by changes in chloride concentration, is complex. Since the 1950s, water levels in the Oxnard and Mugu Aquifers in coastal areas have historically fallen below sea level in response to increased production and drought cycles (Figures 2-9a and 2-12). Unlike areas farther inland, the water levels below sea level resulted in seasonal seawater intrusion during the fall irrigation season and during droughts in coastal wells in the vicinity of Point Hueneme and Point Mugu (Figure 2-33, Groundwater Flux along the Coast in the Upper Aquifer System). In contrast, as groundwater production increased in the LAS, water levels in the FCA and the GCA near the coast quickly fell below sea level and have remained there since the 1980s, even after periods of above-average precipitation (Figures 2-18 and 2-21). The UWCD model indicates continuous flux from the ocean into these aquifers since 1985 (Figure 2-34, Groundwater Flux along the Coast in the Lower Aquifer System).

Some wells located near Port Hueneme and screened in the Oxnard Aquifer and the Hueneme Aquifer have chloride concentrations that rise as groundwater elevations decline and that decline as groundwater elevations rise. This relationship is shown in Wells 01N22W20M05S and 01N22W29D03S on Figure 2-35 (Selected Historical Records of Water Elevation and Chloride Concentration). All the wells with chloride and groundwater measurements are shown on Figure 2-36 (Locations of Selected Coastal Wells with Historical Measurements of Chloride Concentration and Water Elevation). It should be noted, however, that changes in chloride concentration in groundwater lag behind changes in groundwater elevation by up to 2 years in these wells. This response suggests that by the time the chloride response to declining groundwater elevations is measured, seawater intrusion has already begun.

The relationship between chloride concentration and groundwater elevation observed in Wells 01N22W20M05S and 01N22W29D03S is not universal throughout the Subbasin. In Well 01N22W29D02S, which is located in the same well cluster as Well 01N22W29D03S and is screened deeper in the Hueneme Aquifer, the concentration of chloride increased from 1995 through 2015, independent of groundwater elevation (Figures 2-35[C] and 2-36). The long-term increase in chloride concentration observed in this well suggests that groundwater elevations, even when above sea level, are not limiting the increasing chloride concentrations. A similar trend is observed in Well 01S21W08L03S, which is screened in the GCA and is

located near Point Mugu; however, in this well groundwater elevations have remained below sea level since 1990 (Figures 2-35[D] and 2-36). One explanation is that the southern flow of groundwater along the coast from Port Hueneme discussed above may limit the ability to flush some areas of saltwater back out of Grimes Canyon.

A complete set of hydrographs for all wells from which both chloride and groundwater elevation data have been collected, showing the relationship between chloride concentration and groundwater elevation, is provided in Appendix F. A summary of the relationship between chloride concentration and groundwater elevation by region within the Oxnard Subbasin is provided below.

North Coast

In the north coastal Oxnard Plains, groundwater elevations in one nested well cluster (01N23W01C02S-05S) screened in the Oxnard Aquifer, the Hueneme Aquifer, and the FCA, were below sea level in the early 1990s, generally remained above or near sea level between the mid-1990s and early 2010s, and dropped below sea level between 2013 and 2015 (Appendix F). In spite of the low groundwater elevations in the historical record, the chloride concentration in the four nested wells 01N23W01C02S–01N23W01C05S (Figure 2-36) has not exceeded 55 mg/L since the wells were completed in 1990 (Appendix F). Additionally, recent chloride concentrations in both the UAS and the LAS are typically below 100 mg/L (see Section 2.3.4). The aquifers of the Oxnard Subbasin are believed to crop out on the ocean floor where direct documentation of seawater intrusion cannot be measured.

Port Hueneme

In the vicinity of Port Hueneme, groundwater elevations in confined aquifers were below sea level in the early 1990s, recovered to elevations above sea level, remained there for two decades, and dropped below sea level between 2011 and 2014 after the onset of the recent drought. Records from nested wells 01N22W20M01 through 01N22W20M06 (which are screened in the semi-perched aquifer, the Oxnard Aquifer, the Mugu Aquifer, two zones in the Hueneme Aquifer, and the FCA; see Figure 2-36 and Appendix F) underscore the variability in the relationships between groundwater elevation and seawater intrusion in different water-bearing units. Despite the similarity in the five profiles of groundwater elevation over time, seawater preferentially intruded the Oxnard Aquifer in the past, and rising concentrations of chloride are observed in the Oxnard Aquifer, the Hueneme Aquifer, and the FCA in response to the recent decline in groundwater elevations. In this area, offshore outcrops of the older alluvium and the San Pedro Formation occur in the Hueneme submarine canyon. These outcrops provide a direct link between the Pacific Ocean and the freshwater aquifers of the Oxnard Subbasin. This region is susceptible to seawater intrusion, as demonstrated by chloride concentrations and groundwater elevations since the 1950s.

South Coast

In general, groundwater elevations in the Mugu Aquifer, FCA, and GCA in the South Coast Region have remained near or below sea level since the early 1990s (Figure 2-36 and Appendix F). Elevations in the Hueneme and Oxnard Aquifers largely remained above sea level between the mid-1990s and early 2010s. Within the upper Oxnard Aquifer, chloride concentrations have been decreasing, while rising chloride concentrations have been measured in the lower Oxnard Aquifer. In this area, elevated chloride concentrations in the Oxnard Aquifer likely result from southward migration of seawater that intruded the aquifer in the vicinity of Port Hueneme during earlier periods of low groundwater elevations (UWCD 2016a). This region does not typically experience direct seawater intrusion via offshore outcrops, but rather rising chloride concentrations indicate previous episodes of seawater intrusion via the Hueneme Canyon to the north.

Point Mugu

In all but one case, groundwater elevations in the vicinity of Mugu Lagoon have remained below sea level since the 1990s. Chloride concentrations exceeding 1,000 mg/L are measured in the majority of monitoring wells in this region (Figure 2-36; Appendix F). However, as noted above, some of the elevated chloride concentrations in this area are from the upwelling of connate water and the migration of groundwater to the LAS from the UAS.

2.3.4 Groundwater Quality

FCGMA adopted Basin Management Objectives (BMOs) for nitrate, chloride, and TDS in the Oxnard Subbasin for its 2007 Groundwater Management Plan Update (FCGMA 2007; Table 2-4). Additionally, the Water Quality Control Plan: Los Angeles Region (Basin Plan) specifies Water Quality Objectives (WQOs) for TDS, chloride, nitrate, sulfate (SO_4), boron, and nitrogen (mg/L nitrate) (LARWQCB 2013; Table 2-4). The current and historical distribution of these five constituents are discussed below. There are too few measurements of water quality in wells screened solely within a single aquifer to allow for meaningful discussion of water quality by aquifer. Additionally, as discussed in Section 2.3.1, the majority of the groundwater production in the Oxnard Subbasin occurs in wells that are screened across multiple aquifers. This production has the potential to impact water quality in multiple aquifers simultaneously. Therefore, impacts to groundwater quality in the Oxnard Subbasin are considered based on aquifer system.

Groundwater quality monitoring within the Oxnard Subbasin occurs on different schedules for different wells. In order to assess the current groundwater quality conditions within the Oxnard Subbasin, the most recent concentration of each of the five constituents listed above was mapped for samples collected between 2011 and 2015. Historical groundwater quality hydrographs are presented in Appendix G, Water Quality Hydrographs. Statistics on the most recent sample date, the maximum and minimum concentrations measured, the number of times sampled, and the

number of samples whose concentration exceeded the relevant water quality threshold are presented in Appendix H, FCGMA Water Quality Statistics.

2.3.4.1 Total Dissolved Solids

Sources of high TDS water in the Oxnard Subbasin include seawater and brines migrating via faults or upwelling from older geologic formations (see Section 2.3.3). Additionally, in the UAS, improperly abandoned wells in the semi-perched aquifer and high chloride brines in fine-grained lagoonal deposits in the Oxnard and Mugu Aquifers, can contribute to high concentrations of TDS in the groundwater (Izbicki 1996). The water quality objective for TDS is 1,200 mg/L in the Forebay and confined aquifers, and 3,000 mg/L in the unconfined aquifers (LARWQCB 2013). The 2007 FCGMA BMO for TDS is 1,200 mg/L for the Forebay (FCGMA 2007). UAS wells with concentrations of TDS greater than 1,200 mg/L are found throughout the Oxnard Subbasin.

Upper Aquifer System

Concentration of TDS in groundwater in the UAS ranged from 652 mg/L to 49,600 mg/L between 2011 and 2015 (Figure 2-37a, Upper Aquifer System – Most Recent Total Dissolved Solids [mg/L] Measured 2011–2015, and Figure 2-37b, Upper Aquifer System, Forebay Area – Most Recent Total Dissolved Solids [mg/L] Measured 2011–2015). Water with TDS concentrations greater than 35,000 mg/L is considered brine. Both the highest and lowest concentrations of TDS were measured adjacent to the coast in Wells 01N22W27R05S and 01N22W27C02S, respectively (Figure 2-37a). The highest concentrations of TDS are found in coastal wells in areas known to be impacted by seawater intrusion (e.g., Well 01S21W08L04S) and release of connate brines from clay layers (e.g., Well 01N22W27R05S). The concentration of TDS in Well 01N22W27R05S has been increasing since 2013, while the concentration of TDS in Well 01S21W08L04S has remained stable over the last 5 years.

In the Forebay, Wells 02N22W23B02S and 02N22W23C05S have been used as BMO wells for TDS. In 2015, the concentration of TDS measured in a sample collected from Well 02N22W23B02S was 1,230 mg/L, and the concentration of TDS measured in a sample collected from Well 02N22W23C05S was 1,070 mg/L. The concentration of TDS in each of these wells has been increasing over the past 5 years (FCGMA 2016).

Lower Aquifer System

In general, TDS concentrations in the LAS are higher in the southern Oxnard Subbasin than in the northern part of the Subbasin (Figure 2-38, Lower Aquifer System – Most Recent Total Dissolved Solids [mg/L] Measured 2011–2015). Concentration of TDS in groundwater in the LAS ranged from 392 mg/L to 37,200 mg/L between 2011 and 2015 (Figure 2-38). The highest concentration was measured in Well 01N21W32Q03S, which is in the southern Oxnard Subbasin, inland from

the coast, and is screened within the GCA (Figure 2-38). The higher concentration of TDS in this area likely resulted from upward migration of brines in deeper formations. This migration may have been induced or exacerbated by lowered groundwater elevations from groundwater production in the LAS, although the concentration of TDS in this well has increased steadily since 1995, even during periods when groundwater elevations were 40 to 100 feet higher than they were in 2015 (Izbicki 1991; Izbicki et al. 2005; UWCD 2016a).

The lowest concentration of TDS was measured in Well 01N22W35E03S, screened in the FCA south of Port Hueneme (Figure 2-38). The concentration of TDS in this well was 392 mg/L in 2015. TDS concentrations in this well have remained relatively stable over the last 5 years, neither increasing nor decreasing with the onset of the 2011 drought.

2.3.4.2 Chloride

Sources of water high in chloride in the Oxnard Subbasin include modern seawater, groundwater from the semi-perched aquifer, connate water from fine-grained lagoonal deposits in the Oxnard and Mugu formations, and brines migrating via faults or upwelling from older geologic formations (see Section 2.3.3). The UAS has a long history of seawater intrusion, with groundwater elevations below sea level measured as early as the 1930s (see Section 2.3.3; UWCD 2016a). Seawater intrusion affects a smaller area of the LAS than the UAS, and is more pronounced near Point Mugu than near Port Hueneme (UWCD 2016a). Brine migration along faults and from deeper geologic formations also affects the chloride concentration in the LAS (Izbicki 1991).

The water quality objective for chloride is 150 mg/L in the Forebay and confined aquifers, and 500 mg/L in the unconfined aquifers (LARWQCB 2013). The BMO for chloride is 150 mg/L for the UAS and LAS.

Upper Aquifer System

Concentration of chloride in groundwater in the UAS ranged from 23 mg/L to 20,700 mg/L between 2011 and 2015 (Figure 2-39a, Upper Aquifer System – Most Recent Chloride [mg/L] Measured 2011–2015, and Figure 2-39b, Upper Aquifer System, Forebay Area – Most Recent Chloride [mg/L] Measured 2011–2015). Chloride concentrations in the UAS are higher near the coast, from Point Hueneme south to Point Mugu, than inland or north of Port Hueneme (Figure 2-39a). The lowest concentration of chloride was measured in Well 01N22W11C02S in the central Oxnard Subbasin (Figure 2-39a). This well was only sampled one other time, in 1952, and the concentration of chloride measured at that time was 83 mg/L. Between 2011 and 2015, the concentration of chloride was less than 150 mg/L in the Forebay (Figure 2-39b).

The highest concentration of chloride (20,700 mg/L) was measured in Well 01N22W27R05S, adjacent to the coast south of Port Hueneme (Figure 2-39a). Groundwater from this well also had

the highest concentration of TDS. The concentration of chloride in this well has been increasing since 2013. The concentration of chloride in Well 01S21W08L04S, a BMO well near Point Mugu, was 17,500 mg/L in 2015. The concentration of chloride in this well has been stable over the last 5 years (FCGMA 2016). Of the nine BMO wells with chloride concentration objectives in the UAS, three have had increasing chloride concentrations over the past 5 years (Wells 01N22W20J07S, 01N22W20J08S, and 01S22W01H03S), although all of the BMO wells have had water levels below their targets as a result of the drought.

Lower Aquifer System

In general, chloride concentrations in the LAS are higher in the southern Oxnard Subbasin than they are elsewhere in the Oxnard Subbasin (Figure 2-40, Lower Aquifer System – Most Recent Chloride [mg/L] Measured 2011–2015). In the Forebay, the concentration of chloride in groundwater is less than 100 mg/L, while concentrations of chloride south of Port Hueneme exceed 500 mg/L (Figure 2-40).

Concentration of chloride in groundwater in the LAS ranged from 33 mg/L to 14,300 mg/L between 2011 and 2015 (Figure 2-40). The lowest concentration of chloride was measured in Well 01N23W01C02S on the coast, north of Port Hueneme (Figure 2-40). The concentration of chloride in this well has remained stable since it was first measured in 1990.

The highest concentration of chloride was measured in Well 01N21W32Q03S, in the southern Oxnard Subbasin (Figure 2-40). In this well, the concentration of chloride has increased since it was first measured in 1991. At that time the concentration of chloride in the well was 340 mg/L. BMO Well 01S21W08L03S is also located in the southern Oxnard Subbasin, in the vicinity of Point Mugu. This is the only BMO well in the LAS that has had increasing concentrations of chloride over the past 5 years despite all of the BMO wells having water levels below their targets (FCGMA 2016).

2.3.4.3 Nitrate

Nitrate concentrations above WQOs and BMOs are present in the Forebay of the Oxnard Subbasin (UWCD 2008). These concentrations are likely a legacy of historical septic discharges and agricultural fertilizer application practices.[6] Historical discharges have resulted in concentrations that impact beneficial uses and users of the Oxnard Subbasin. In particular, not all municipal users of groundwater in this area have the ability to blend groundwater with nitrate exceeding the federal maximum contaminant level for nitrate as NO_3 of 45 mg/L.

[6] Ventura County extended sewer lines into this area in the years between 2000 and 2011 to address additional discharges of nitrate.

Historical nitrate concentrations in the Forebay are most impacted by the quantity of surface water available for spreading from the Santa Clara River. The river water has lower concentrations of nitrate than the groundwater. Therefore, during periods when Santa Clara River water is used to recharge the Subbasin, groundwater concentrations of nitrate decrease. Conversely, during periods of drought, groundwater concentrations of nitrate in the Forebay tend to increase.

The BMO for nitrate is 22.5 mg/L in the Forebay (FCGMA 2007). The WQO for nitrate as NO_3 is 45 mg/L for the entire Oxnard Subbasin (LARWQCB 2013).

Upper Aquifer System

Between 2011 and 2015, concentrations of nitrate as NO_3 in groundwater in the UAS ranged from below the detection limit to 240 mg/L (Figure 2-41a, Upper Aquifer System – Most Recent Nitrate [mg/L as Nitrate] Measured 2011–2015, and Figure 2-37B). The highest concentration was measured in Well 02N22W26C01S in the Forebay (Figure 2-41b, Upper Aquifer System, Forebay Area – Most Recent Nitrate [mg/L as Nitrate] Measured 2011–2015). However, the concentration of nitrate measured in a sample collected from the same well in 2011 was only 4.9 mg/L. Similarly, nitrate concentrations in Wells 02N22W23B02 and 02N33W23C05S, which are both BMO wells, increased between 2011 and 2016. The concentration of nitrate in Well 02N22W23B02 was 4.1 mg/L in 2011 and was as high as 127 mg/L in 2015. The concentration of nitrate in Well 02N22W23C05 was 2.8 mg/L in 2011 and was as high as 31.9 mg/L in 2015.

Outside of the Forebay, the concentration of nitrate in the groundwater decreases rapidly and is not correlated with recharge from the spreading basins. In general, nitrate as NO_3 concentrations are highest in the southern Forebay and northeastern Oxnard Subbasin. The lowest concentrations are found in the southern Oxnard Subbasin, with the concentration of nitrate below the detection limit in the majority of the wells in the southern Subbasin (Figure 2-41a).

Lower Aquifer System

Concentrations of nitrate as NO_3 in groundwater in the LAS are lower than they are in the UAS. Between 2011 and 2015, the concentration of nitrate as NO_3 in wells screened in the LAS ranged from below the detection limit to 57 mg/L. The highest concentration was measured in Well 02N21W19A03S, in the northeastern Oxnard Subbasin. The concentration of nitrate in this well may be influenced by downward migration of water and is not representative of general nitrate concentrations within the LAS. The next-highest concentration of nitrate was measured in Well 01N22W23R02. The concentration of nitrate in the well was 22.1 mg/L (Figure 2-42, Lower Aquifer System – Most Recent Nitrate [mg/L as Nitrate] Measured 2011–2015). The majority of the wells in the LAS have nitrate as NO_3 concentrations below the detection limit. In the Forebay, the concentration of nitrate as NO_3 is lower in the LAS than it is in the UAS (Figures 2-41b and 2-42).

2.3.4.4 Sulfate

Sources of sulfate in the Oxnard Subbasin include mineral dissolution in groundwater and seawater intrusion. The majority of the wells in the Oxnard Subbasin have sulfate concentrations below 600 mg/L. Similar to nitrate, wells in the Forebay tend to have higher concentrations of sulfate than wells farther south, with the notable exception of Wells 01N22W27R05S and 01S21W08L04S (Figure 2-43a, Upper Aquifer System – Most Recent Sulfate [mg/L] Measured 2011–2015). The water quality objective for sulfate is 600 mg/L in the Forebay and confined aquifers, and 1,000 mg/L in the unconfined aquifers (LARWQCB 2013).

Upper Aquifer System

Concentrations of sulfate in the UAS ranged from 100 mg/L to 5,740 mg/L between 2011 and 2015 (Figure 2-43a and Figure 2-43b, Upper Aquifer System, Forebay Area – Most Recent Sulfate [mg/L] Measured 2011–2015). High concentrations of sulfate near the coast are generally indicative of seawater intrusion. The highest concentration was measured in Well 01N22W27R05S, which also had the highest concentration of chloride and TDS. The concentrations of each of these constituents has increased since 2013. The lowest concentration was measured in Well 01N22W36K09S in the southern Oxnard Subbasin.

Lower Aquifer System

Concentrations of sulfate in the LAS ranged from below the detection limit to 2,030 mg/L between 2011 and 2015 (Figure 2-44, Lower Aquifer System – Most Recent Sulfate [mg/L] Measured 2011–2015). High concentrations of sulfate near the coast are generally indicative of seawater intrusion. The highest concentration was measured in Well 01N21W32Q03S, which also had the highest concentration of chloride and TDS. Only four wells in the LAS had concentrations of sulfate that exceeded 600 mg/L. These wells are distributed throughout the Oxnard Subbasin and do not follow a clear geographic pattern. Similar to nitrate, LAS wells in the Forebay have lower concentrations of sulfate than UAS wells in the Forebay (Figure 2-44).

2.3.4.5 Boron

Sources of boron in the Oxnard Subbasin include seawater intrusion in coastal areas and release of anthropogenic (introduced by human activities) boron from past septic tank uses. The WQO for boron in the Oxnard Subbasin is 1 mg/L (LARWQCB 2013).

Upper Aquifer System

Concentrations of boron in the UAS ranged from 0.05 mg/L to 5.9 mg/L between 2011 and 2015 (Figure 2-45a, Upper Aquifer System – Most Recent Boron [mg/L] Measured 2011–2015, and

Figure 2-45b, Upper Aquifer System, Forebay Area – Most Recent Boron [mg/L] Measured 2011–2015). The highest concentration was measured in Well 01N22W27R05S, which also had the highest concentrations of sulfate, chloride, and TDS. The lowest concentration was measured in Well 02N22W24A01S, in the northeastern Oxnard Subbasin (Figure 2-45a). Only seven wells in the UAS had boron concentrations greater than 1 mg/L between 2011 and 2015.

Lower Aquifer System

Concentrations of boron in the LAS ranged from 0.3 mg/L to 2.2 mg/L between 2011 and 2015 (Figure 2-46, Lower Aquifer System – Most Recent Boron [mg/L] Measured 2011–2015). The highest concentration was measured in Well 01N21W32Q03S, which also had the highest concentrations of sulfate, chloride, and TDS. Only five wells in the LAS had boron concentrations greater than 1 mg/L between 2011 and 2015.

2.3.4.6 Map of Oil and Gas Deposits

In the database maintained by the County of Ventura (2016), five oil fields entirely or partially fall within the Oxnard Subbasin: Montalvo, W.; Oxnard; El Rio; Santa Clara Avenue; and Saticoy (Figure 2-47, Oil Fields in the Vicinity of FCGMA Groundwater Basins). Petroleum extraction in the FCGMA basins occurs below the deepest freshwater aquifer (Hopkins 2013). While no evidence of impacts of petroleum extraction on beneficial use of groundwater in the FCGMA basins has been identified, there are limited available data. Few wells exist in deep aquifers near oil fields that could be monitored for potential impact. However, trace amounts of organic compounds have been found in deeper wells in southeastern Pleasant Valley (Izbicki et al. 2005), and there have been anecdotal reports of trace petroleum hydrocarbons observed in irrigation wells near some oil fields.

2.3.4.7 Maps of Locations of Impacted Surface Water, Soil, and Groundwater

Impacted surface water, soil, and groundwater have been documented in the Oxnard Subbasin, although these impairments tend to be limited to the semi-perched aquifer. This uppermost unit in the Oxnard Subbasin is underlain by a clay cap layer that limits the vertical migration of impaired water to the underlying UAS.

Impaired surface waters (i.e., 303(d) Listed Reaches) that overlie the Oxnard Subbasin include approximately 3 miles of the Santa Clara River, the Revolon Slough, Calleguas Creek, and a number of lined drains serving agricultural areas south of the City of Oxnard (Figure 2-48, Impaired Surface Waters in the Vicinity of FCGMA Groundwater Basins; SWRCB 2004). The names of the reaches used by the State Water Resources Control Board, and the impairments listed for each, are included in tabulated form in Appendix I, Oxnard 303(d) List Reaches.

Locations of impacted soil and groundwater were assessed on a basin-wide scale by reviewing information available on the SWRCB GeoTracker website and the California Department of Toxic Substances Control EnviroStor website. Cases that were closed by the supervisory agency were not considered.

Of the 290 open cases located within the boundaries of the Oxnard Subbasin and Pleasant Valley, groundwater was impacted in 77. Dudek reviewed and catalogued the constituents of concern (COCs) present on site in these 77 cases (Figure 2-49, Constituents of Concern at Open GeoTracker Cases with Impacted Groundwater within FCGMA Groundwater Basin Boundaries). Case details are included in Appendix J, GeoTracker Open Sites.

Of the 71 open cases in the Oxnard Plain in which groundwater is, or is potentially, impacted, the following COCs were identified as present at the following number of sites (Figure 2-49; Appendix J):

- Chlorinated volatile organic compounds (VOCs), including COCs marked as *solvents*, *VOCs*, and *chlorinated hydrocarbons*, were present at 34 sites.
- Gasoline and diesel, including COCs marked *TPH* and *petroleum*, were present at 32 sites.
- Metals were present at 27 sites.
- Polychlorinated biphenyls (PCBs) were present at 23 sites.
- Benzene, toluene, ethylbenzene, and/or xylenes (BTEX) were present at 18 sites.
- Pesticides were present at 12 sites.
- Methyl tert-butyl ethylene (MTBE) and/or tert-butyl alcohol (TBA) were present at seven sites.
- Two sites listed other COCs.

Many of these sites are located on land administered by the U.S. military (Figure 2-49). Outside of military bases, these sites tend to occur within the city limits of the Cities of Oxnard, Port Hueneme, and Camarillo.

The risk that contamination in the shallow groundwater of the Oxnard Subbasin would reach the UAS is somewhat mitigated by the presence of a confining layer that separates the semi-perched aquifer from the water-bearing units of the UAS throughout much of the Oxnard Plain (Turner and Mukae 1975). However, the vertical gradient is directed downward from the semi-perched aquifer to the underlying Oxnard Aquifer, indicating the potential for groundwater movement from the semi-perched aquifer to the Oxnard Aquifer.

Based on a review of open GeoTracker and EnviroStor cases with impacted groundwater, it does not appear that existing groundwater contamination in the semi-perched aquifer poses a substantial threat to beneficial use of groundwater in the UAS and the LAS. Based on a review of the files

available on GeoTracker for each of the cases in the Oxnard Subbasin that fell outside the bounds of a military base, it appears that in none of the cases were any liable parties required to investigate deeper than 50 feet below ground surface (bgs), indicating that impacts to groundwater in the UAS were not a concern for regulatory agencies.

2.3.5 Subsidence

Inelastic, or irrecoverable, land subsidence (subsidence) can be a concern in areas of active groundwater extraction, including the Oxnard Subbasin. Active causes of land subsidence in the Oxnard Subbasin include tectonic forces, petroleum reservoir compaction, and clay compaction (Hanson et al. 2003). Significant water level declines in the FCGMA groundwater basins since the early 1900s suggest that fluid extraction, rather than tectonic activity, is the major cause of land subsidence (Hanson et al. 2003). Subsidence resulting from any of these sources can cause increased flood risk, well casing collapse, and a permanent reduction in the specific storage of the aquifer (Hanson et al. 2003).

Direct measurement of subsidence within the Oxnard Subbasin is limited. Elevation data from USGS benchmark (BM) E548 in the southern part of the Oxnard Plain indicate subsidence of about 1.6 feet (0.49 meters) during the period from 1939 to 1960, and an additional 1 foot (0.31 meters) of subsidence from 1960 to 1978 (Hanson et al. 2003). The average rate of subsidence for these two periods was similar, averaging approximately 0.07 feet (0.02 meters) per year from 1939 to 1960, and approximately 0.06 feet (0.02 meters) per year from 1960 to 1978 (Hanson et al. 2003). In contrast, elevation data from USGS BM Z901, located approximately 2.6 miles southeast of BM E548, indicate subsidence of approximately 0.3 feet (0.10 meters) between 1960 and 1978. The average rate of subsidence at BM E548 was 0.02 feet (0.01 meters) per year for this period. The rate of subsidence at BM Z901 decreased to approximately 0.01 feet per year from 1978 to 1992. Data are not available for BM E548 after 1978. The amount of subsidence measured at both BM E548 and BM Z901is the cumulative subsidence from all possible sources, including groundwater pumping, tectonic activity, and petroleum reservoir compaction.

In addition to direct measurement of subsidence in the southern part of the Oxnard Plain, potential subsidence was modeled for the entire Oxnard Plain for different future water production scenarios (Hanson et al. 2003). The scenarios included consideration of proposed water projects and ordinances for the FCGMA Basins. The model results suggest that areas within the Oxnard Plain may experience an additional 0.1 to 1 feet of subsidence by 2040 (Hanson et al. 2003). DWR classified the Subbasin as an area that has a medium to high potential for future subsidence. The amount of future subsidence will depend on whether future water levels decline below previous low levels and remain there for a considerable amount of time (Hanson et al. 2003). Maintaining water levels above the previous low water levels will limit the risk of future subsidence.

From March 2015 to June 2016, the Jet Propulsion Laboratory (JPL) analyzed interferometric synthetic aperture radar (InSAR) data from the European Space Agency's satellite-borne Sentinel-1A and NASA's airborne UAVSAR, along with similar previous studies from 2006 to 2015, to examine subsidence in areas of California. The study included the south-central coast of California in Ventura and Oxnard (Farr et al. 2017). The map generated from this study for this area of the south-central coast of California (Farr et al. 2017, Figure 23) showed less than 1 foot of subsidence for the Oxnard Subbasin.

2.3.6 Groundwater–Surface Water Connections

The Santa Clara River, Calleguas Creek, Revolon Slough, Mugu Lagoon, Ormond Beach, and McGrath Lake have all been identified as surface water bodies that may have a connection to the semi-perched aquifer in the Oxnard Subbasin (see Section 2.3.7, Groundwater-Dependent Ecosystems). However, groundwater elevation data for the semi-perched aquifer in the Oxnard Subbasin are extremely limited, with no monitoring sites near enough to surface water bodies to establish the extent of the connection between these surface water bodies and underlying groundwater (Figure 2-50, Groundwater Elevation Contours in the Semi-Perched Aquifer, March 2–29, 2015, and Figure 2-51, Groundwater Elevation Contours in the Semi-Perched Aquifer, October 2–29, 2015).The spatial extents of gaining, losing, and dry reaches in the Santa Clara River are seasonally variable (UWCD 2014, 2018).

The best available estimates for groundwater–surface water connections comes from the UWCD numerical model, which simulates the leakage from major surface water bodies in the Oxnard Subbasin using data from stream gauges and estimated aquifer properties (Appendix C). The UWCD model reports stream leakage from the Santa Clara River and Calleguas Creek into the underlying semi-perched aquifer. Numbers from the model represent net stream leakage and do not necessarily indicate direct connection between surface water bodies and groundwater in the semi-perched aquifer.

The UWCD model calculated stream percolation for water years from 1986 to 2015 (Table 2-5). The Santa Clara River had net recharge to groundwater in 26 of 30 water years, with an average net recharge to groundwater of approximately 5,700 AFY. The recharge to groundwater primarily occurs in the vicinity of the Forebay, where Santa Clara River water percolates into the UAS. Downstream of the Forebay, some reaches of the Santa Clara River are typically gaining in most years, generally from the semi-perched aquifer. Net groundwater discharge to the Santa Clara River was identified as occurring during 1999, 2002, 2006, and 2013. Calleguas Creek exhibited net recharge to groundwater in all years modeled, with an average net recharge to groundwater of approximately 3,450 AFY.

2.3.7 Groundwater-Dependent Ecosystems

Six potential GDE units, defined by dominant surface hydrologic features, were identified in the Oxnard Subbasin (Appendix C, UWCD Model Report; TNC 2017 [see Appendix K of this GSP]; Figure 2-52, Groundwater-Dependent Ecosystems for the Oxnard Subbasin). The potential GDE units were identified using the statewide potential GDE map (Appendix K). Of the six potential GDE units identified, the Lower Santa Clara River, McGrath Lake, Ormond Beach, and Mugu Lagoon units were validated using groundwater elevations measured in wells within or adjacent to the unit to confirm the potential hydrologic connection to groundwater in the semi-perched aquifer, as described in The Nature Conservancy's GDE Guidance Framework (Appendix K). Insufficient well data are available to confirm the depth to groundwater in the Revolon Slough unit or the Lower Calleguas Creek unit. Therefore, in the discussion below, these units remain as potential GDEs. Groundwater elevation in the vicinity of these units will be required in order to confirm whether or not the habitat is supported by groundwater (see Section 4.6.5, Shallow Groundwater Monitoring near Surface Water Bodies and GDEs).

Lower Santa Clara River GDE

The lower Santa Clara River GDE (located downstream of Highway 101 and upstream of the estuary) comprises approximately 750 acres of aquatic habitat, in-channel wetland, and a range of willow–cottonwood riparian forest (Figure 2-53, Lower Santa Clara River Groundwater-Dependent Ecosystems; Appendix K, The Nature Conservancy GDE Tech Memo). The GDE is located in the floodplain of the lower Santa Clara River, which undergoes substantial transformations in vegetation composition and distribution due to the dynamic nature of the river flows during winter. The lower Santa Clara River GDE supports habitat for several state- and federally listed species (Table 2-6).

Flow in the lower Santa Clara River downstream of Highway 101 has historically been perennial (SFEI 2011; City of Ventura 2016). The source of the perennial flow in this region is groundwater from the semi-perched aquifer, which is separated from the underlying UAS by a clay cap that limits groundwater migration and allows differences in groundwater elevation between the semi-perched aquifer and the Oxnard Aquifer. In the spring of 2015, groundwater elevations in the Oxnard Aquifer were below sea level (Figure 2-7).

Groundwater from the semi-perched aquifer provides the dry summer baseflow, if it exists, and a quarter of the winter flow (City of Ventura 2011). Groundwater flow direction between the semi-perched aquifer and the lower Santa Clara River, its estuary, and nearby McGrath Lake, depends on tidal conditions, river stage, and recharge rates due to agricultural irrigation (City of Ventura 2016). Groundwater levels from wells in the vicinity of the lower Santa Clara River GDE generally range between 7 and 11 feet bgs (Figure 2-53). The groundwater depths are within the range

considered necessary for juvenile establishment (<10 feet) and mature vegetation growth (<20 feet) (City of Ventura 2016).

McGrath Lake GDE

The McGrath Lake GDE includes a coastal freshwater back-dune lake, arroyo willow riparian forest, freshwater emergent marsh, and saline emergent marsh (Figure 2-54, McGrath Lake Groundwater-Dependent Ecosystems). The McGrath Lake GDE supports critical habitat for several state- and federally listed endangered species as well as many special-status bird species (Table 2-6).

McGrath Lake is formed by shallow groundwater that remains perched above a clay layer in the semi-perched aquifer (ESA 2003). McGrath Lake operational water surface elevations are maintained between 2.7 and 3.6 feet msl (City of Ventura 2011). Groundwater flows toward the Santa Clara River during open-mouth conditions and towards McGrath Lake when the Santa Clara River Estuary fills following mouth closure (City of Ventura 2011). As measured since 2009, depths to groundwater around the McGrath Lake GDE range from ground surface to 10 feet bgs, depending on the well (Appendix K).

Ormond Beach GDE

The Ormond Beach GDE, which includes isolated patches of southern coastal salt marsh and coastal freshwater/brackish marsh that have been drained, filled, and degraded by past industrial and agricultural use, is part of a larger 1,500-acre coastal dune–marsh system of dunes, lakes, lagoons, and saltwater and freshwater marshes (WRA 2007; CCC 2017; Figure 2-55, Ormond Beach Groundwater-Dependent Ecosystems). The Ormond Beach GDE supports habitat for state- and federally listed species as well as 27 special-status plant species and 42 special-status wildlife species (Table 2-6).

The Ormond Beach GDE is hydrologically connected to the semi-perched aquifer. Shallow groundwater elevations are influenced by rainfall, tidal events, and the surface water elevations of the agricultural drains and flood control channels. Depth to groundwater ranges from ground surface to 15 feet bgs (Appendix K).

Mugu Lagoon GDE

Mugu Lagoon GDE is the largest salt marsh estuary in Southern California (USFWS 2016a). The GDE provides habitat for several state- and federally listed species (Table 2-6; Figure 2-56, Mugu Lagoon Groundwater-Dependent Ecosystems).

The estimated groundwater depth in the Mugu Lagoon GDE varies between ground surface and 6 feet bgs (Appendix K). Estimated depths to groundwater in the GDE, are based on interpolation of water elevation data from representative wells at Naval Base Ventura County Point Mugu to reference point locations within the Mugu Lagoon GDE. Mugu Lagoon receives groundwater discharge from the semi-perched aquifer along with freshwater from Calleguas Creek, the drainage ditches, primarily Oxnard Drainage Ditch No. 2, and salt water from tidal fluctuations.

Lower Calleguas Creek Potential GDE

The lower Calleguas Creek potential GDE includes aquatic habitat and mulefat and willow riparian forest. This potential GDE may support native special-status species (Table 2-6).

The Lower Calleguas Creek potential GDE overlies the semi-perched aquifer. The channel has been separated from the adjacent floodplain since the 1960s by a riprap and earthen levee countersunk about 3 feet below the surrounding grade. Thus, Calleguas Creek is a losing reach in the Oxnard Plain. Lower Calleguas Creek maintains a perennial streamflow due to a combination of wastewater effluent and pumped tile drain discharge from adjacent agricultural fields, with the addition of natural precipitation and stormwater runoff during winter months. The degree of groundwater recharge and/or discharge has not been studied and groundwater elevation data are not available for this area. Groundwater elevations at semi-perched aquifer monitoring wells (located approximately 1 mile to the southwest at Naval Base Ventura County Point Mugu) indicate typical groundwater elevations range from −1 to 6 feet msl. Extrapolated depths to groundwater at the downstream end of the Calleguas Creek GDE, at approximately 12 feet msl, are between 6 to 13 feet bgs. The extrapolated groundwater depths indicate the potential for the riparian vegetation to access shallow groundwater. Additional data need to be collected within the boundaries of the Calleguas Creek potential GDE in order to determine whether or not the riparian vegetation is accessing shallow groundwater.

Revolon Slough Potential GDE

The Revolon Slough potential GDE comprises aquatic habitat and willow riparian forest. This potential GDE may support native special-status species (Table 2-6). The riparian habitat within this potential GDE is considered “de minimis” because of its poor quality and limited extent adjacent to the waterway. Streamflow in lower Revolon Slough is considered to be a combination of agricultural return flow and precipitation and stormwater runoff. The degree of groundwater recharge and/or discharge has not been studied and groundwater elevation data are not available for this area. Groundwater elevations at semi-perched aquifer monitoring wells located approximately 1 mile to the southwest at Naval Base Ventura County Point Mugu indicate typical groundwater elevations range from −1 to 6 feet msl. Extrapolated depths to groundwater at the downstream end of the Revolon Slough potential GDE would be between 9 and 16 feet bgs. The extrapolated groundwater

depths indicate the potential for the riparian vegetation to access shallow groundwater. Additional data need to be collected within the boundaries of the Revolon Slough potential GDE in order to determine whether or not the riparian vegetation is accessing shallow groundwater.

2.3.8 Potential Recharge Areas

To evaluate potential future recharge areas within the Oxnard Subbasin, soil types were obtained from the Web Soil Survey, available online at https://websoilsurvey.nrcs.usda.gov/ (USDA 2019). Soil Ksat rates (saturated hydraulic conductivity rates) for soils of 92 micrometers per second or greater were plotted. Figure 2-57, Oxnard Potential Recharge Areas, shows the results of this evaluation and areas with the most favorable soil recharge rates. The most favorable areas are near the current UWCD spreading grounds, along the Santa Clara River, in sands along the northern coastal areas, and in loamy sands, which may represent old Santa Clara River drainages.

2.4 WATER BUDGET

This section presents the current, historical, and simulated future water budget analysis for the Oxnard Subbasin. This water budget analysis has been completed in accordance with the DWR GSP Regulations. The historical water budget has been prepared for the 31-year period from the beginning of calendar year 1985 through 2015 (the current year for the Sustainable Groundwater Management Act [SGMA]) and is described in units of AF or AFY. The five commonly recognized aquifer units in the Oxnard Subbasin are the Oxnard, Mugu, Hueneme, Fox Canyon, and Grimes Canyon Aquifers (DWR 1965, 2006; Turner 1975). As described in Section 2.2, Hydrogeologic Conceptual Model, these aquifers are grouped into a UAS and an LAS, with the Oxnard and Mugu Aquifers composing the UAS and the Hueneme, Fox Canyon, and Grimes Canyon Aquifers composing the LAS. The UAS primarily comprises recent to upper Pleistocene age alluvial deposits of the Santa Clara River system.

UWCD (2018; Appendix C) developed the "Ventura Regional Groundwater Flow Model (VRGWFM)," a MODFLOW numerical groundwater flow model, for the Oxnard Subbasin, the Mound Basin, the western part of the LPVB, and the PVB. Details of the UWCD modeling effort are included in Appendix C. The groundwater budget analysis for the Oxnard Subbasin is based on the DWR Bulletin 118 basin boundary for the Oxnard Subbasin, and does not incorporate the remainder of the model domain. As with all groundwater flow models, the UWCD model has undergone several revisions and will continue to be revised as additional data are collected and the understanding of the hydrogeologic interactions in the model domain improves. This GSP uses the version of the model finalized in June 2018, which was developed to support the GSP process. This version of the model was used for the current and historical water budget analysis as well as for the future projected groundwater scenarios discussed in Section 2.4.5, Projected Future Water Budget and Sustainable Yield.

2.4.1 Sources of Water

Aquifer systems in the Oxnard Subbasin receive water from several sources. Native sources consist predominantly of rainfall infiltration within the Oxnard Subbasin and along its margins (mountain-front recharge), and subsurface inflows from the adjacent basins.

Water sources consist predominantly of streambed seepage from Calleguas Creek where it enters the Oxnard Subbasin from the adjoining PVB; streambed seepage from the Santa Clara River; artificial recharge by the UWCD; deep percolation of a portion of the irrigation water that is applied to agricultural, residential, and commercial lands, and to public open spaces; leakage from water distribution systems; septic system return flows; and wastewater treatment plant (WWTP) percolation ponds. Two small community WWTPs are located adjacent to the Santa Clara River in the Oxnard Subbasin. The Saticoy and the Montalvo WWTPs discharge treated effluent to percolation ponds.

Water supplies for the Oxnard Subbasin consist of locally pumped potable and nonpotable groundwater; imported water provided by UWCD (nonpotable) and Calleguas Municipal Water District (CMWD) (potable); nonpotable surface water provided by UWCD from its Freeman Diversion on the Santa Clara River and delivered to agricultural users in the Oxnard Subbasin via the PTP and to agricultural users in the Oxnard Subbasin and PVB via the Pleasant Valley Pipeline (PVP); the Oxnard Subbasin portion of a nonpotable water supplied provided by the Camrosa Water District (CWD) to the Pleasant Valley County Water District (PVCWD) from a diversion on Conejo Creek; and fully advanced treated recycled water produced by the City of Oxnard (the Groundwater Recovery Enhancement and Treatment (GREAT) Program) that began to be delivered to PVCWD and a few other agricultural users in early 2016.

The predominant municipal water suppliers in the Oxnard Subbasin are the City of Oxnard, the Port Hueneme Water Agency, the City of Ventura, and the Naval Base Ventura County. Water supplies for these municipal users include deliveries by UWCD via the Oxnard–Hueneme Pipeline, which obtains its water exclusively from wells located at the El Rio Spreading Grounds and along Rose Avenue. These municipal users may also receive imported water supplied by the CMWD. The City of Oxnard has wells within the Oxnard Subbasin. The City of Ventura also has wells in the Oxnard Subbasin, but uses water in their service areas inside and outside of the Oxnard Subbasin. Figure 1-8 shows a map of water purveyors with service areas within the Oxnard Subbasin.

In addition to groundwater pumping, agricultural water supplies are provided by UWCD via its PTP and PVP. The PTP services users in the Oxnard Subbasin, and the PVP services users in both the Oxnard Subbasin and the PVB. UWCD's water source for the PTP and PVP consists primarily of surface water obtained at the Freeman Diversion, which may include State Water Project water from Lake Piru. Groundwater is also extracted at five LAS wells located along the PTP pipeline

in many years and is included in the water supplied by the PTP. Occasionally, temporarily stored recharge water is pumped from shallow wells at UWCD's Saticoy Spreading Grounds and included in water supplied by the PVP.[7]

2.4.1.1 Surface Water

Figure 2-58, Oxnard Subbasin Stream Gauges and Water Infrastructure, shows the locations of streams and primary drainage systems in and around the Oxnard Subbasin, as well as water infrastructure locations including WWTP ponds, stream gauge stations, and the two diversion structures (Freeman and Conejo Creek Diversions) that provide a portion of the water supply for the Oxnard Subbasin.

Santa Clara River

The Santa Clara River interacts with the groundwater system in the Oxnard Subbasin. Reaches of the Santa Clara River in the Oxnard Subbasin range from perennial to intermittent to ephemeral (Appendix C). The river flows through the adjoining Santa Paula Basin into the Oxnard Subbasin in the Forebay area, and then out of the Oxnard Subbasin to the Mound Basin. Climatic and geologic characteristics of the Santa Clara River watershed result in an intermittent flow regime; however, flows can increase rapidly in response to high-intensity rainfall with the potential for severe flooding. During winter months, storm events may cause periods of continuous surface flow to the Pacific Ocean in the Santa Clara River.

Santa Clara River Recharge

The UWCD groundwater model used the MODFLOW STR stream package to simulate stream flow recharge. The stream flow discharge and percolation for the Santa Clara River were estimated using this stream package and the results are provided in Table 2-7a (for the semi-perched aquifer) Table 2-7b (for the UAS), and Table 2-7c (for the LAS). Except for 1998, 1999, and 2006, following the high rains in 1998 and 2005, the net effect of surface-water/groundwater interaction along the Santa Clara River was recharge to the UAS and the semi-perched aquifer in the Oxnard Subbasin (Appendix C). During these years, the net effect of surface-water/groundwater interaction was discharge from the UAS to the Santa Clara River. From 1985 to 2015, the average estimated recharge from the Santa Clara River to the semi-perched aquifer was 661 AFY, and the average estimated recharge to the UAS was 4,848 AFY (Tables 2-7a and 2-7b). These numbers do not include diversions from the Santa Clara River by the UWCD for artificial recharge at their spreading grounds or for direct use, which are discussed below.

[7] UWCD extracts limited amounts of temporarily stored water from shallow wells at its Saticoy Spreading Grounds to the PVP during periods of mounding, as authorized by FCGMA Resolution 2011-02.

Santa Clara River Diversions and Recharge

Table 2-8 summarizes the historical diversions of Santa Clara River water by UWCD and deliveries to both the Oxnard Subbasin and the PVB. On average, UWCD diverted 62,467 AFY from the Santa Clara River between 1985 and 2015, although diversion volumes, which depend on local climatic conditions, are highly variable (Table 2-8). These diversions may include State Water Project water held at Lake Piru and then delivered to the UWCD via the Santa Clara River. UWCD diverts surface water from the Santa Clara River in the Santa Paula Basin, just upstream of the Oxnard Forebay. The majority of this water, on average, is used for groundwater recharge in its spreading basins within the Oxnard Forebay (Table 2-8). Additionally, the water is used as supply for the PTP that services agricultural water users on the Oxnard Plain and as supply for the PVP agricultural water supply line that services agricultural water users in both the PVB and the Oxnard Subbasin. During drought periods, the relative percentage of diverted water used to recharge groundwater in the spreading basins declines, and the relative percentage of groundwater delivered through the PTP increases.

Table 2-9 provides the amounts of diverted water recharged by the UWCD in the three UWCD recharge grounds. Approximately 93% of the diverted water is recharged in the El Rio and Saticoy Spreading Grounds, on average, and the remaining 7% is recharged in the Noble Spreading Grounds (Table 2-9). Figure 2-59, Freeman Diversion and Uses in the Oxnard Subbasin, shows the amounts of diverted water by UWCD, and Figure 2-60, UWCD Groundwater Recharge, shows the annual recharge by UWCD. As shown in Table 2-10, the UWCD supply delivered in the PTP supply line is a mixture of surface water, and groundwater pumped by UWCD from their PTP wellfield, which pumps from the LAS, and less frequently, from their Saticoy wellfield.

Recharge from the UWCD groundwater recharge spreading grounds is included with recharge in Table 2-7a and Table 2-7b, but identified individually in Table 2-11. Of the total average annual recharge shown in Table 2-11 (73,669 AFY), UWCD groundwater recharge accounts for 48,306 AFY, or 65.6%. Recharge related to the PTP/PV system averaged 3,319 AFY from 1985 to 2015 as shown in Table 2-11, this is 4.5% of the total recharge. Of the average 62,467 AFY diverted from the Santa Clara River (Table 2-8), the average of 48,306 AFY (Table 2-11) recharged to the UWCD spreading grounds constitutes 77%.

The water delivered in the Oxnard–Hueneme Pipeline consists of groundwater pumped from the UAS and LAS near the El Rio Spreading Grounds. As shown in Table 2-10, deliveries from the Oxnard–Hueneme Pipeline are primarily used for municipal purposes, but small volumes are occasionally used for agricultural water supply along Hueneme Road on the southern part of the Oxnard Subbasin.

Calleguas Creek

Calleguas Creek enters the Oxnard Subbasin almost 2 miles upstream of its confluence with Revolon Slough and discharges to the Pacific Ocean at Mugu Lagoon. This reach of Calleguas Creek is perennial, with flow occurring primarily as maintenance flows provided by CWD (6 cubic feet per second required bypass flow at its diversion on Conejo Creek), inflows from agricultural field tile drains, inflows from Revolon Slough, and treated wastewater discharges into the lower reaches of Conejo Creek from the Camarillo Water Reclamation Plant (in the PVB) and the Hill Canyon WWTP in the City of Thousand Oaks. Table 2-12 summarizes the estimated flows in Arroyo Las Posas and Conejo Creek that enter Calleguas Creek, which then flows into the Oxnard Subbasin.

Table 2-12 summarizes the historical diversions of water from Conejo Creek by CWD at the Conejo Creek Diversion near Highway 101 that are supplied to the Oxnard Subbasin via PVCWD (Figure 2-58). The estimated diversions by CWD that are used in the Oxnard Subbasin are shown on Table 2-10. The source of water to Conejo Creek is mostly wastewater discharge from the Hill Canyon WWTP upstream of the Arroyo Santa Rosa Valley Basin. Table 2-10 shows only that portion of this water that is supplied to PVCWD and used in the Oxnard Subbasin.

Calleguas Creek Recharge

The UWCD (2018; Appendix C) groundwater model used the MODFLOW STR stream package to simulate recharge for Calleguas Creek in the Oxnard Subbasin. Calleguas Creek in the Oxnard Subbasin does not have hydraulic communication with the underlying UAS, but modeling indicates recharge to the semi-perched aquifer from 1985 to 2015 averaged 3,394 AFY (Table 2-7a).

Beardsley Wash/Revolon Slough

Beardsley Wash/Revolon Slough is a shallow drainage that captures shallow groundwater and stormwater from agricultural field tile drains and is lying at a similar elevation as the surrounding fields in its lower reaches where it is perennial. Consequently, it is not thought to be a recharge source.

2.4.1.2 Imported Water Supplies

Table 2-13 and Figure 2-61, Water Deliveries to the PVCWD and UWCD, show the historical volumes of water sold to the two water retailers (City of Oxnard and Port Hueneme Water Agency) that have historically purchased imported water from the CMWD. As shown in the table, sales to Port Hueneme Water Agency and to the City of Oxnard have occurred since 1996 and 1964, respectively. Sales have averaged approximately 1,564 AFY (from 1996 to 2015) and 13,500 AFY (from 1985 to 2015) to the Port Hueneme Water Agency and to the City of Oxnard, respectively.

As discussed in Section 2.4.1.1, Surface Water, the UWCD-diverted surface water from the Santa Clara River may include State Water Project water used for groundwater recharge in UWCD spreading basins or water directly delivered to water users by either the PVP or the PTP.

Percolation of Outdoor Irrigation (Urban Return Flows)

In the UWCD (2018; Appendix C) model, an assumed amount of M&I delivered water (5%) is estimated as groundwater recharge. This water is included as recharged water in Tables 2-7a and 2-7b and the total is provided in Table 2-11 by sources. Of the total annual recharge shown in Table 2-11 (73,669 AFY), percolation of applied water accounts for 928 AFY, or 1.3%.

2.4.1.3 Recycled Water Supplies

Two small community WWTPs are located adjacent to the Santa Clara River in the Oxnard Subbasin (Figure 2-58). The Saticoy WWTP and the Montalvo WWTP discharge treated effluent to percolation ponds. According the UWCD (Appendix C, p. 47), the average annual volumes of effluent discharged to the percolation ponds are approximately 80 and 200 AF, respectively, based on reports provided by California's State Water Resources Control Board online database, GeoTracker (http://geotracker.waterboards.ca.gov/). The Saticoy WWTP is within the Oxnard Forebay, where percolating water can directly recharge the UAS. The Montalvo WWTP is farther downstream, in an area of the Oxnard Subbasin where percolating water recharges the semi-perched aquifer, which is not used for water supply. According to UWCD (Appendix C), the Montalvo WWTP ceased operating in 2016, subsequent to the model calibration period.

Recycled water by the City of Oxnard began to be provided to PVCWD and other agricultural users in early 2016. Wastewater effluent generated by the City of Oxnard historically has been treated at the Oxnard WWTP and discharged directly to the Pacific Ocean. However, the first phase of the GREAT Program's Advanced Water Purification Facility (AWPF) was completed in 2015, which provides this supply to PVCWD and other growers on the southern part of the Oxnard Subbasin.

Recycled Water Recharge

Recharge from the Saticoy and Montalvo WWTPs is simulated in the UWCD model using the recharge package. The monthly percolation volumes reported in the state's GeoTracker system were added to other areal recharge rates specified for the model grid cells corresponding to the WWTP percolation-pond sites (Appendix C, p. 83).

2.4.1.4 Percolation of Precipitation

Much of the rain that falls in the Oxnard Subbasin quickly returns to the atmosphere via evaporation, or runs off to creeks, storm drains, and ultimately the ocean; the remainder percolates into the soil where it is subject to evapotranspiration (ET), soil absorption, or for plant use.

However, some precipitation can percolate into the soil and downward past the plant root zone and reach an underlying aquifer. This recharge process is referred to as deep infiltration (or percolation) of precipitation.

Deep percolation of precipitation depends on many factors, including: precipitation rate and duration, evaporation rate, ambient temperature, texture and slope of land surface, soil type and texture, antecedent soil moisture, vegetation cover, seasonal plant activity, and others is highly variable over time and location (Appendix C). Thus estimates of the percolation of precipitation is subject to substantial uncertainty.

UWCD downloaded monthly precipitation data for 180 rainfall gauge stations across the model domain from the Ventura County Watershed Protection District (http://www.vcwatershed.net/hydrodata/) (Appendix C, p. 80). UWCD used the Kriging method of geostatistical analysis to generate monthly precipitation distributions across model area, and the areal recharge from deep infiltration of precipitation was input to the model using the recharge package and was calculated as follows:

- If monthly precipitation is less than 0.75 inches, the precipitation is lost to evapotranspiration.
- If monthly precipitation is 0.75 to 1 inch, then recharge is assigned from 0% to 10% of precipitation (on a sliding scale).
- If monthly precipitation is 1 to 3 inches, then recharge is assigned from 10% to 30% of precipitation.
- If monthly precipitation is greater than 3 inches, then recharge is assigned as 30% of precipitation.
- Urban (non-agricultural) land use, including residential, commercial, and industrial areas: 5% of the total water precipitation.
- Undeveloped land: 10% of the total water precipitation.

Precipitation Recharge

Recharge from the percolation of precipitation is include with recharge in Tables 2-7a and 2-7b, but identified individually in Table 2-11. Of the total annual recharge shown in Table 2-11 (73,669 AFY), percolation of precipitation accounts for 8,947 AFY, or 12.1%.

2.4.1.5 Basin Groundwater Subsurface Inflow and Outflow

UWCD (Appendix C) provided model monthly groundwater inflows and outflows between the Oxnard Subbasin and the Pleasant Valley, Mound, west Las Posas Valley, and Santa Paula Basins, and unincorporated areas, as well as for three coastal segments adjacent to the Pacific Ocean. These inflows and outflows were combined to generate the annual estimates used for the groundwater budget. Additionally Table 2-7b shows the subsurface flows between the UAS and the semi-perched aquifer as well as the UAS and the LAS.

2.4.1.6 Mountain-Front Recharge

UWCD (Appendix C) used the MODFLOW WEL package to input mountain-front recharge specified flux amounts into model grid cells adjacent to each small drainage system (sub-watershed) along the margins of the model area, and to the base of elevated bedrock or mountains areas. In the Oxnard Subbasin, mountain-front recharge was applied at the base of the volcanic outcrops adjacent to the southwest side of the CWD Water Reclamation Plant shown on Figure 2-58, and along the Santa Monica Mountains. Recharge rates were calculated from monthly precipitation rates for the area receiving the precipitation. The monthly mountain-front-recharge rate inputs to the model followed the precipitation/recharge-percentage relationship used for agricultural return flows (Section 2.4.1.9, Percolation of Agricultural Irrigation Water [Agricultural Return Flows]). For the Oxnard Subbasin, mountain-front recharge from and to the volcanic outcrops and the Santa Monica Mountains (Unincorporated Areas) are shown in Tables 2-7a and 2-7b.

2.4.1.7 Septic Systems Recharge

The number and location of septic systems in the Oxnard Subbasin were estimated by DBS&A (2017) based on the Ventura County septic database. If septic systems were present within any parcel within a tract, it was assumed that all parcels in the tract contained septic systems. The number of septic systems in the Forebay decreased beginning in 2011 due to a County of Ventura program to phase out septic systems in the area. It was estimated that the number of systems in the Forebay decreased from 1,823 in 1985 to 485 in 2015 (DBS&A 2017).

Household water use and annual disposal was estimated to decrease from 0.21 AFY per household for 1985 to 1997, 0.20 AFY per household for 1988 to 2010, and 0.16 AFY per household from 1998 to 2015 based on DeOreo and Meyer (2012, as cited in DBS&A 2017). The resulting estimated percolation from all septic systems was estimated to decrease from 382 AFY in 1985 to 75 AFY in 2015 (DBS&A 2017). These values are small compared to known recharge values (UWCD spreading) and other estimated recharge values (Santa Clara River recharge; agricultural and municipal return flows).

The UWCD groundwater model assumed that septic system recharge was widespread and small relative to other recharge sources and incorporated septic system return flows implicitly as a component of agricultural and municipal return flows.

2.4.1.8 Distribution Systems Leakage

Distribution system losses from leakage of water-supply pipelines, sewer lines, and storm drains are included with M&I return flows in the UWCD model.

2.4.1.9 Percolation of Agricultural Irrigation Water (Agricultural Return Flows)

Groundwater pumping is discussed in Section 2.4.2.1; only recharge from agricultural return flow is discussed in this section. The UWCD groundwater model used the following water sources that were applied to irrigated land and assumed an agricultural return flow of 14%:

- Extracted groundwater from wells for agricultural use
- Groundwater and surface water delivered by the PVCWD pipeline
- Surface water diverted from Conejo Creek to PVCWD

If the precipitation is more than 1 inch per month, the agricultural return flow ratio is compared with precipitation recharge ratio. If the precipitation recharge ratio is larger than 14%, the agricultural return flow is replaced by the precipitation recharge ratio.

Agricultural Recharge

Recharge from the agricultural return flow is included with recharge in Tables 2-7a and 2-7b, and identified individually in Table 2-11. Of the total annual recharge shown in Table 2-11 (73,669 AFY), agricultural return flow accounts for 12,169 AFY, or 16.5%.

2.4.2 Sources of Water Discharge

Sources of groundwater discharge predominantly include groundwater pumping, tile drain discharges, and evapotranspiration. However, depending on groundwater levels (as noted in Section 2.4.1.1), groundwater/surface interactions can also discharge groundwater to surface water, which can then either be lost from the Subbasin or recharge elsewhere in the Subbasin. Likewise, groundwater pumped and used for agricultural, M&I, and domestic purposes can produce return flows (Section 2.4.1.2, Imported Water Supplies; Section 2.4.1.7, Septic Systems Recharge; Section 2.4.1.8, Distribution Systems Leakage; and Section 2.4.1.9). Subsurface groundwater flows (interbasin flows) can discharge groundwater from the Oxnard Subbasin to the adjacent groundwater basins, unincorporated areas, and the Pacific Ocean (Section 2.4.1.5, Basin Groundwater Subsurface Inflow and Outflow).

2.4.2.1 Groundwater Pumping

Table 2-14 shows the amount of groundwater pumped for agricultural, M&I, and domestic uses by aquifer systems from the UWCD model results. UWCD modeled groundwater withdrawals using the multi-node well (MNW2) package. The extraction amounts in Table 2-14 were combined with well types from the FCGMA well database to distinguish the amounts extracted by type. Figure 2-62, Groundwater Pumping, shows the amounts of agricultural, M&I, domestic, and total groundwater pumped from the Oxnard Subbasin. Groundwater pumping is also shown in the Oxnard Subbasin groundwater budget in Tables 2-7a through 2-7c.

Available data indicate that during the calendar year 2015, a total of 80,814 AF (Table 2-14) of groundwater was extracted from the Oxnard Subbasin, of which, about 69% was for agricultural use (55,973 AF), 30% was for M&I use (24,648 AF), and about 0.2% was for domestic use (193 AF). For the Oxnard Subbasin, the FCGMA groundwater pumping database contains 732 known wells, of which 403 are currently listed as active use, 217 have been destroyed, 106 are inactive, and 6 could not be located. An additional 13 agricultural wells are in the UWCD database outside the FCGMA boundary.

Not all the groundwater produced in the Oxnard Subbasin remains in the Subbasin. Four agricultural users (PVCWD, Coastal Berry Co., Montalvo Water Co., Alta Mutual Water Co., and Guadalasca Mutual Water Co.) may export a portion of the groundwater that they pump from the Oxnard Subbasin to areas inside the PVB. The PVCWD uses a combination of pumped groundwater from the Oxnard Subbasin and the PVB, delivered UWCD water from the PVP, CWD-delivered water from Conejo Creek, and other sources. FCGMA groundwater pumping records indicate that from 1985 to 2015, approximately 41% and 59% of PVCWD's pumped groundwater has come from the PVB and the Oxnard Subbasin, respectively. A geographic information system (GIS) calculation of the area of the PVCWD in Figure 1-8 indicates that approximately 56% of the PVCWD service area is in the Oxnard Subbasin, and the remaining 44% is in the PVB. For purposes of estimating PVCWD water deliveries, a ratio of 44% PVB and 56% Oxnard Subbasin area was assumed to be a reasonable basis for PVCWD water supplies between the two basins. As shown in Table 2-10, during some years, groundwater pumping by PVCWD in the Oxnard Subbasin is less than this ratio resulting in a net import from the PVB. Conversely, in some years, groundwater pumping in the Oxnard Subbasin is more than this ratio, resulting in a negative import (an export) to the adjacent PVB.

2.4.2.2 Tile Drain Recharge Losses

Tile drains are used beneath many agricultural lands in the Oxnard Subbasin to maintain a sufficiently deep groundwater table where poorly drained soils create shallow groundwater conditions that can negatively affect plant health and crop yields. These conditions prompted the installation of tile drains across most of the Oxnard Plain in the 1900s. Tile drains are present beneath many agricultural land parcels in the PVB as well. These drains discharge to local drainage ditches and then to surface water bodies Revolon Slough and Calleguas Creek. The flows in the tile drains are not metered.

Tile drains were implemented in the UWCD groundwater model using MODFLOW's drain package (DRN). Model grid cells with simulated tile drains in the uppermost active layer correspond with agricultural areas where tile drains are known or suspected to exist. The UWCD model has calculated losses to tile drains based on groundwater model simulated water levels and the results are provided in Tables 2-7a and 2-7b. Average annual loss to tile drains in the UWCD model is 10,752 AFY.

2.4.2.3 Evapotranspiration (ET)

The UWCD model used the U.S. Fish and Wildlife Service online "Wetlands Mapper" (https://www.fws.gov/wetlands/data/mapper.html) to indicate areas of riparian vegetation along stream channels. These areas, together with parts of the Santa Clara River (including its estuary), Revolon Slough/Beardsley Wash, McGrath Lake, Ormond Beach wetlands, and Mugu Lagoon wetlands were used to estimate evapotranspiration (ET) (Appendix C). ET is the discharge of groundwater from the saturated zone where the water table is present at very shallow depths. Such conditions mostly occur in the Oxnard Subbasin where the semi-perched aquifer interacts with surface water bodies, which is also where riparian vegetation is typically found in the Oxnard Subbasin. These areas are hydraulically connected to, and exchange fresh- to brackish-water with, the semi-perched aquifer near the coast. It should be noted that nearly all of the riparian vegetation that takes up groundwater in the Oxnard Subbasin occurs in land overlying the semi-perched aquifer, which is rarely, if ever, pumped as a source of agricultural or M&I water supply. Additional discussions about these areas are in Sections 2.3.6 and 2.3.7.

UWCD (Appendix C) applied USGS estimates for ET rates from 1.1 to 5.2 feet per year to calculated long-term annual average groundwater discharge as ET. UWCD implemented ET using MODFLOW's ET package, EVT. Model grid cells corresponding to areas of mapped wetlands with shallow groundwater were simulated. The maximum ET flux was 0.010 feet per day (3.65 feet per year) for model grid cells subject to ET over their entire area. The maximum ET flux is scaled down proportionally for grid cells that are only partially occupied by wetlands. The ET surface elevation was set at 3 feet bgs, and the ET extinction depth was set at 5 feet bgs (Appendix C, p. 84).

According to UWCD model results, the estimated annual loss from ET is 8,328 AFY, with most coming from the semi-perched aquifer (8,291 AFY, a shown in Table 2-7a) and a small amount from the UAS (37 AFY, as shown in Table 2-7b).

2.4.3 Current and Historical Water Budget Analysis

2.4.3.1 Water Year Types

Water year type is based on the percentage of the water year precipitation compared to the 30-year precipitation average. Types are defined in this GSP as wet ($\geq$ 150% of average), above normal ($\geq$ 100% to <150% of average), below normal (> 75% to <100% of average), dry (> 50% to <75% of average), and critical (<50% of average). Figures 2-22 through 2-25 show the water year type from 1986 to 2015. The water type year for 2015 is dry.

2.4.3.2 Historical Water Budget Analysis

DWR has designated the Oxnard Subbasin as a high-priority basin. The DWR GSP Regulations, Section 354.18, Water Budget, states that, "If overdraft conditions occur, as defined in Bulletin 118, the water budget shall include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions." According to the DWR Bulletin 118, "A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts" (DWR 2006). Bulletin 118 Interim Update 2016 (October 18, 2016) lists the Oxnard Subbasin (Basin 4-004.02) as being in critical overdraft (DWR 2016).

Because of Bulletin 118's listing of the Oxnard Subbasin as being in critical overdraft, the DWR GSP Regulations, Section 354.18 (b)(5), requires a quantification of the overdraft over a period of years during which water years and water supply conditions approximated average conditions. Using the water year types discussed in Section 2.4.3.1, and the above normal (> 100% to <150% of average) and the below normal (> 75% to <100% of average) water year types to bracket water supply conditions approximating average conditions, the following years have near average conditions: 1988, 1991, 1992, 1994, 1996, 1997, 2000, 2001, 2003, 2006, 2008, 2010, and 2011.

The change in storage during these years was an increase of 6,045 AFY in the UAS and an increase of 1,029 AFY in the LAS (Tables 2-7b and 2-7c). However, the net seawater intrusion during these years was 4,189 AFY in the UAS, and 5,225 AFY in the LAS (Table 2-7c). Thus, the net change in groundwater storage for the UAS without seawater intrusion was an increase in 1,856 AFY in the UAS and the net change in storage without seawater intrusion in the LAS was a decrease of 4,196 AFY. Total groundwater pumping during these years averaged 47,080 AFY in the UAS and 28,893 AFY in the LAS for a total of 65,973 AFY (Tables 2-7b and 2-7c). This quantification of the overdraft over a period of years during which water years and water supply conditions approximated average conditions would indicate that the Oxnard Subbasin was in overdraft of about 2,340 AFY (4,196 AFY [LAS] − 1,856 AFY [UAS]). It should be noted that except for 2011, Tables 2-7b and 2-7c show net seawater intrusion for the UAS and LAS for each of the years that approximated average conditions. This seawater intrusion analysis suggests that based on the historical pumping patterns and pumping amounts, the Oxnard Subbasin was in overdraft by about 2,340 AFY during average water supply conditions.

GSP regulation Section 354.18 (c)(2) requires that the historical water budget information be used to evaluate availability or reliability of past surface water supply deliveries and aquifer response to water supply and demand trends relative to water year type. Historically, the Oxnard Subbasin has received surface water supply deliveries directly from one main source: the Santa Clara River. Additionally, but to a lesser degree, Calleguas Creek, imported water delivered by the CMWD, and Conejo Creek water diversions have contributed surface water supplies to the Oxnard

Subbasin. Table 2-8 shows that the diversion of Santa Clara River from 1985 to 2015 have averaged 62,467 AFY, and leakage from the Santa Clara River has averaged about 5,650 AFY (770 AFY [see Tables 2-7a and 2-7b] + 4,989 AFY [see Table 2-7b] – 109 AFY [see Table 2-7b]). This indicates a total Santa Clara River supply of approximately 68,117 AFY. In comparison, Calleguas Creek has supplied approximately 3,394 AFY (see Table 2-7a) to the semi-perched aquifer, CMWD has delivered 14,543 AFY of imported water (see Table 2-13), and Conejo Creek diverted flows have averaged 1,159 AFY (see Table 2-10). These last three sources total 19,096 AFY, or 22% of the total surface water deliveries (87,213 AFY) or only 28% of the total Santa Clara River. Tables 2-7a, 2-13, and 2-10 for Calleguas Creek, CMWD imported water, and Conejo Creek (starting in 2002), respectively, suggest that these sources are reliable and not significantly affected by the water year type. However, diversions from the Santa Clara River as shown in Table 2-8 and on Figure 2-59 vary widely depending on climate conditions. The high diversion years of 1993, 1998, and 2005 were wet years (Figures 2-22 and 2-59). The low diversion years of 1990, 2013 and 2014 were critical dry years, and 2015 was a dry year (Figures 2-22 and 2-59). Diversions of surface water by the UWCD from the Santa Clara River are critical to the surface water supplies of the Oxnard Subbasin.

2.4.3.3 Current (2015) Groundwater Conditions

Groundwater level data presented in Section 2.3, Groundwater Conditions, and the change in storage estimates for the calendar year 2015 from Tables 2-7a through 2-7c indicate that the Oxnard Subbasin had greater groundwater outflows than inflows in 2015. The estimated 2015 groundwater change in storage is a loss of about 38,703 AF (Tables 2-7a through 2-7c). This change in groundwater storage would be larger and groundwater storage declines greater if seawater intrusion had not replaced groundwater in the Oxnard Subbasin. Model results in Tables 2-7a through 2-7c indicate a net seawater intrusion in 2015 of approximately 19,200 AF. There was a net outflow of water to the Pacific Ocean in the semi-perched aquifer of approximately 504 AF (Table 2-7a), but a positive inflow (seawater intrusion) in the UAS of approximately 11,633 AF (Table 2-7b) and a positive inflow in the LAS of approximately 8,081 AF (Table 2-7c).

Tables 2-7a through 2-7c show that from 1985 to 2015, seawater intrusion has replaced freshwater in storage in the Oxnard Subbasin in the LAS every year, and 23 of 31 years in the UAS. Tables 2-7a and 2-7b indicate that seawater flows both in and out of the Oxnard Subbasin in the semi-perched aquifer and the UAS. However, groundwater generally flows out of the Subbasin from the semi-perched aquifer (which is not currently a usable aquifer), and seawater usually inflows to the UAS and LAS, which affects usable groundwater aquifers.

2.4.3.4 Estimates of Historical Sustainable Yield

Historical estimates for the Oxnard Subbasin sustainable yield[8] have also included the PVB. These historical sustainable yield estimates include the following:

- FCGMA, 1985, Groundwater Management Plan
- FCGMA, 2007, 2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan
- UWCD and CMWD, 2012, Preliminary Draft Yield Analysis (UWCD 2016c)
- UWCD, 2016, Proposed Method for Estimating Sustainable Yield (UWCD 2016c)

All of these historical estimates for the combined Oxnard Subbasin and PVB sustainable yield are about 65,000 AFY, but do not demonstrate that this groundwater pumping rate prevents seawater intrusion. The UWCD Open-File Report 2017-02 (UWCD 2017a) Scenario D estimated that seawater intrusion would be halted if: (1) there were no groundwater pumping in what the report refers to as an assumed future "seawater intrusion management area," (2) groundwater pumping were reduced by about 70% in LAS in the Oxnard Plain (excluding the Forebay) and in the PVB, and (3) there were no reduction in UAS pumping. However, this scenario assumed that groundwater for irrigation in the assumed future "seawater intrusion management area" would be supplied by a project to be implemented in the future. The combined estimated sustainable yield under Scenario D was 59,900 AFY for the Oxnard Subbasin (excluding the seawater intrusion management area) and the PVB.

To estimate the sustainable yield under historical conditions where no future project is implemented, the UWCD conducted Scenario F in Addendum Open-File Report 2017-02a (UWCD 2017b). In Scenario F, the assumed seawater intrusion management area was eliminated, and a uniform reduction in groundwater pumping was simulated to achieve sustainable yield. The scenario defined a sustainable yield as maintaining groundwater elevations along the coast at levels sufficiently high to prevent seawater intrusion and other forms of saline water intrusion. In the Port Hueneme area, where the UAS and LAS are believed to have direct hydraulic connection with the Pacific Ocean, UWCD assumed minimum thresholds[9] as defined in Open File Report 2017-02. However, under Scenario F, UWCD assumes a minimum threshold for the LAS near Mugu Lagoon to be −20 feet msl instead of 18.5 feet msl, as assumed in Open File Report 2017-02. This is because the most recent UWCD Saline Intrusion Update report (UWCD 2016b) interpreted the source of elevated

[8] SGMA requires that an estimate of the "sustainable yield" be made for the Oxnard Subbasin based on historical data. However, as used in this section the sustainable yield does not address undesirable results, which are discussed in Chapter 3, Sustainable Management Criteria.

[9] "Minimum threshold" used here is in reference to the Open File Report 2017-02 usage and not to the minimum threshold discussed in Chapter 3 of this GSP.

chloride concentrations in the LAS near Mugu Lagoon to be saline water yielded from marine clays and/or from adjacent Tertiary-age sedimentary rocks, as a result of large declines in potentiometric head in the LAS over the past several decades, and not a direct result of current seawater intrusion. Additional discussion of saline water and seawater intrusion can be found in Section 2.3.3.

Based on the results from UWCD Scenario F (UWCD 2017b, Table 2-2), the sustainable yield under historical conditions with no changes from the current pumping locations (i.e., without water supply or infrastructure projects) for the Oxnard Subbasin would be a total of 39,000 AFY (27,000 AFY from the Oxnard Plain and 12,000 AFY from the Oxnard Forebay area). The results from UWCD Scenario F (2017b, Table 2-2) would indicate a total of 10,000 AFY for the PVB. Evaluation of the volume of water entering and leaving the model along the Pacific coastline under Scenario F indicated that there is a net outflow of water from the model to the Pacific Ocean over the 31-year simulation period. Groundwater left the model to the ocean in the UAS, while a smaller amount of seawater intruded the LAS. This suggests that additional production may be possible from the Oxnard Subbasin by reducing groundwater pumping in the LAS and increasing it in the UAS. This shift in pumping may also better protect against seawater intrusion.

2.4.4 General Uncertainties in the Water Budget

There are several limitations and uncertainties associated with other water budget terms used for both the historical and future conditions due to necessary simplifying of assumptions and data gaps. Uncertainties about the groundwater models used are discussed in Section 2.4.5.8. Some of the general water budget limitations and/or uncertainties include the following:

1. The reporting of groundwater pumping outside the boundaries of the FCGMA is limited and there is a possibility of underreporting of pumping within the FCGMA boundaries due to non-reporting, inaccurate reporting, and equipment problems. Additional future data collection is needed to verify the existence and extent of and to eliminate this data gap. However, the amount of pumping outside the FCGMA boundary is expected to be minor given the limited number of wells (estimated at fewer than 12).
2. The hydrologic base period (calendar years 1985–2015, DWR's 31-year base period) may not necessarily be representative of long-term average conditions. As shown on Figure 1-6, Long-Term Precipitation Trends in the Oxnard Plain, this was a generally wetter-than-average period. However, the future water budget analysis in Section 2.4.5, which used a model 50-year period with an average precipitation period (1939 to 1979), does not suggest that the historical sustainable yield estimate based on this wetter-than-average period is too high. The combined UAS and LAS sustainable yield for the future water budget ranged from 30,000 AFY to 48,000 AFY (Section 2.4.5.9). The estimated historical sustainable yield using UWCD Scenario F (Section 2.4.3.4) of 39,000 AFY is within this range. The uncertainty associated with the future water budget sustainable yield is discussed in Section 2.4.5.8.

3. Conclusions regarding uncertainties in the UWCD model are discussed in Section 2.4.5.8, Uncertainty Analysis, and in the Dudek peer review of the UWCD model (Appendix E).
4. Subsurface inflows and outflows across basin boundaries are not measurable. The groundwater level data in these areas by themselves do not provide a clear indication of groundwater flow directions because of the limited water level measurements and the variation in time between measurements. The UWCD model provides a significantly improved understanding of these boundary fluxes and their variability under different pumping and recharge conditions in the region, but checking model values with observations and calculating the gradient with three-point groundwater flow problems should be considered to verify model estimates. Attempts to estimate inflows and outflows across basin boundaries using well groundwater level data was attempted for this GSP, but data gaps and limited well locations screened in one aquifer made the results unreliable.
5. Some semi-perched groundwater in the Oxnard Subbasin is potentially captured by tile drains, rather than recharging the UAS. This uncertainty could be reduced through installation of instrumentation and measurement of discharges from the tile drains.
6. Currently, aquifer-specific water level maps are not reliable to estimate aquifer change in groundwater storage due to the limited number and distribution of aquifer-specific water wells. Dedicated monitoring wells could installed and equipped with water-level measuring data loggers in all of the aquifers. This would help decrease uncertainty in estimates of future changes in groundwater storage by enabling use of aquifer-specific water-level maps to check groundwater model change in storage calculations.

2.4.5 Projected Future Water Budget and Sustainable Yield

Several model scenarios were developed in accordance with SGMA guidelines to assess the future sustainable yield of the Oxnard Subbasin. Each future scenario covered a 50-year time frame, from 2020 to 2069. In this GSP, the period from 2020 to 2039 is referred to as the implementation period, and the period from 2040 to 2069 is referred to as the sustaining period. The sustainable yield was determined from the model scenarios that did not result in a net flux of seawater into either the UAS or the LAS in Oxnard Subbasin, within the level of the model uncertainty, during the 30-year sustaining period (Figure 2-63, Coastal Flux from the UWCD Model Scenarios).

Because the Oxnard Subbasin is hydraulically connected to the PVB and the WLPMA, the sustainable yield of the Oxnard Subbasin is influenced by groundwater production and projects in these adjacent basins. The UWCD model used to assess the sustainable yield of the Oxnard Subbasin includes both the PVB and the WLPMA in the model domain, and the modeling assumptions associated with each scenario discussed below include the assumptions made for these adjacent basins.

The model scenarios developed for Oxnard Subbasin, the PVB, and the WLPMA all included existing projects and the 2070 DWR climate-change factor applied to the 1930–1970 historical precipitation and hydrology base period. The model scenarios are the following:

- Future Baseline Simulation (2015–2017 average production rates adjusted by surface water deliveries)
- Future Baseline Simulation With Projects (2015–2017 average production rates adjusted by surface water deliveries; potential future projects that met the DWR conditions for incorporation in the GSP)
- Reduction With Projects (35% reduction of 2015–2017 average production rates adjusted by surface water deliveries for the UAS and LAS in the Oxnard Subbasin, 20% reduction for the UAS and LAS in PVB; and 20% in the LAS in the WLPMA; potential future projects that met the DWR conditions for incorporation in the GSP)
- Reduction Without Projects 1 (reduction of 2015–2017 average production rates adjusted by surface water deliveries by 25% in the UAS, 60% in the LAS, and 45% for wells screened in both aquifer systems in the Oxnard Subbasin; 25% reduction for the UAS and the LAS in the PVB; and 25% in the LAS in the WLPMA)
- Reduction Without Projects 2 (reduction of 2015–2017 average production rates adjusted by surface water deliveries by 55% in the UAS and the LAS in the Oxnard Subbasin; 20% reduction for the UAS and the LAS in the PVB; and 20% in the LAS in the WLPMA)
- Reduction Without Projects 3 (reduction of 2015–2017 average production rates adjusted by surface water deliveries by 55% in the UAS and the LAS in the Oxnard Subbasin; 0% reduction for the UAS and the LAS in the PVB; and 0% in the LAS in the WLPMA)

Two of the model scenarios listed above, the Future Baseline Simulation With Projects Scenario and the Reduction With Projects Scenario, incorporated projects that were approved for inclusion in the GSP model scenarios by the FCGMA Board. The Board's approval of these projects only indicates that they were sufficiently defined by the project proponent to be analyzed as part of the GSP. It does not indicate that these specific projects will necessarily be constructed or, conversely, that other projects will not be developed in the future. The projects included are discussed in more detail with the description of each scenario below.

An initial set of four modeling simulations were conducted using the future baseline conditions with two 50-year average climate cycles (1930–1979 and 1940–1989), and two DWR climate-change factors (2030 and 2070) applied to each of the 50-year periods. The 1930 to 1979 50-year period with the 2070 DWR climate-change factor was found to be the most conservative and was used for the comparison with the other modeling simulations conducted. Additional details about the selection of the two 50-year average climate cycles is provided in Section 2.4.5.7.

In addition to the initial set of four modeling simulations and the six model scenarios listed above, the Reduction Without Projects Scenario 1 was simulated with the DWR 2030 climate-change factor and with a historical precipitation and hydrology base period from 1940 to 1989. These simulations were conducted to better understand the potential impact of precipitation patterns and climate-change factors on the model results. While the results of these simulations were primarily used as a check on the minimum threshold groundwater elevations discussed in Chapter 3, the predicted impact on seawater intrusion is discussed in Section 2.4.5.7.

Over the next 5 years, as additional projects are developed the model assumptions discussed below will need to be altered and incorporated into the 5-year GSP evaluation.

2.4.5.1 Future Baseline Model Simulation

SGMA requires that the GSP include an assessment of the "future baseline" conditions. In the Future Baseline Scenario, in order to assess whether or not groundwater extractions from the Oxnard Subbasin, PVB, and WLPMA were sustainable at their current rates, the average annual 2015–2017 production rates, adjusted by surface water deliveries, were simulated. Future surface water deliveries were estimated by UWCD using Santa Clara River flows for historical periods, the 1930–1979 climate period adjusted for future DWR climate-change factors, and estimated diversions based on similar historical Santa Clara River flows. UWCD also considered current allowable diversions, which accounts for current environmental restraints and diversion operating conditions, and optimization of water deliveries for the PVP and spreading basins. Additional details about the UWCD future model scenarios are included in Appendix L, UWCD GSP Model Documentation. For the Oxnard Subbasin, this rate is approximately 68,000 AFY without surface diversions, for the combined UAS and LAS (Table 2-15).

Future Baseline Scenario Model Assumptions

The Future Baseline model simulation included the following:

- Constant pumping at the 2015–2017 average rate of approximately 68,000 AFY adjusted for surface water deliveries in the Oxnard Subbasin (39,000 AFY in the UAS; 29,000 AFY in the LAS), 13,000 AFY in the WLPMA, and approximately 14,000 AFY in the PVB
- Starting water levels equal to the final 2015 water levels from the historical simulations
- Precipitation and streamflow for two 50-year periods (1930–1979 and 1940–1989), with an average precipitation that equaled the average precipitation for the entire historical record
- Estimates of Santa Clara River surface water available for diversion prepared by UWCD staff using climate-change factors provided by DWR and historical measured flow in the river for the 50-year periods

- East Las Posas Management Area outflows to Arroyo Las Posas to the PVB from the CMWD model
- Projects that are currently operating in the Subbasin or currently under development

The historical measurements of precipitation for the two 50-year periods were modified using the DWR 2030 and 2070 climate-change factors. Stream flows were estimated using the adjusted rainfall. UWCD estimated Santa Clara River flow and the volume of water diverted to direct delivery and spreading. Pumping was decreased where the water is delivered to account for the surface water delivered. Future streamflow in Conejo and Calleguas Creeks in Pleasant Valley was estimated by regression.

No projects currently under development were identified in the Oxnard Subbasin, but two projects under development in the PVB were incorporated into the future baseline simulation because these projects affect inflows to the Oxnard Subbasin. The two projects in PVB are the City of Camarillo's North Pleasant Valley Desalter (desalination) Project and Conejo Creek Diversion deliveries to Pleasant Valley County Water District. The North Pleasant Valley Desalter Project was simulated by dividing the total project pumping of 4,500 AFY between project extraction wells 02N20W19L05 and 02N20W19F04. Additionally, pumping from Well 02N21W34C01 increased by 1,300 AFY to reflect a shift in areas of production.

In this scenario, Conejo Creek diversions will increase deliveries to agriculture by an additional 2,200 AFY to make the total deliveries in the PVB 4,500 AFY starting in 2020. The Conejo Creek Project allows CWD to increase pumping by up to 4,500 AFY based on credits for surface water delivered to PVCWD. However, in running the future simulations, it became apparent that the model area identified for production from the CWD wells was not able to extract the full amount. The amount of simulated CWD pumping that was achievable in the future baseline simulation was therefore limited to 2,816 AFY.

It is important to remember that groundwater extractions are not the only source of water to the Oxnard Subbasin. Surface water deliveries vary between the model scenarios because the model adjusts the deliveries of Santa Clara River water based on simulated groundwater elevations in the Oxnard Subbasin Forebay. Therefore, the total water available to the Oxnard Subbasin in the Future Baseline Scenario is approximately 72,000 AFY. Additionally, although the model calculates the groundwater extractions and surface water deliveries with precision, the values reported in Table 2-15 have been rounded to the nearest 1,000 AFY to reflect the uncertainty in the model calculations.

Future Baseline Scenario Model Results

Both the modeled flux of seawater and the particle tracks from the Future Baseline Scenario indicate that continuing the 2015–2017 extraction rate for the next 50 years would cause net seawater intrusion in both the UAS and LAS as well as ongoing inland migration of the saline water impact front (Figure 2-63 and Figure 2-64a through 2-64e, UWCD Model Particle Tracks, Future Baseline). The average annual flux of seawater into the UAS during the sustaining period was 4,400 AFY and the average annual flux of seawater into the LAS during the sustaining period was 5,300 AFY. The saline water impact front continued to migrate landward throughout the sustaining period, even during wetter than average climate periods. Based on these factors, the current areal and aquifer-system distribution of groundwater production at the extraction rates modeled in the Future Baseline Scenario was determined not to be sustainable.

2.4.5.2 Future Baseline With Projects Model Simulation

Future Baseline With Projects Scenario Model Assumptions

Modeling of future conditions included all of the assumptions incorporated into the Future Baseline simulation, and also incorporated potential future projects approved for inclusion by the FCGMA Board. Incorporation of the potential future projects in the Future Baseline With Projects Scenario neither represents a commitment by FCGMA to impose pumping reductions in the amounts specified at the wells identified below nor a commitment to move forward with each project included in the future model scenarios. Assumptions about projects and project implementation may have changed since the modeling was conducted and will continue to change over the next 5 years. These changes should be incorporated into the modeling for the 5-year GSP evaluation.

In the Oxnard Subbasin simulated future projects included delivery of 4,600 AFY of recycled water to farmers in the vicinity of Hueneme Road, expansion of the GREAT Program to increase groundwater recharge by 4,500 AFY in the Saticoy Spreading Grounds, and a 504 AFY reduction of pumping through temporary fallowing. These projects are discussed in detail in Chapter 5 of this GSP.

To simulate the delivery of 4,600 AFY of recycled water to farmers in the vicinity of Hueneme Road, pumping from wells near the coast in the pumping depression area (UWCD model parameter zone 4; Figure 2-65, UWCD Model Zones) was reduced uniformly and proportionally by 4,600 AFY. Additionally, pumping from Wells 02N22W23C05S and 02N22W23C07S in the Forebay was adjusted to allow the City of Oxnard to pump up to 8,000 AFY of accumulated credits for 2,600 AF recycled agricultural water delivered annually from the GREAT Program (FCGMA 2018).

To simulate the expansion of the GREAT Program, spreading recharge was increased by 4,500 AFY starting in 2025. To simulate the 504 AFY reduction of pumping through fallowing, pumping from Wells 01N22W26K04S, 01N22W27H02S, 01N22W26M03S, 01N22W26K03S, 01N22W26P02S, 01N22W26Q03S, and 01N22W26D05S was reduced uniformly and proportionally by 504 AFY. It should be noted that these wells were selected for modeling purposes only and use of these wells in the model simulations was not intended to represent any planned pumping restrictions or limitations on these wells.

In the PVB, a proposed temporary fallowing project was simulated near the pumping depression (in model parameter zone 11; Figure 2-65). This project would generate a 2,407 AFY reduction in pumping, however, actual simulated fallowing totaled 2,234 AFY due to considerations of existing contracts for the delivery of surface water from the Santa Clara River. Pumping was preferentially reduced in wells in the LAS within the PVB to the extent possible.

In the WLPMA, future projects included the purchase of 1,762 AFY of water to be delivered to the eastern portion of the WLPMA in lieu of groundwater extraction. Simulated pumping was reduced in Zone Mutual Water Company Wells 02N20W07R03, 02N20W07R02, 02N20W08M01, 02N20W08E01, and 02N20W08F01, as well as Ventura County Waterworks District No. 19 Wells 02N20W06R01 and 02N20W08B01. The pumping reductions of 1,762 AFY were applied uniformly and proportionally across the wells.

After incorporating the potential future projects, the average groundwater production rate for the UAS in the Oxnard Subbasin was 41,000 AFY and the average groundwater production rate for the LAS in the Oxnard Subbasin was 24,000 AFY for the Future Baseline With Projects Scenario. In the PVB, the average groundwater production rate was 4,300 AFY in the UAS and 7,600 AFY in the LAS. In the WLPMA, the average production rate in the LAS was 11,200 AFY.

Because the projects that were incorporated into the Future Baseline With Projects Scenario included reduction of approximately 500 AFY from temporary fallowing in Oxnard, and deliveries of recycled water from the GREAT Program, the groundwater extractions in the LAS decreased by approximately 4,000 AFY, relative to the Future Baseline Scenario. At the same time, the groundwater extractions from the UAS increased by approximately 2,000 AFY, relative to the Future Baseline Scenario, in the Future Baseline With Projects Scenario (Table 2-15). Consequently, the effect of incorporating the projects was to shift groundwater extraction from the LAS to the UAS, and reduce overall groundwater extraction by approximately 2,000 AFY. The total water available to the Oxnard Subbasin in the Future Baseline With Projects Scenario was approximately 73,000 AFY, with the reduction in groundwater production being offset by the addition of approximately 3,000 AFY of project water.

Future Baseline With Projects Scenario Model Results

Although the shift in groundwater extractions from the LAS to the UAS and reduction in the total extractions helped reduce the flux of seawater into the Oxnard Subbasin, overall the Future Baseline With Projects Scenario resulted in approximately 3,000 AFY of seawater flux into the UAS and 2,700 AFY into the LAS during the sustaining period (Figures 2-66a through 2-66e, UWCD Model Particle Tracks, Base Case with Projects). Particle tracks for the Future Baseline With Projects Scenario also showed net landward migration of the saline water impact front during the sustaining period (Figures 2-66a through 2-66e). Based on these factors, the current areal and aquifer-system distribution of groundwater production at the extraction rates modeled in the Future Baseline With Projects Scenario was determined not to be sustainable.

2.4.5.3 Reduction With Projects Scenario

Reduction With Projects Scenario Model Assumptions

The Reduction With Projects Scenario included all of the assumptions incorporated into both the Future Baseline simulation and the Future Baseline With Projects Scenario. The Reduction With Projects Scenario also included a 35% reduction of 2015–2017 average production rates for the UAS and LAS in the Oxnard Subbasin, 20% reduction for the UAS and LAS in the PVB, and 20% in the LAS in the WLPMA. Groundwater production rates were reduced linearly over the implementation period and held constant during the sustaining period. In the Oxnard Subbasin UAS, the simulated groundwater production rate in model year 2020 was 40,000 AFY. The production rate in model year 2040 at the beginning of the sustaining period was 24,300 AFY.[10] The average production from the UAS for the sustaining period was 26,500 AFY. In the LAS, the simulated groundwater production rate in model year 2020 was 28,500 AFY and the simulated groundwater production rate in model year 2040 was 14,000 AFY. The average production rate from the LAS for the sustaining period was 12,800 AFY.

Reduction With Projects Model Scenario Results

Reducing groundwater production in the UAS and LAS, and shifting some groundwater extractions from the LAS to the UAS via the potential future projects in the Reduction With Projects Scenario, resulted in an average flux of groundwater out of the UAS into the Pacific Ocean of approximately 3,300 AFY during the sustaining period. In the LAS, the Reduction With Projects Scenario resulted in an average flux of approximately 1,200 AFY of seawater into the LAS during the sustaining period (Figures 2-67a through 2-67e, UWCD Particle Tracks, Reduction With

[10] Modeled extraction rates depend on climate, surface water availability, and simulated groundwater elevations for each model year. The reductions implemented reflect a reduction in overall water demand for the Oxnard Subbasin and are not the exact percentage specified for any given year. Therefore, the extraction rate from the UAS in 2040 is 39% of the extraction rate in 2020 rather than the 35% specified in the model scenario description.

Projects Simulation). Particle tracks for the Reduction With Projects Scenario indicate that the location of the 2015 saline water impact front would likely migrate toward the Pacific Ocean in the UAS as freshwater diluted saline concentrations, while it would experience some landward migration in the LAS (Figures 2-67a through 2-67e). The continued landward migration of the saline water impact front in the LAS suggests that groundwater production in the LAS may need to be reduced further than it was in this model scenario, while at the same time the groundwater production rate in the UAS was likely lower than it needed to be, as groundwater left the aquifers of the UAS and entered the Pacific Ocean.

2.4.5.4 Reduction Without Projects Scenario 1

Reduction Without Projects Scenario 1 Model Assumptions

The Reduction Without Projects Scenario 1 included all of the assumptions incorporated into the Future Baseline simulation but did not include the projects that were incorporated into the Future Baseline With Projects and Reduction With Projects Scenarios. In the Oxnard Subbasin, the Reduction Without Projects Scenario 1 also included a 25% reduction of 2015–2017 average production rates for wells screened solely in the UAS, a 60% reduction of the 2015–2017 average production rates for wells screened solely in the LAS, and a 45% reduction of the 2015–2017 average production rates for wells screened in both aquifer systems. The 2015–2017 average pumping rate was reduced by 25% in the UAS and LAS in the PVB, and 25% in the LAS in the WLPMA. Groundwater production rates were reduced linearly over the implementation period and held constant during the sustaining period.

In the Oxnard Subbasin UAS, the simulated groundwater production rate in model year 2020 was 40,300 AFY. The production rate in model year 2040 at the beginning of the sustaining period was 27,300 AFY.[11] The average production from the UAS for the sustaining period was 27,200 AFY. In the LAS, the simulated groundwater production rate in model year 2020 was 33,100 AFY and the simulated groundwater production rate in model year 2040 was 13,000 AFY. The average production rate from the LAS for the sustaining period was 11,600 AFY. The resulting average combined extraction rate from the two aquifer systems was approximately 39,000 AFY for the 30-year sustaining period (Table 2-15).

Reduction Without Projects Scenario 1 Model Results

The fluxes in the UAS and LAS in the Reduction Without Projects Scenario 1 were similar to those simulated in the Reduction With Projects Scenario (Figures 2-68a through 2-68e, UWCD Model

[11] Modeled extraction rates depend on climate, surface water availability, and simulated groundwater elevations for each model year. The reductions implemented reflect a reduction in overall water demand for the Oxnard Subbasin and are not the exact percentage specified for any given year. Therefore, the extraction rate from the UAS in 2040 is 32% of the extraction rate in 2020 rather than the 25% specified in the model scenario description.

Particle Tracks, Reduction Without Projects Scenario (1) Simulation). There was an average flux of groundwater out of the UAS into the Pacific Ocean of approximately 2,800 AFY during the sustaining period in the Reduction Without Projects Scenario 1. In the LAS, the Reduction Without Projects Scenario 1 resulted in an average flux of approximately 1,300 AFY of seawater into the LAS during the sustaining period. Particle tracks for this scenario indicate that the 2015 saline water impact front would likely migrate toward the Pacific Ocean in the UAS as freshwater diluted saline concentrations in the UAS, while it would migrate farther landward in the LAS than in the Reduction With Projects Scenario (Figures 2-68a through 2-68e). As in the Reduction With Projects Scenario, the continued landward migration of the saline water impact front in the LAS suggests that groundwater production in the LAS may need to be reduced further than it was in the Reduction Without Projects Scenario 1, while at the same time the groundwater production rate in the UAS was likely lower than it needed to be, as groundwater left the aquifers of the UAS and entered the Pacific Ocean.

2.4.5.5 Reduction Without Projects Scenario 2

Reduction Without Projects Scenario 2 Model Assumptions

The Reduction Without Projects Scenario 2 included all of the assumptions incorporated into the Future Baseline simulation but did not include the projects that were incorporated into the Future Baseline With Projects and Reduction With Projects Scenarios. In the Oxnard Subbasin, the Reduction Without Projects Scenario 2 also included a 55% reduction of 2015–2017 average production rates for the UAS and LAS. The 2015–2017 average pumping rate was reduced by 20% in the UAS and LAS in the PVB, and 20% in the LAS in the WLPMA. Groundwater production rates were reduced linearly over the implementation period and held constant during the sustaining period.

In the Oxnard Subbasin UAS, the simulated groundwater production rate in model year 2020 was 40,000 AFY. The production rate in model year 2040 at the beginning of the sustaining period was 17,600 AFY.[12] The average production from the UAS for the sustaining period was 17,600 AFY. In the LAS, the simulated groundwater production rate in model year 2020 was 33,100 AFY and the simulated groundwater production rate in model year 2040 was 12,800 AFY. The average production rate from the LAS for the sustaining period was 11,500 AFY. The resulting average combined extraction rate from the two aquifer systems was approximately 29,000 AFY for the 30-year sustaining period (Table 2-15).

[12] Modeled extraction rates depend on climate, surface water availability, and simulated groundwater elevations for each model year. The reductions implemented reflect a reduction in overall water demand for the Oxnard Subbasin and are not the exact percentage specified for any given year. Therefore, the extraction rate from the UAS in 2040 is 56% of the extraction rate in 2020 rather than the 55% specified in the model scenario description.

Model results indicate that under this scenario the groundwater flux in the LAS between the PVB and the Oxnard Subbasin is mostly reversed from the above scenarios from model year 2027 to 2055. The groundwater flow during this period (2027 to 2055) in the LAS is from the Oxnard Subbasin to the PVB. This increased the seawater intrusion in the LAS in the Oxnard Subbasin, exacerbating Oxnard Subbasin's seawater intrusion problem.

Reduction Without Projects Scenario 2 Model Results

There was an average flux of groundwater out of the UAS into the Pacific Ocean of approximately 4,700 AFY during the sustaining period in the Reduction Without Projects Scenario 2 and an average flux of approximately 900 AFY of seawater into the LAS. As in the Reduction Without Projects Scenario 1, the continued inflow of seawater into the LAS suggests that groundwater production in the LAS may need to be reduced further than it was in the Reduction Without Projects Scenario 2, while at the same time the groundwater production rate in the UAS was likely lower than it needed to be, as groundwater left the aquifers of the UAS and entered the Pacific Ocean.

2.4.5.6 Reduction Without Projects Scenario 3

Reduction Without Projects Scenario 3 Model Assumptions

The Reduction Without Projects Scenario 3 included all of the assumptions incorporated into the Future Baseline simulation but did not include the projects that were incorporated into the Future Baseline With Projects and Reduction With Projects Scenarios. In the Oxnard Subbasin, the Reduction Without Projects Scenario 3 also included a 55% reduction of 2015–2017 average production rates for the UAS and LAS. The 2015–2017 average pumping rate was not reduced in the UAS and LAS in the PVB or in the LAS in the WLPMA. Groundwater production rates were reduced in the Oxnard Subbasin linearly over the implementation period and held constant during the sustaining period.

In the Oxnard Subbasin UAS, the simulated groundwater production rate in model year 2020, at the beginning of the implementation period, was 40,000 AFY. The production rate in model year 2040 at the beginning of the sustaining period was 18,100 AFY. The average production from the UAS for the sustaining period was 18,100 AFY. In the LAS, the simulated groundwater production rate in model year 2020 was 33,200 AFY and the simulated groundwater production rate in model year 2040 was 13,700 AFY. The average production rate from the LAS for the sustaining period was 12,300 AFY. The resulting average combined extraction rate from the two aquifer systems was approximately 30,000 AFY for the 30-year sustaining period (Table 2-15).

Reduction Without Projects Scenario 3 Model Results

There was an average flux of groundwater out of the UAS into the Pacific Ocean of approximately 3,700 AFY during the sustaining period in the Reduction Without Projects Scenario 3 and an average flux of approximately 1,400 AFY of seawater into the LAS. As in the Reduction Without Projects Scenarios 1 and 2, the continued inflow of seawater into the LAS suggests that groundwater production in the LAS may need to be reduced further than it was in the Reduction Without Projects Scenario 3, while at the same time the groundwater production rate in the UAS was likely lower than it needed to be, as groundwater left the aquifers of the UAS and entered the Pacific Ocean.

Model results indicate that under this scenario the groundwater flux in the LAS between the PVB and the Oxnard Subbasin is reversed from model year 2027 to the end of the model period (2070). The groundwater flow during this period (after 2027) in the LAS is from the Oxnard Subbasin to the PVB. This significantly increases the seawater intrusion in the LAS in the Oxnard Subbasin exacerbating Oxnard Subbasin's seawater intrusion problem.

2.4.5.7 Alternative Climate and Rainfall Patterns

To assess the potential impacts on model predictions from alternate climate-change assumptions and precipitation patterns, two additional simulations were conducted using the Reduction Without Projects Scenario 1. These additional simulations changed the scenario assumptions in two ways. First, the Reduction Without Projects Scenario 1 was simulated using the DWR 2030 climate-change factor, rather than the more conservative 2070 climate-change factor. This revised scenario is referred to as the Reduction Without Projects Scenario 1a. Second, the Reduction Without Projects Scenario 1a was simulated with the DWR 2030 climate-change factor applied to the historical precipitation and hydrology period from 1940 to 1989, rather than the original period from 1930 to 1979. This revised scenario is referred to as the Reduction Without Projects Scenario 1b.

The 50-year periods from 1930 to 1979 and 1940 to 1989 were selected because they were the two periods from the entire historical record with the closest mean, or average, precipitation to the mean precipitation for the entire historical record of 14.4 inches. The mean precipitation for the historical period from 1930 to 1979 is also 14.4 inches and the mean precipitation from the historical period from 1940 to 1989 is 14.6 inches. These periods also have a similar distribution of precipitation years to the historical record and a similar average drought length to the average drought length in the historical record. The primary difference between the two periods is the timing of the dry periods in the records. The period from 1930 to 1979 begins with a 7-year dry period from 1930 to 1936 (model years 2020–2026), while the period from 1940-1989 begins with a 5-year wetter than average period (model years 2020–2024). The differences between these scenarios are discussed below.

Reduction Without Projects Scenario 1a

The Reduction Without Projects Scenario 1a had approximately 2,200 AFY of freshwater flowing out of the UAS to the Pacific Ocean and 1,500 AFY of seawater intrusion into the LAS during the sustaining period. Compared to the Reduction Without Projects Scenario 1, there was approximately 600 AFY less flow out of the UAS and approximately 200 AFY more flow into the LAS from the Pacific Ocean (Figure 2-63). This is the result of lower water levels in the UAS and LAS under this scenario than the Reduction Without Projects Scenario 1. The 2030 climate-change factor showed lower potential water levels and more seawater intrusion than the 2070 climate-change factor; however, the difference between the simulated fluxes in the two scenarios is within the uncertainty of the model predictions and is not significant compared to other uncertainties in the future simulations, including the actual precipitation pattern that will prevail over the period from 2020 to 2069.

Reduction Without Projects Scenario 1b

The Reduction Without Projects Scenario 1b had approximately 4,300 AFY of freshwater flowing out of the UAS to the Pacific Ocean and 760 AFY of seawater intrusion into the LAS during the sustaining period. Compared to the Reduction Without Projects Scenario 1a, the Reduction Without Projects Scenario 1b had 2,100 AFY more freshwater leaving the UAS and 800 AFY less seawater intrusion in the LAS during the sustaining period (Figure 2-63). The reduced seawater intrusion and increased freshwater outflow are the result of higher simulated groundwater levels during the sustaining period than in the Reduction Without Projects Scenario 1a. The groundwater elevations in the Reduction Without Projects Scenario 1b rise faster in response to the wetter than average precipitation pattern that occurs at the beginning of the model period (model years 2020–2024) and remain higher during the sustaining period (model years 2040–2069) than they do in the Reduction Without Projects Scenario 1a. The differences in seawater intrusion and water levels between the Reduction Without Projects Scenarios 1a and 1b show that the model is more sensitive to actual precipitation patterns than it is to the predicted relative changes in climate between 2030 and 2070. The actual climate and precipitation patterns over the next 5 years should be used to revise the model simulations and refine the estimated potential for net seawater intrusion during the sustaining period.

2.4.5.8 Uncertainty Analysis

A review of the UWCD model was conducted to provide an independent evaluation of the model for use in the context of developing a GSP and to quantify the uncertainty associated with the modeling estimates of the sustainable yield for the basins in the model domain (Appendix E). UWCD conducted a *local* sensitivity analysis of its model prior to this review, in order to evaluate how the model input parameters obtained via the model calibration affect the model outputs. The peer review conducted an additional *global* sensitivity analysis that keys off of their local sensitivity analysis, and allows for a quantitative assessment of uncertainty in seawater flux and sustainable yield.

General Results

Results of the model scenarios discussed above indicate that changes to groundwater production rates or to extraction locations for the Oxnard Subbasin are needed to avoid seawater intrusion in the LAS during the sustaining period. Understanding the uncertainties in the model predictions underscores the desirability of making gradual changes in production rates while additional monitoring and studies help to reduce these uncertainties.

The largest potential sources of uncertainty in the model were found to be hydraulic properties, for a given precipitation pattern. As discussed in Section 2.4.5.7, Alternative Climate and Rainfall Patterns, precipitation and surface water availability are a critical input parameter for predictive simulations. Critical areas of hydraulic properties were constrained in the historical simulations by aquifer testing. In particular, the model parameters that accounted for the most variance (approximately 37% of total variance) in minimizing error between observed groundwater levels and model simulated heads throughout the model were the horizontal hydraulic conductivities assigned to the Oxnard and Mugu Aquifers in the Forebay. The values assigned in the model were consistent with horizontal hydraulic conductivities determined from aquifer testing in that area. The fact that the most sensitive parameter assignments were well constrained by observations reduces uncertainty and provides good confidence in model predictions of groundwater levels overall.

Additionally and importantly, these same zones of horizontal hydraulic conductivity accounted for approximately 24% of total variance in model calculations of seawater flux across the ocean boundary. In contrast, the conductance of the ocean general head boundaries only accounted for approximately 3% of the variance in seawater flux. This indicates that the movement of artificially recharged groundwater from the Forebay to the coast is key in seawater flux. Additionally, the amount of Forebay recharge that enters the WLPMA rather than moving toward the coast was found to affect the seawater flux more than the conductance of the general head boundaries representing the ocean outcrops at the model boundary.

Stream infiltration, a parameter that was estimated based on the correlation between predicted and observed water levels accounted for approximately 5% of the variance in seawater flux and horizontal and vertical hydraulic conductivity of the aquitard separating Layer 5 (Mugu Aquifer) from Layer 7 (the Hueneme Aquifer) in the PVB accounted for approximately 3% of the variance in seawater flux. This sensitivity is associated with the flux across the basin boundary and flow between the UAS and the LAS. Again, these parameters in the PVB accounted for more seawater flux than that accounted for by the conductance of the aquifer outcrops beneath the ocean.

Quantifying Uncertainty

The uncertainty associated with model simulations of seawater flux was calculated by determining the relationship between simulated groundwater levels in wells near the coast and simulated seawater

flux at the ocean boundary for the six model scenarios described in Section 2.4.5. This relationship was established by calculating the mean errors between observed and simulated groundwater levels at the coastal wells and applying the relationship between simulated groundwater levels and seawater flux to determine what the flux would have been had the model exactly reproduced observed groundwater levels. This analysis was conducted for both the entire model period from 2020 to 2069 and the sustaining period from 2040 to 2060. In general the analysis indicated that there is approximately 2,000 AFY uncertainty due to model error in simulated total seawater flux, though this varies depending on which time frame is analyzed. Alternatively, using calculated seawater flux from 121 realizations in a global sensitivity analysis yielded a comparable result of approximately 3,000 AFY uncertainty in seawater flux. The global sensitivity analysis is discussed in Appendix E. For the sustaining period, the relationship between seawater flux and pumping gives a confidence interval for the sustainable yield of approximately ± 6,000 AFY for the UAS and ± 3,600 AFY for the LAS. For the entire model period from 2020 to 2069, the relationship between seawater flux and pumping gives a confidence interval for the sustainable yield of approximately ± 4,100 AFY for the UAS and ± 2,300 AFY for the LAS. The relationship between seawater flux and water levels will continue to be refined through data collection and analysis over successive 5-year periods for the GSP evaluations, and these uncertainty estimates are anticipated to contract accordingly.

2.4.5.9 Estimates of Future Sustainable Yield

The sustainable yield for Oxnard Subbasin was assessed by examining the modeled flux of seawater into the Subbasin over the 50-year model period and 30-year sustaining period predicted by the UWCD model for the Subbasin, the PVB, and the WLPMA. The sustaining period was assessed because SGMA recognizes that undesirable results may occur during the 20-year implementation period, as basins move toward sustainable groundwater management. In addition to the flux of seawater, particle tracks from the model runs were analyzed to evaluate the potential migration of the current extent of saline water impact in the UAS and the LAS. The particles were placed along the approximate inland extent of the zone of saline water impact in 2015. Scenarios that minimize the net flux of seawater into the Oxnard Subbasin and the landward migration of the saline water impact front over the 30-year sustaining period are sustainable for Oxnard, while those that allow for net seawater intrusion and landward migration of the saline water impact front are not.

None of the model scenarios described in Section 2.4.5 successfully eliminated seawater intrusion in the LAS during the 50-year model period or the 30-year sustaining period, while the majority of the model scenarios resulted in net freshwater loss from the UAS to the Pacific Ocean. Therefore, none of the direct model scenarios was used to estimate the sustainable yield of the Oxnard Subbasin. Instead, the relationship between seawater flux and groundwater production from the model scenarios for both the 50-year period and the 30-year period were plotted graphically and the linear relationship between the seawater flux and groundwater production was used to predict the quantity of groundwater production that would result in no net seawater

intrusion over the periods in either the UAS or the LAS. This method is also discussed in Appendix E, Section 2.3.2.2, and the seawater flux and groundwater production plots are provided in Appendix E as Figures 4 and 5. In order to provide separate estimates for the two aquifer systems, independent relationships between groundwater production and seawater intrusion were developed for the UAS and LAS. It was possible to develop relationships for each aquifer within the UAS and LAS, but in general wells in the Oxnard Subbasin are screened in multiple aquifers in each aquifer system. Therefore, for management purposes, the sustainable yield estimates were developed for the aquifer systems rather than for independent aquifers.

The sustainable yield of the UAS was calculated to be approximately 32,000 AFY for both the entire 50-year model period and the 30-year sustaining period. The uncertainty in the estimated sustainable yield for the UAS is lower if only the sustaining period is used. For the entire model period, the uncertainty in the sustainable yield is approximately ± 6,000 AFY, whereas for the sustainable period the uncertainty in the sustainable yield is approximately ± 4,100 AFY. Consequently, this analysis suggests that the sustainable yield of the UAS may be as high as 38,000 AFY or as low as 26,000 AFY.

The sustainable yield of the LAS was calculated to be approximately 7,000 AFY for both the entire 50-year model period and the 30- year sustaining period. The uncertainty in the estimated sustainable yield for the LAS is lower if the entire model period is used. For the entire model period, the uncertainty in the sustainable yield of the LAS is approximately ± 2,300 AFY, whereas for the sustainable period the uncertainty in the sustainable yield is approximately ± 3,600 AFY. Consequently, this analysis suggests that the sustainable yield of the LAS may be as high as 10,600 AFY or as low as 3,400 AFY.

It is anticipated that the analysis for the 5-year update to the GSP will focus on differential extractions on the coast and inland, particularly in the LAS. Additional modeling is recommended for the 5-year update process to understand how changes in pumping patterns can increase the overall sustainable yield of the Oxnard Subbasin. As this understanding improves, projects to support increases in the overall sustainable yield can be developed.

2.5 MANAGEMENT AREAS

In order to sustainably manage the groundwater resources of the Oxnard Subbasin, the Subbasin has been divided into five management areas (Figure 2-69, Oxnard Subbasin Management Areas). These areas are the Forebay Management Area, the West Oxnard Plain Management Area, the Oxnard Pumping Depression Management Area, the Saline Intrusion Management Area, and the East Oxnard Plain Management Area (EOPMA). These areas are separated by hydrogeologic and water quality characteristics.

The Forebay Management Area is in the northeastern Oxnard Subbasin. In this area of the Subbasin, the semi-perched aquifer and clay cap are absent, resulting in direct communication between the alluvium and the underlying aquifer systems. The majority of surface water recharge to the Oxnard Subbasin occurs within the UWCD spreading grounds located in the Forebay Management Area.

The West Oxnard Plain Management Area lies within the Oxnard Subbasin jurisdictional boundaries. The West Oxnard Plain Management Area, which includes the City of Oxnard, is south and west of the Forebay Management Area.

The Oxnard Pumping Depression Management Area is south and east of the West Oxnard Plain Management Area. The boundaries of the Oxnard Pumping Depression Management Area include are Highway 101 to the north, North Rice Avenue and North Rose Avenue to the west, East Hueneme Road and Highway 1 to the south, and the Bailey Fault and the PVB to the east. This management area was established based on the low groundwater elevations historically recorded in both the UAS and the LAS in the area.

The Saline Intrusion Management Area lies to the west of the Oxnard Pumping Depression Management Area, and south of the West Oxnard Plain Management Area. The Saline Intrusion Management Area includes both Port Hueneme and Point Mugu, where saline intrusion has occurred historically and has impacted wells in both the UAS and LAS.

The EOPMA lies to the east of the Bailey Fault and is predominantly within the jurisdiction of the County of Ventura. A small area on the northern boundary between the EOPMA and the PVB is covered by the Camrosa Water District–Oxnard Subbasin GSA (see Figure 1-2).The FCGMA jurisdictional boundary extends into the EOPMA along the boundary with the Oxnard Pumping Depression Management Area (Figure 2-69). This management area was established based on groundwater elevation and chloride concentration differences across the Bailey Fault, which acts as a barrier to groundwater flow (Turner 1975; Section 2.2.1).

This GSP has been prepared for the entire Oxnard Subbasin and management areas defined in this GSP will be managed by the FCGMA. The minimum thresholds and measurable objectives developed in Chapter 3 are based on the data available in the Forebay Management Area, the West Oxnard Plain Management Area, the Oxnard Pumping Depression Management Area, and the Saline Water Intrusion Management Area. Comparable historical data on groundwater elevation, storage, production, and quality are not available for the EOPMA. Therefore, the minimum thresholds and measurable objectives for the West Oxnard Plain and Oxnard Pumping Depression Management Areas, which are adjacent to the EOPMA, will be applied to age and/or depth equivalent hydrostratigraphic units in the EOPMA. As additional data are collected in the EOPMA, separate minimum thresholds and management objectives may be developed. If changes to the minimum thresholds and management objectives are warranted, justification will be provided in the 5-year GSP updates.

2.6 REFERENCES CITED

Bohannon, R.G., and D.G. Howell. 1982. "Kinematic Evolution of the Junction of the San Andreas, Garlock, and Big Pine Faults, California." *Geology* 10:358–363. https://doi.org/10.1130/0091-7613(1982)10<358:KEOTJO>2.0.CO.

CCC. 2017. "Ormond Beach Wetlands Restoration Project." Accessed April 2017. http://scc.ca.gov/2010/01/07/ormond-beach-wetlands-restoration-project/.

CDFW (California Department of Fish & Wildlife). 2016. California Natural Diversity Database (CNDDB), Rarefind, Version 3.1.1 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Accessed October 2016.

CGS (California Geological Survey). 2002. *Note 36: California Geomorphic Provinces*. Revised December 2002.

City of Ventura. 2011. *City of Ventura Special Studies: Estuary Subwatershed Study Assessment of the Physical and Biological Condition of the Santa Clara River Estuary, Ventura County, California*. Final Synthesis Report. Prepared by Stillwater Sciences, Berkeley, California for City of Ventura, California. March 2011.

City of Ventura. 2016. Groundwater data collected by Stillwater Sciences in support of City of Ventura Special Studies compiled from Bailard Landfill monitoring program.

County of Ventura. 2016. Shapefile data of oil fields in Ventura County. *Oil Fields.shp.* December 22, 2016.

Densmore, J.N. 1996. *Lithologic and ground-water data for monitoring wells in the Santa Clara-Calleguas ground-water basin, Ventura County, California, 1989-1995*. U.S. Geological Survey Open-File Report 96-120.

DeVecchio, D.E., R.V. Heermance, M. Fuchs, and L.A. Owen. 2012b. "Climate-Controlled Landscape Evolution in the Western Transverse Ranges, California: Insights from Quaternary Geochronology of the Saugus Formation and Strath Terrace Flights." *Lithosphere* 4(2): 110–130. https://doi.org/10.1130/L176.1.

DeVecchio, D.E., E.A. Keller, M. Fuchs, and L.A. Owen. 2012a. "Late Pleistocene Structural Evolution of the Camarillo Fold Belt: Implications for Lateral Fault Growth and Seismic Hazard in Southern California." *Lithosphere* 4(2): 91–109. https://doi.org/10.1130/L136.1.

DeVecchio, D.E., E.A. Keller, L.A. Owen, and M. Fuchs. 2007. "Earthquake Hazard of the Camarillo Fold Belt: An Analysis of the Unstudied Fold Belt in Southern California Hot Zone." Final. U.S. Geological Survey/National Earthquake Hazards Reduction Program Award Number 07HQGR0040.

De Wiest, R.J.M. 1998. "Ghyben–Herzberg Theory." In *Encyclopedia of Hydrology and Water Resources*, edited by R.W. Herschy and R.W. Fairbridge. Encyclopedia of Earth Science series. Dordrecht, Netherlands: Springer. Accessed January 17, 2018. https://link.springer.com/referenceworkentry/10.1007%2F1-4020-4513-1_104.

Dibblee, T.W., Jr. 1992a. "Geologic Map of the Moorpark Quadrangle, Ventura County: Santa Barbara California, Dibblee Geological Foundation" [map]. 1:24,000.

Dibblee, T.W., Jr. 1992b. "Geologic Map of the Simi Quadrangle, Ventura County: Santa Barbara California, Dibblee Geological Foundation" [map]. 1:24,000.

DWR (California Department of Water Resources). 1965. *Bulletin No. 63-1: Seawater Intrusion Oxnard Plain of Ventura County*. October 1965.

DWR. 1968. *Bulletin No. 74-9: Well Water Standards, Ventura County*. August 1968.

DWR. 1971. *Bulletin No. 63-4: Sea-Water Intrusion: Aquitards in the Coastal Ground Water Basin of Oxnard Plain, Ventura County*. September 1971.

DWR. 2006. *California's Groundwater Bulletin 118: Santa Clara River Valley Groundwater Basin, Oxnard Subbasin*. Last updated January 20, 2006. Accessed October 2016. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/4-4.02.pdf.

DWR. 2016. *Bulletin 118 Interim Update 2016: California's Groundwater—Working Toward Sustainability*. December 22, 2016. www.water.ca.gov/groundwater/bulletin118/index.cfm.

Eberhart-Phillips, D., M. Lisowski, and M.D. Zoback. 1990. "Crustal Strain near the Big Bend of the San Andreas Fault: Analysis of the Los Padres–Tehachapi Trilateration Networks, California." *Journal of Geophysical Research* 95(B2): 1139–1153.

ESA (Environmental Science Associates). 2003. *McGrath State Beach Natural Resources Management Plan*. Prepared for California Department of Parks and Recreation. April 2003.

Farr, T.G., C.E. Jones, and Z. Liu. 2017. "Progress Report: Subsidence in California, March 2015–September 2016." California Institute of Technology, Jet Propulsion Laboratory.

FCGMA (Fox Canyon Groundwater Management Agency). 1985. *Groundwater Management Plan*.

FCGMA. 2007. *2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan*. Prepared by FCGMA, United Water Conservation District, and Calleguas Municipal Water District. May 2007.

FCGMA. 2013. Water Elevation Maps, 1972–2012, Adopted by the FCGMA Board. Item 7, FCGMA Board Meeting, December 4, 2013.

FCGMA. 2015. *Annual Report for Calendar Year 2015*. Prepared by FCGMA.

FCGMA. 2016. *Basin Management Objectives Report Card*.

FCGMA. 2018. "Full Agenda Package: Special Board Meeting of August 29, 2018." Meeting agenda, minutes, and preliminary project descriptions for GSPs currently in progress. August 29, 2018.

Feigl, K.L., D.C. Agnew, Y. Bock, D. Dong, A. Donnellan, B.H. Hager, T.A. Herring, and D.D. Jackson. 1993. "Space Geodetic Measurement of Crustal Deformation in Central and Southern California, 1984–1992." *Journal of Geophysical Research* 98(B12): 21677–21712.

GreenInfo Network. 2016. California Protected Areas Data Portal. Accessed August 8, 2017. http://www.calands.org/.

Hadley, D., and H. Kanamori. 1977. "Seismic Structure of the Transverse Ranges, California." *Geological Society of America Bulletin* 88:1469–1478.

Hanson, R.T., P. Martin, and K. Koczot. 2003. *Simulation of Ground-Water/Surface-Water Flow in the Santa Clara–Calleguas Ground-Water Basin, Ventura County, California*. U.S. Geological Survey Water Resources Investigation Report 2002-4136.

Hopkins (Hopkins Groundwater Consultants Inc.). 2013. Preliminary Hydrogeological Study: Anterra Energy Services, Inc. Fluid Disposal Wells, Injection Well Construction and Injection Practices Review. Prepared for the City of Oxnard, California. October 2013.

Hopkins, C. 2016. Oxnard Plain and Vicinity Aquifer Properties Data Request. Email from C. Hopkins (Hopkins Groundwater Consultants Inc.) to M. Naftaly (Dudek). October 18, 2016.

Huftile, G.J., and R.S. Yeats. 1995. "Convergence Rates across a Displacement Transfer Zone in Western Transverse Ranges, Ventura Basin, California." *Journal of Geophysical Research* 100(B2): 2043–2067.

Izbicki, J.A. 1991. "Chloride Sources in a California Coastal Aquifer." In: American Society of Civil Engineers Symposium on Groundwater in the Pacific Rim. Honolulu, Hawaii, July 22-26, 1991. Proceedings, p. 71-77.

Izbicki, J.A. 1996. "Use of $\delta^{18}O$ and δD to Define Seawater Intrusion." In *North American Water Congress, Anaheim, California, June 23–28*, edited by C.T. Bathala. Proceedings: New York American Society of Civil Engineers.

Izbicki, J.A., A.H. Christensen, M.W. Newhouse, G.A. Smith, and R.T. Hanson. 2005. "Temporal Changes in the Vertical Distribution of Flow and Chloride in Deep Wells." *Groundwater* 43(4): 531–544.

Jakes, M.C. 1979. "Surface and Subsurface Geology of the Camarillo and Las Posas Hills Area: Ventura County, California." Master's thesis; Oregon State University.

Kew, W.S. 1924. "Geology and Oil Resources of a Part of Los Angeles and Ventura Counties California." In *United States Geological Survey Bulletin 753*.

LARWQCB. 2013. "Chapter 3: Water Quality Objectives." In *Water Quality Control Plan: Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties.* Updated April 19, 2013. Accessed February 20, 2017. https://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/electronics_documents/Final%20Chapter%203%20Text.pdf.

Marshall, S.T., M.L. Cooke, and A.E. Owen. 2008. "Effects of Nonplanar Fault Topology and Mechanical Interaction on Fault-Slip Distributions in the Ventura Basin, California." *Bulletin of the Seismological Society of America* 98(3): 1113–1127. https://doi.org/10.1785/0120070159.

Mukae, M.M., and J.M. Turner. 1975. "Geologic Formations, Structures and History in the Santa Clara–Calleguas Area." In *Compilation of Technical Information Records for the Ventura County Cooperative Investigation: Volume I,* 1–28. Prepared by the Ventura County Public Works Agency Flood Control and Drainage Department for the California Department of Water Resources.

Nicholson, C., C.C. Sorlien, T. Atwater, J.C. Crowell, and B.P. Luyendyk. 1994. "Microplate Capture, Rotation of the Western Transverse Ranges, and Initiation of the San Andreas Transform as a Low-Angle Fault System." *Geology* 22:491–495.

Rockwell, T.K., E.A. Keller, and G.R. Dembroff. 1988. "Quaternary Rate of Folding of the Ventura Avenue Anticline, Western Transverse Ranges, Southern California." *Geological Society of America Bulletin* 100:850–858.

SFEI (San Francisco Estuary Institute). 2011. *Historical Ecology of the Lower Santa Clara River, Ventura River, and Oxnard Plain: An Analysis of Terrestrial, Riverine, and Coastal Habitats.* SFEI Publication No. 641. A report of SFEI's Historical Ecology Program prepared for the State Coastal Conservancy. Oakland, California: San Francisco Estuary Institute.

SWRCB (State Water Resources Control Board). 1956. *Bulletin No. 12: Ventura County Investigation Volume I*. October 1953. Revised April 1956.

SWRCB. 2004. Resolution No. 2004-0063: Adoption of the Water Quality Control Policy (Policy) for Developing California's Clean Water Act Section 303(d) List.

Turner, J.M. 1975. "Aquifer Delineation in the Oxnard–Calleguas Area, Ventura County." In *Compilation of Technical Information Records for the Ventura County Cooperative Investigation: Volume I,* 1–45. Prepared by the Ventura County Public Works Agency Flood Control and Drainage Department for the California Department of Water Resources.

Turner, J.M., and M.M. Mukae. 1975. "Effective Base of Fresh Water Reservoir in the Oxnard–Calleguas Area." In *Compilation of Technical Information Records for the Ventura County Cooperative Investigation: Volume I,* 1–15. Prepared by the Ventura County Public Works Agency Flood Control and Drainage Department for the California Department of Water Resources.

USDA (U.S. Department of Agriculture). 2019. *Web Soil Survey*. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed January 2019. http://websoilsurvey.nrcs.usda.gov/.

USFWS (U.S. Fish and Wildlife Service). 2016a. *National Wetlands Inventory.* Accessed August 2016. fws.gov/wetlands/NWI/index.html.

USFWS. 2016b. Endangered Species Program, ECOS Joint Development Team. 2016. Critical Habitat Polygons and Lines. https://ecos.fws.gov/ecp/report/table/critical-habitat.html in December 2016.

USGS (U.S. Geological Survey). 1993. *A Study of Seawater Intrusion Using Direct-Current Soundings in the Southeastern Part of the Oxnard Plain, California.* USGS Open-File Report 93-524. Prepared by A.A.R. Zohdy, P. Martin, and R.J. Bisdorf.

USGS. 1996. *Seawater Intrusion in a Coastal California Aquifer*. U.S. Geological Survey Fact Sheet 125-96.

UWCD (United Water Conservation District). 1999. *Surface and Groundwater Conditions Report, Water Year 1998.* July 1999.

UWCD. 2007. *Mugu Seawater/Saline Water Intrusion Monitoring Program: AB303 Grant, Agreement No. 4600004100*. Exhibit U41. Prepared by P. Dal Pozzo, D. Detmer, and K. Turner (UWCD, Groundwater Resources Department). April 2007.

UWCD. 2008. *Nitrate Observations in the Oxnard Forebay and Vicinity, 1995–2006.* Prepared by D. Detmer. Santa Paula, California: UWCD. July 2008.

UWCD. 2010. *Oxnard Plain Time Domain Electromagnetic Study for Saline Intrusion*. UWCD Open-File Report 2010-003. Prepared by UWCD, Groundwater Resources Department. October 2010.

UWCD. 2014. *Groundwater and Surface Water Conditions Report – 2013.* United Water Conservation District Open-File Report 2014-02. May 2014.

UWCD. 2016a. *Saline Intrusion Update, Oxnard Plain and Pleasant Valley Basins.* United Water Conservation District Open-File Report 2016-04. October 2016.

UWCD. 2016b. *United Water Conservation District Multiple Species Habitat Conservation Plan Study: Effects of Freeman Diversion on Riparian Vegetation in the Santa Clara River.* Prepared by Stillwater Sciences, Berkeley, California for United Water Conservation District, Santa Paula, California.

UWCD. 2016c. "Technical Advisory Group: UWCD Groundwater Model." Presentation by J. Sun (UWCD) to the Fox Canyon Groundwater Management Agency Technical Advisory Group. December 16, 2016.

UWCD. 2017a. *Preliminary Evaluation of Impacts of Potential Groundwater Sustainability Indicators on Future Groundwater Extraction Rates – Oxnard Plain and Pleasant Valley Groundwater Basins*. Open-File Report 2017-02. April 2017.

UWCD. 2017b. *Addendum to Preliminary Evaluation of Impacts of Potential Groundwater Sustainability Indicators on Future Groundwater Extraction Rates – Oxnard Plain and Pleasant Valley Groundwater Basins*. Open-File Report 2017-02a. November 2017.

VCWPD (Ventura County Watershed Protection District). 2013. *2013 Groundwater Section Annual Report*. VCWPD, Water and Environmental Resources Division. Accessed August 8, 2017. http://pwaportal.ventura.org/WPD/docs/Groundwater-Resources/2013-Groundwater-Section-Annual-Report-Final_Web.pdf.

Weber, F.H., and E.W. Kiessling. 1976. "General Features of Seismic Hazards of Ventura County, California." In *Seismic Hazards Study of Ventura County, California.* Prepared by the California Division of Mines and Geology in cooperation with the County of Ventura. Adopted 1975. Revised July 1976.

WRA (WRA Environmental Consultants). 2007. *Final Biological Assessment Ormond Beach, Oxnard, Ventura County, California.*

Yeats, R.S. 1988. "Late Quaternary Slip Rate on the Oak Ridge Fault, Transverse Ranges, California: Implications for Seismic Risk." *Journal of Geophysical Research* 93(B10): 12137–12149.

Table 2-1
Oxnard Subbasin Stratigraphic and Hydrostratigraphic Nomenclature

<table>
<tr><th rowspan="2">Geologic Period</th><th rowspan="2">Geologic Epoch</th><th>Mukae and Turner (1975)</th><th>Kew (1924); Bailey (1951)[a]</th><th>Weber and Kiessling (1976)</th><th>Dibblee (1992a, 1992b)</th><th colspan="3">Mukae and Turner (1975); DWR (2006)</th></tr>
<tr><td colspan="5">Lithologic Units and Formations</td><td colspan="3">Hydrostratigraphy</td></tr>
<tr><td rowspan="7">Quaternary</td><td rowspan="2">Holocene</td><td rowspan="3">Alluvium: Active stream deposits, sand, and gravel; stream, swamp, and lagunal deposits of clay, sand, and gravel</td><td colspan="3">Recent Alluvium: Active lagoonal, beach, river, and floodplain and alluvial deposits</td><td>Oxnard</td><td>Semi-Perched Oxnard</td><td rowspan="3">Upper Aquifer System</td></tr>
<tr><td rowspan="2">Upper Pleistocene</td><td>Terrace deposits: Deformed river deposits</td><td colspan="2" rowspan="2">Older Alluvium: Deformed beach, river, floodplain, and terrace deposits</td><td colspan="2">Mugu</td></tr>
<tr><td rowspan="3">Older Alluvium: Clays silts, sands, and gravels from the Santa Clara River</td><td rowspan="4">Saugus Formation: Terrestrial and marine sand and gravel</td><td>Saugus Formation: Terrestrial fluvial</td><td rowspan="2">Saugus Formation: Terrestrial</td><td colspan="2" rowspan="2">Hueneme</td><td rowspan="4">Lower Aquifer System</td></tr>
<tr><td rowspan="3">Lower Pleistocene</td><td rowspan="2">San Pedro Formation: Marine clays and sand and terrestrial sediment</td></tr>
<tr><td>San Pedro Formation: Marine and nonmarine clay, sand, and gravel</td><td rowspan="2">Las Posas Sand: Shallow marine sand</td><td colspan="2">Fox Canyon</td></tr>
<tr><td>Santa Barbara Formation: Marine clay, sand, and gravel</td><td>Santa Barbara Formation: Shallow marine sand</td><td colspan="2">Grimes Canyon (upper member)</td></tr>
<tr><td rowspan="4">Tertiary</td><td>Pliocene</td><td>Pico Formation: Shale, sandstone, and conglomerate</td><td>Fernando Group</td><td colspan="2"></td><td colspan="3" rowspan="3">Non-Freshwater Bearing</td></tr>
<tr><td rowspan="2">Miocene</td><td>Santa Margarita and Modelo Formations</td><td colspan="2">Modelo Formation: Marine mudstones</td><td>Monterey Formation</td></tr>
<tr><td>Topanga Formation and Volcanics</td><td colspan="3">Conejo Volcanics: Terrestrial and marine extrusive and intrusive igneous rocks</td></tr>
<tr><td>Oligocene/ Eocene</td><td>Older Rocks</td><td colspan="3">Sespe Formation: Sandstone and cobble conglomerate</td></tr>
</table>

Note:
[a] As cited in DeVecchio et al. 2012a.

Table 2-2
Vertical Gradient

Location	Nested Group (First 9 Digits of SWN)	Well (Penultimate 2 Digits of SWN)	Screen Interval		Spring 2015 Elevation (ft msl)	Spring 2015 Gradient (ft/ft)[a]	Fall 2015 Elevation (ft msl)	Fall 2015 Gradient (ft/ft)[a]	Aquifer[b]
			Top	*Bottom*					
Forebay	02N22W23B	09	75	95	NA	—	10.41	−0.643	Oxnard
		08	135	155	−13.06	−0.057	−28.19	−0.019	Oxnard
		07	260	300	−20.72	−0.012	−30.81	−0.028	Mugu
		06	460	500	−23.2	−0.114	−36.43	−0.107	Hueneme
		05	830	870	−65.53	−0.036	−75.84	−0.039	Hueneme
		04	1,110	1,150	−75.59	−0.014	−86.77	0.032	Hueneme
		03	1,210	1,250	−77	—	−83.55	—	Fox
Forebay	02N21W07L	06	135	155	8.2	−0.012	−12.07	−0.042	Mugu
		04	500	540	3.88	−0.014	−27.9	0.022	Fox
		03	640	700	1.84	—	−24.59	—	Fox
North - Coastal	01N23W01C	05	120	145	1.18	−0.040	−0.92	−0.048	Oxnard
		04	630	695	−20.03	−0.009	−26.52	−0.010	Hueneme
		03	965	1,065	−23.24	−0.014	−29.95	−0.010	Hueneme
		02	1,390	1,490	−29.31	—	−34.34	—	Fox
Port Hueneme	01N22W20M	06	50	70	1.27	−0.071	1.8	−0.131	Semi-Perched
		05	150	170	−5.78	−0.004	−11.27	−0.002	Oxnard
		04	280	300	−6.26	−0.033	−11.55	−0.039	Mugu
		03	520	560	−14.6	−0.017	−21.3	−0.019	Hueneme
		02	700	740	−17.57	−0.040	−24.8	−0.048	Hueneme
		01	900	940	−25.65		−34.47		Fox
Port Hueneme	01N22W28G	5	180	200	−7.4	−0.009	−12.4	−0.016	Oxnard
		4	255	275	−8.1	−0.030	−13.6	−0.032	Oxnard
		3	720	760	−22.3	−0.039	−28.8	−0.051	Hueneme
		2	995	1,095	−34.2	0.010	−44.2	0.019	Fox
		1	1,295	1,395	−31.3	—	−38.6	—	GCA

Table 2-2
Vertical Gradient

Location	Nested Group (First 9 Digits of SWN)	Well (Penultimate 2 Digits of SWN)	Screen Interval		Spring 2015 Elevation (ft msl)	Spring 2015 Gradient (ft/ft)[a]	Fall 2015 Elevation (ft msl)	Fall 2015 Gradient (ft/ft)[a]	Aquifer[b]
			Top	*Bottom*					
Point Mugu	01N22W36K	09	175	195	−13.07	−0.110	−24.14	−0.156	Oxnard
		08	310	330	−27.89	−0.220	−45.17	−0.561	Mugu
		07	410	450	−52.06	−0.005	−106.82	−0.019	FCA
		06	540	580	−52.71	−0.025	−109.32	−0.014	FCA
		05	680	720	−56.26	—	−111.34	—	GCA
South/ Central	01N21W19L	14	18	38	11.97	−0.278	10.1	−0.331	Semi-Perched
		13	110	130	−13.63	−0.048	−20.33	−0.096	Oxnard
		12	200	220	−17.93	−0.109	−28.96	−0.119	Oxnard
		11	300	320	−28.85	−0.390	−40.87	−0.620	Mugu
		10	394	414	−65.55	—	−99.19	—	FCA
South	01N21W32Q	06	275	285	−41.21	−0.278	−65	−0.468	Oxnard
		07	180	220	−12.7	−0.356	−20.24	−0.560	Mugu
		05	330	370	−60.7	−0.021	−97.74	−0.028	Mugu
		04	600	640	−66.3	−0.047	−105.38	−0.044	FCA
		03	800	840	−75.6	0.084	−114.17	0.084	GCA
		02	930	970	−64.7	—	−103.2	—	GCA

Notes: FCA = Fox Canyon Aquifer; ft/ft = feet per feet; ft msl = feet above mean sea level; GCA = Grimes Canyon Aquifer; SWN = State Well Number.

[a] Negative gradients are directed downward.

[b] The Oxnard and Mugu Aquifers compose the UAS, and the Hueneme, Fox, and Grimes Aquifers compose the LAS. Aquifer designations were provided by UWCD.

Table 2-3
Seawater/Saline Water Historical Reports and Studies

Title	Author/Agency	Date
Sea Water Intrusion, Oxnard Plain Ventura County	California Department of Water Resources	October 1965
Sea-Water Intrusion: Aquitards in the Coastal Ground Water Basin of Oxnard Plain, Ventura County	California Department of Water Resources, Bulletin No. 63-4	September 1971
Oxnard Plain Groundwater Study	State Water Resources Control Board	March 1979
Chloride Sources in a California Aquifer	John A. Izbicki, U.S. Geological Survey	July 1991
A Study of Seawater Intrusion Using Direct-Current Soundings in the Southeastern Part of the Oxnard Plain, California	U.S. Geological Survey, Open File Report 93-524	1993
Use of δ18O and δD to Define Seawater Intrusion	John A. Izbicki, U.S. Geological Survey	1996
Simulation of Ground-Water/Surface-Water Flow in the Santa Clara–Calleguas Ground-Water Basin, Ventura County, California	Hanson et al., U.S. Geological Survey; Water Resources Investigation Report 02-4136	2003
Mugu Seawater/Saline Water Intrusion Monitoring Program: AB303 Grant, Agreement No. 4600004100	United Water Conservation District	April 2007
2007 Update to the Fox Canyon Groundwater Management Agency Management Plan	Fox Canyon Groundwater Management Agency	2007
Oxnard Plain Time Domain Electromagnetic Study for Saline Intrusion	United Water Conservation District, Open-File Report 2010-003	2010
Saline Intrusion Update, Oxnard Plain and Pleasant Valley Basins	United Water Conservation District	October 2016

Table 2-4
Basin Plan and FCGMA Water Quality Thresholds for Groundwater in the Oxnard Subbasin

Threshold Source	Sub-Area/Zone Description	Threshold Concentration (mg/L)				
		TDS	*Chloride*	*Nitrate*	*Sulfate*	*Boron*
LARWQCB Basin Plan WQO	Oxnard Forebay and Confined Aquifers	1,200	150	45	600	1
	Unconfined and Perched Aquifers	3,000	500	45	1,000	—
FCGMA 2007 BMO	Oxnard Forebay	1,200	—	22.5	—	—
	Oxnard Plain	—	150	—	—	—

Sources: LARWQCB 2013; FCGMA 2007.
Notes: BMO = Basin Management Objective; FCGMA = Fox Canyon Groundwater Management Agency; LARWQCB = Los Angeles Regional Water Quality Control Board; mg/L = milligrams per liter; TDS = total dissolved solids; WQO = Water Quality Objective.

Table 2-5
Modeled Surface Water Percolation from Streams in the Oxnard Subbasin

Water Year[a]	Santa Clara River Percolation (acre-feet)[b]	Calleguas Creek Percolation (acre-feet)
1986	8,466	4,423
1987	115	2,586
1988	10,402	3,572
1989	780	3,308
1990	943	2,140
1991	11,306	2,357
1992	18,255	5,290
1993	19,821	6,274
1994	3,303	3,468
1995	9,085	5,846
1996	560	3,687
1997	3,386	3,953
1998	3,922	6,760
1999	−4,404	3,699
2000	2,973	3,707
2001	4,225	4,770
2002	−521	3,341
2003	10,382	3,571
2004	3,913	1,873
2005	17,975	6,536
2006	−890	3,184
2007	47	1,802
2008	7,073	3,159
2009	4,281	2,617
2010	14,173	2,732
2011	10,803	3,763
2012	3,023	1,890
2013	−268	968
2014	5,821	819
2015	1,520	1,476
Average	**5,682**	**3,452**

Notes:

[a] Results presented are in water years, and will not match values presented in Section 2.4 text and Tables 2-7a through 2-7c, which are presented in calendar years.

[b] Negative numbers represent discharge of groundwater to the stream.

Table 2-6
Ecological Assets

Ecological Assets	Lower Santa Clara River	McGrath Lake	Ormond Beach Wetlands	Mugu Lagoon and Wetlands	Lower Calleguas Creek	Revolon Slough
Locally important, special-status, rare, threatened, or endangered plants or animals supported by the GDE	• Santa Ana sucker • western pond turtle • tidewater goby • coast horned lizard • white rabbit-tobacco • southern riparian scrub • least Bell's vireo *(CDFW 2016)* • steelhead	• Belding's savannah sparrow • burrowing owl • California least tern • least Bell's vireo • salt marsh bird's-beak • sandy beach tiger beetle • silvery legless lizard • Ventura Marsh milk-vetch *(CDFW 2016)* • sandy beach tiger beetle • brown pelican • western least bittern • white-faced ibis • osprey • white-tailed kite • northern harrier • sharp-shinned hawk • Cooper's hawk • light-footed clapper rail • western snowy plover • long-billed curlew • California least tern • western yellow-billed cuckoo • burrowing owl • southwestern willow flycatcher • loggerhead shrike • least Bell's vireo • yellow warbler • yellow-breasted chat • Belding's savannah sparrow • California red-legged frog • southwestern pond turtle • silvery legless lizard • San Diego horned lizard • two-striped garter snake • south coast garter snake • Townsend's big-eared bat *(ESA 2003, Table 3-2)*	• Belding's savannah sparrow • California least tern • Coulter's goldfields • California brackish water snail • salt marsh bird's-beak • tidewater goby • western snowy plover *(CDFW 2016)* • western snowy plover • California least tern • California brown pelican • light-footed clapper rail • least Bell's vireo • Southern California saltmarsh shrew • San Diego black-tailed jackrabbit • double-crested cormorant • American bittern • great blue heron • great egret • snowy egret • black-crowned night heron • white-faced ibis • white-tailed kite • northern harrier • Cooper's hawk • sharp-shinned hawk • merlin • mountain plover • long-billed curlew • western burrowing owl • loggerhead shrike • yellow warbler • California horned lark • tricolored blackbird • south coast garter snake • tiger beetle • sandy beach tiger beetle • wandering skipper • globose dune beetle • red sand-verbena • spiny rush • woolly seablite *(WRA 2007)*	• arroyo chub • Belding's savannah sparrow • burrowing owl • California brown pelican • California least tern • Coulter's goldfields • estuary seablite • ferruginous hawk • globose dune beetle • least Bell's vireo • light-footed clapper rail • salt marsh bird's-beak • sandy beach tiger beetle • senile tiger beetle • southern coastal salt marsh • tidewater goby • wandering (=saltmarsh) skipper • western snowy plover *(CDFW 2016)* • peregrine falcon	• arroyo chub • two-striped gartersnake • least Bell's vireo *(CDFW 2016)*	• arroyo chub *(CDFW 2016)* • least Bell's vireo *(Appendix K)*

Table 2-6
Ecological Assets

Ecological Assets	Lower Santa Clara River	McGrath Lake	Ormond Beach Wetlands	Mugu Lagoon and Wetlands	Lower Calleguas Creek	Revolon Slough
Important or critical habitat provided for native species (USFWS 2016b)	• southwestern willow flycatcher critical habitat (569 acres) • tidewater goby critical habitat (22 acres) • western snowy plover critical habitat (35 acres) • steelhead critical habitat • Audubon California Important Bird Area	• southwestern willow flycatcher critical habitat (32 acres) • tidewater goby critical habitat (18 acres) • Ventura Marsh milk-vetch critical habitat (78 acres) • Audubon California Important Bird Area	• tidewater goby critical habitat (88 acres) • western snowy plover critical habitat (26 acres) • Audubon California Important Bird Area	• western snowy plover critical habitat (51 acres) • Wetland of Regional Importance in the Western Hemisphere Shorebird Reserve Network • Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC) are designated for Pacific Coast groundfish and coastal pelagic species in the nearshore marine and estuarine habitats • Laguna Point to Latigo Point Area of Special Biological Significance • Audubon California Important Bird Area	None	None
Portion of GDE that is a recognized wetland (USFWS 2016a; Appendix K)	1,180 acres (93%)	197 acres (71%)	207 acres (96%)	5,943 acres (93%)	6 acres (4%)	2 acres (8%)
Protected area, locally important conservation or wildlife corridor plan areas within the GDE	• The Nature Conservancy (160 acres) • City of Ventura (1.2 acres)	• McGrath State Beach (56 acres) • Mandalay State Beach (29 acres) • Mandalay County Park (0.7 acres)	• The Nature Conservancy (129 acres) • Port Hueneme Beach Park (1.3 acres)	• Point Mugu State Park (0.1 acres)	None	None
List any environmental beneficial uses designated in the RWQCB Basin Plan for the surface water found in the groundwater basin.	• Wildlife Habitat (WILD) • Rare, Threatened, or Endangered Species (RARE) • Migration of Aquatic Organisms (MIGR) • Spawning, Reproduction, and/or Early Development (SPWN) • Wetlands (WET) Also REC1, REC2	• Estuarine Habitat (EST) • Wildlife Habitat (WILD) • Rare, Threatened, or Endangered Species (RARE) • Wetlands (WET) Also REC1, REC2	• Estuarine Habitat (EST) • Wildlife Habitat (WILD) • Rare, Threatened, or Endangered Species (RARE) • Wetlands (WET) Also, REC1, REC2	• Estuarine Habitat (EST) • Marine Habitat (MAR) • Wildlife Habitat (WILD) • Preservation of Biological Habitats of Special Significance (BIOL) • Rare, Threatened, or Endangered Species (RARE) • Migration of Aquatic Organisms (MIGR) • Spawning, Reproduction, and/or Early Development (SPWN) • Shellfish Harvesting (SHELL) • Wetlands (WET) Also REC1 (potential), REC2	**Reach 2:** • WARM • COLD • Wildlife Habitat (WILD) • Rare, Threatened, or Endangered Species (RARE) • Wetlands (WET) Also REC1, REC2	**Reach 4 (Revolon Slough):** • WARM • Wildlife Habitat (WILD) • Wetlands (WET) Also REC1, REC2
Is the GDE area composed of >30% native vegetation? (Appendix K)	Yes	Yes	Yes	Yes	Yes	Yes

Sources: CDFW 2016; GreenInfo Network 2016; USFWS 2016a, 2016b; Appendix K; WRA 2007; ESA 2003.

Table 2-7a
Groundwater Recharge and Discharge in the Semi-Perched Aquifer

Calendar Year[a]	Groundwater Recharge (AF)										Groundwater Discharge (AF)											Storage Change (AF)
	Stream Leakage (Santa Clara River in Oxnard Forebay)	*Recharge*	*Subsurface Inflow from PVB*	*Unincorporated Areas*	*Subsurface Inflow from West LPVB*	*Subsurface Inflow from the UAS*	*Sum of Coastal Flux from Arnold Road to Point Mugu*	*Coastal flux from Channel Islands Harbor to Arnold Road*	*Stream Leakage Calleguas Creek*	*Total Inflow*	*Pumping*	*Tile Drains*	*Subsurface Outflow to UAS*	*Groundwater Discharge to Streams (Santa Clara River in Oxnard Forebay)*	*Evapotranspiration*	*Unincorporated Areas*	*Subsurface Outflow to West LPVB*	*Coastal Flux North to Channel Islands Harbor*	*Coastal flux from Channel Islands Harbor to Arnold Rd*	*Subsurface Outflow to Mound Basin*	*Total Outflow*	*Change in Groundwater Storage[b]*
1985	0	23,081	1,525	152	0	0	843	0	2,592	28,192	−44	−2,983	−15,889	−404	−5,765	0	−374	−2,076	−266	−1,247	−29,050	857
1986	1,133	28,960	1,720	59	0	0	632	0	4,243	36,748	−65	−6,579	−13,989	0	−8,312	0	−66	−1,789	−235	−844	−31,879	−4,869
1987	0	24,587	1,780	16	0	0	672	0	3,097	30,153	−65	−5,886	−18,182	−407	−7,100	0	−335	−1,628	−243	−626	−34,472	4,319
1988	1,021	23,162	1,758	0	0	0	658	0	3,236	29,836	−61	−5,715	−17,824	0	−7,138	−25	−72	−1,442	−206	−622	−33,105	3,269
1989	0	20,613	1,641	0	0	0	667	0	3,146	26,068	−73	−4,848	−19,673	−245	−6,582	−57	−10	−1,315	−188	−451	−33,441	7,373
1990	0	18,731	1,312	0	0	0	701	0	1,901	22,645	−141	−3,032	−22,805	−136	−5,008	−89	0	−1,076	−176	−362	−32,825	10,180
1991	1,857	26,208	1,074	0	0	0	652	0	2,526	32,316	−128	−2,856	−23,955	0	−5,207	−107	−2	−854	−119	−470	−33,698	1,382
1992	4,382	28,816	1,448	0	0	0	567	0	5,661	40,875	−92	−5,605	−19,636	0	−7,684	−84	−47	−773	−25	−645	−34,589	−6,285
1993	3,165	29,069	2,161	0	8	0	552	21	6,209	41,186	−70	−8,637	−8,873	0	−9,404	−25	0	−950	0	−594	−28,553	−12,633
1994	42	21,586	2,249	0	0	0	668	0	3,240	27,784	−89	−7,101	−6,674	0	−7,680	−5	−349	−1,219	−12	−607	−23,735	−4,048
1995	1,563	31,175	3,070	53	105	2,351	558	0	6,037	44,912	−55	−13,095	0	0	−10,618	0	0	−1,449	−85	−609	−25,912	−19,001
1996	521	25,153	3,281	58	0	0	650	0	4,168	33,831	−27	−12,061	−1,148	0	−9,283	0	−223	−1,592	−105	−892	−25,332	−8,498
1997	0	26,109	3,628	69	0	0	652	0	4,050	34,508	−20	−14,177	−6,733	−187	−9,647	0	−266	−1,821	−200	−855	−33,905	−602
1998	598	32,461	4,336	134	811	5,986	542	0	6,184	51,052	−6	−20,912	0	0	−12,445	0	0	−2,006	−257	−575	−36,199	−14,852
1999	0	19,869	4,254	94	0	0	680	0	3,506	28,404	−10	−15,444	−3,958	−585	−9,755	0	−392	−2,008	−244	−975	−33,371	4,967
2000	0	22,718	4,259	69	0	0	660	0	3,706	31,412	−11	−15,051	−8,528	−360	−9,840	0	−342	−2,128	−321	−836	−37,418	6,006
2001	0	27,888	4,414	87	0	0	611	0	4,974	37,974	−8	−17,135	−3,472	−18	−10,797	0	−41	−2,073	−324	−720	−34,589	−3,385
2002	0	19,479	4,219	60	0	0	686	0	3,562	28,007	0	−12,918	−10,775	−199	−8,925	0	−455	−1,944	−299	−779	−36,294	8,287
2003	624	20,846	4,207	62	0	0	664	0	2,610	29,012	0	−13,054	−9,433	0	−9,096	0	−125	−1,897	−290	−755	−34,649	5,637
2004	1,268	23,658	4,131	50	0	0	683	0	3,262	33,052	0	−11,527	−13,653	0	−8,265	0	−59	−1,791	−293	−646	−36,234	3,182
2005	2,113	26,133	4,668	91	430	0	581	0	5,453	39,468	0	−16,632	−625	0	−10,950	0	0	−1,681	−232	−548	−30,668	−8,800
2006	406	22,032	4,622	75	56	2,744	681	0	2,975	33,590	0	−14,711	0	0	−9,156	0	0	−1,697	−189	−794	−26,547	−7,043
2007	0	17,401	4,673	40	0	0	726	0	1,982	24,822	0	−12,812	−9,238	−533	−7,984	0	−626	−1,809	−222	−812	−34,036	9,213
2008	595	21,781	4,791	45	0	0	680	0	3,613	31,505	0	−13,449	−9,365	0	−8,859	0	−156	−1,812	−254	−689	−34,584	3,079
2009	789	19,847	4,711	46	0	0	696	0	2,370	28,458	0	−12,256	−10,893	0	−8,129	0	−157	−1,685	−235	−622	−33,978	5,521
2010	1,851	27,065	4,706	72	0	0	652	0	2,737	37,083	0	−13,439	−10,338	0	−8,689	0	−59	−1,613	−229	−655	−35,022	−2,060
2011	1,022	20,056	4,774	85	0	0	644	0	3,648	30,229	0	−14,172	−3,689	0	−9,306	0	−10	−1,513	−177	−638	−29,506	−723
2012	115	17,308	4,651	59	0	0	720	0	1,813	24,665	0	−11,317	−7,982	0	−7,644	0	−203	−1,498	−166	−622	−29,431	4,766
2013	0	14,694	4,237	23	0	0	745	0	437	20,136	0	−8,415	−13,937	−234	−6,478	0	−17	−1,483	−212	−539	−31,316	11,180
2014	809	18,636	3,467	−9	0	0	720	0	1,489	25,112	0	−6,185	−19,272	0	−5,952	−9	0	−1,358	−257	−534	−33,567	8,446

Table 2-7a
Groundwater Recharge and Discharge in the Semi-Perched Aquifer

Calendar Year[a]	Groundwater Recharge (AF)										Groundwater Discharge (AF)											Storage Change (AF)
	Stream Leakage (Santa Clara River in Oxnard Forebay)	*Recharge*	*Subsurface Inflow from PVB*	*Unincorporated Areas*	*Subsurface Inflow from West LPVB*	*Subsurface Inflow from the UAS*	*Sum of Coastal Flux from Arnold Road to Point Mugu*	*Coastal flux from Channel Islands Harbor to Arnold Road*	*Stream Leakage Calleguas Creek*	*Total Inflow*	*Pumping*	*Tile Drains*	*Subsurface Outflow to UAS*	*Groundwater Discharge to Streams (Santa Clara River in Oxnard Forebay)*	*Evapotranspiration*	*Unincorporated Areas*	*Subsurface Outflow to West LPVB*	*Coastal Flux North to Channel Islands Harbor*	*Coastal flux from Channel Islands Harbor to Arnold Rd*	*Subsurface Outflow to Mound Basin*	*Total Outflow*	*Change in Groundwater Storage[b]*
2015	0	13,543	2,760	−36	0	0	721	0	801	17,790	−2	−4,451	−18,043	−80	−5,322	0	0	−1,048	−177	−401	−29,524	11,734
Maximum	**4,382**	**32,461**	**4,791**	**152**	**811**	**5,986**	**843**	**21**	**6,209**	**51,052**	**0**	**−2,856**	**0**	**0**	**−5,008**	**0**	**0**	**−773**	**0**	**−362**	**−23,735**	**11,734**
Minimum	**0**	**13,543**	**1,074**	**−36**	**0**	**0**	**542**	**0**	**437**	**17,790**	**−141**	**−20,912**	**−23,955**	**−585**	**−12,445**	**−107**	**−626**	**−2,128**	**−324**	**−1,247**	**−37,418**	**−19,001**
Average	**770**	**22,989**	**3,372**	**47**	**45**	**357**	**663**	**1**	**3,394**	**31,639**	**−31**	**−10,531**	**−10,600**	**−109**	**−8,291**	**−13**	**−141**	**−1,582**	**−201**	**−676**	**−32,175**	**535**

Notes: AF = acre-feet; LPVB = Las Posas Valley Basin; PVB = Pleasant Valley Basin; UAS = Upper Aquifer System.

[a] Results from these tables are in calendar years, and will not exactly match data in Table 2−5 and Sections 2.3.2 and 2.3.6, which are presented in water years.

[b] A negative number indicates that water entered storage.

Table 2-7b
Groundwater Recharge and Discharge in the Upper Aquifer System

Calendar Year[a]	Groundwater Recharge (AF)												Groundwater Discharge (AF)												Storage Change (AF)
	Stream Leakage (Santa Clara River in Oxnard Forebay)	*Volcanic Outcrops*	*Recharge*	*Subsurface Inflow from PVB*	*Unincorporated Areas*	*Subsurface Inflow from the Semi-Perched Aquifer*	*Subsurface Inflow from Santa Paula Basin*	*Subsurface Inflow from West LPVB*	*Coastal Flux north to Channel Islands Horbor*	*Coastal flux from Channel Islands Harbor to Arnold Rd*	*Sum of Coastal Flux from Arnold Rd to Point Mugu*	*Subsurface Inflow from the Mound Basin*	*Total Inflow*	*Pumping*	*Tile Drains*	*Subsurface Outflow to the Semi-Perched Aquifer*	*Subsurface Outflow to LAS*	*Subsurface Outflow to West LPVB*	*Groundwater Discharge to Streams (Santa Clara River in Oxnard Forebay)*	*Evapotranspiration*	*Unincorporated Areas*	*Subsurface Outflow to the Santa Paula Basin*	*Subsurface Outflow to PVB*	*Coastal Flux north to Channel Islands Harbor*	*Coastal flux from Channel Islands Harbor to Arnold Rd*	*Subsurface Outflow to Mound Basin*	*Total Outflow*	*Change in Groundwater Storage[b]*
1985	737	5	36,262	0	430	15,889	0	963	742	1,415	2,408	3,014	61,865	−71,157	−356	0	−21,581	0	0	0	0	−1,020	−1,551	0	0	0	−95,665	33,800
1986	6,880	17	63,061	0	0	13,989	0	0	1,254	1,454	2,316	2,227	91,198	−64,234	0	0	−20,735	−2,629	0	0	−52	−968	−613	0	0	0	−89,230	−1,968
1987	1,271	8	35,362	0	431	18,182	0	0	3,076	2,312	3,128	4,181	67,951	−67,347	0	0	−23,240	−137	0	0	0	−744	−15	0	0	0	−91,483	23,532
1988	9,147	8	42,938	142	136	17,824	2,145	0	3,434	2,458	3,150	1,233	82,614	−63,663	0	0	−24,847	−2,053	0	0	0	0	0	0	0	0	−90,563	7,949
1989	530	2	19,007	588	412	19,673	0	0	5,376	2,977	3,402	3,046	55,012	−61,443	0	0	−26,103	−778	0	0	0	−524	0	0	0	0	−88,848	33,835
1990	1,095	2	11,112	1,153	397	22,805	544	0	7,476	3,914	4,095	2,259	54,853	−57,820	0	0	−30,731	−109	0	0	0	0	0	0	0	0	−88,661	33,807
1991	10,696	15	42,247	956	0	23,955	2,244	0	7,221	3,974	4,092	463	95,863	−49,646	0	0	−27,671	−2,705	0	0	−9	0	0	0	0	0	−80,031	−15,832
1992	16,092	22	104,442	0	0	19,636	3,089	0	4,412	2,769	3,084	0	153,544	−45,853	0	0	−24,091	−7,151	0	0	−592	0	−73	0	0	−4,193	−81,953	−71,591
1993	13,448	19	97,426	0	0	8,873	2,372	0	287	1,145	2,051	0	125,620	−47,504	0	0	−25,390	−8,460	0	0	−194	0	−2,107	0	0	−5,603	−89,259	−36,360
1994	2,931	6	52,967	0	394	6,674	837	0	221	857	1,768	0	66,656	−49,868	0	0	−24,598	−4,155	0	0	0	0	−1,808	0	0	−422	−80,853	14,197
1995	8,600	25	102,350	0	0	0	1,039	0	0	133	1,212	0	113,359	−39,520	−292	−2,351	−24,364	−7,649	0	−127	−384	0	−1,346	−1,750	0	−4,568	−82,352	−31,008

Table 2-7b
Groundwater Recharge and Discharge in the Upper Aquifer System

Calendar Year[a]	Groundwater Recharge (AF)													Groundwater Discharge (AF)													Storage Change (AF)
	Stream Leakage (Santa Clara River in Oxnard Forebay)	*Volcanic Outcrops*	*Recharge*	*Subsurface Inflow from PVB*	*Unincorporated Areas*	*Subsurface Inflow from the Semi-Perched Aquifer*	*Subsurface Inflow from Santa Paula Basin*	*Subsurface Inflow from West LPVB*	*Coastal Flux north to Channel Islands Horbor*	*Coastal flux from Channel Islands Harbor to Arnold Rd*	*Sum of Coastal Flux from Arnold Rd to Point Mugu*	*Subsurface Inflow from the Mound Basin*	*Total Inflow*	*Pumping*	*Tile Drains*	*Subsurface Outflow to the Semi-Perched Aquifer*	*Subsurface Outflow to LAS*	*Subsurface Outflow to West LPVB*	*Groundwater Discharge to Streams (Santa Clara River in Oxnard Forebay)*	*Evapotranspiration*	*Unincorporated Areas*	*Subsurface Outflow to the Santa Paula Basin*	*Subsurface Outflow to PVB*	*Coastal Flux north to Channel Islands Harbor*	*Coastal flux from Channel Islands Harbor to Arnold Rd*	*Subsurface Outflow to Mound Basin*	*Total Outflow*	*Change in Groundwater Storage[b]*
1996	2,598	15	56,775	0	128	1,148	310	0	0	0	960	0	61,935	−35,068	−734	0	−22,583	−4,454	0	−119	0	0	−1,375	−2,233	−202	−401	−67,168	5,233
1997	2,300	14	54,861	0	221	6,733	0	0	0	181	1,231	1,123	66,666	−52,122	−532	0	−23,393	−3,560	0	−30	0	−387	−407	−1,139	0	0	−81,568	14,902
1998	0	26	122,199	0	0	0	0	0	0	0	509	0	122,734	−43,078	−967	−5,986	−21,766	−8,501	−663	−420	−625	−4,282	−67	−2,733	−589	−1,247	−90,925	−31,809
1999	0	5	37,762	0	529	3,958	0	0	0	0	639	1,413	44,305	−48,269	−1,180	0	−18,830	−1,847	−2,309	−131	0	−1,162	−106	−2,688	−590	0	−77,113	32,807
2000	3,677	9	54,044	1,084	0	8,528	0	0	0	90	1,047	749	69,228	−45,561	−454	0	−20,784	−2,743	0	0	−38	−500	0	−852	0	0	−70,931	1,704
2001	3,944	19	77,935	1,233	0	3,472	0	0	0	9	949	0	87,561	−42,551	−457	0	−20,746	−4,589	0	0	−69	−1,091	0	−1,447	0	−2,070	−73,019	−14,543
2002	3,129	7	22,151	1,150	432	10,775	1,237	0	0	427	1,191	861	41,360	−44,571	−191	0	−21,202	−1,420	0	0	0	0	0	−319	0	0	−67,703	26,344
2003	7,334	10	36,230	1,803	120	9,433	3,016	0	156	476	1,098	0	59,677	−47,327	0	0	−18,335	−2,591	0	0	0	0	0	0	0	−342	−68,596	8,919
2004	9,742	15	25,471	2,485	149	13,653	3,421	0	1,766	1,170	1,513	86	59,471	−46,670	0	0	−19,410	−2,397	0	0	0	0	0	0	0	0	−68,477	9,006
2005	8,009	18	121,368	1,757	0	625	0	0	0	219	937	0	132,932	−41,034	−222	0	−23,873	−10,233	0	−86	−615	−1,174	0	−1,101	0	−5,909	−84,247	−48,685
2006	0	10	82,755	1,283	72	0	0	0	0	0	665	0	84,785	−42,858	−1,041	−2,744	−22,640	−6,474	−1,416	−244	0	−3,135	0	−2,273	−301	−3,285	−86,411	1,626
2007	1,031	3	31,445	2,419	404	9,238	0	0	0	107	901	828	46,376	−54,564	−430	0	−18,531	−1,122	0	0	0	−683	0	−786	0	0	−76,116	29,740
2008	6,446	11	58,687	3,135	0	9,365	0	0	71	537	1,138	0	79,389	−51,775	−5	0	−21,473	−4,242	0	0	−52	−25	0	0	0	−405	−77,978	−1,412
2009	7,141	7	24,406	3,515	283	10,893	2,661	0	960	815	1,174	259	52,114	−51,431	0	0	−18,696	−1,734	0	0	0	0	0	0	0	0	−71,861	19,748
2010	12,155	20	48,796	3,938	32	10,338	3,016	0	834	785	1,134	0	81,048	−44,145	0	0	−17,864	−3,033	0	0	0	0	0	0	0	−1,365	−66,407	−14,641
2011	5,847	8	73,711	3,049	0	3,689	0	0	0	301	930	0	87,535	−41,608	0	0	−20,530	−6,136	0	0	−216	−244	0	−758	0	−2,941	−72,434	−15,101
2012	2,878	4	22,461	3,162	348	7,982	1,122	0	0	401	1,067	905	40,330	−43,460	0	0	−19,728	−2,338	0	0	0	0	0	−278	0	0	−65,803	25,472
2013	0	0	4,132	3,767	342	13,937	0	0	2,121	1,383	1,803	2,546	30,032	−44,900	0	0	−20,628	−1,388	0	0	0	−27	0	0	0	0	−66,943	36,911
2014	6,504	6	4,860	4,552	229	19,272	2,448	0	4,573	2,641	2,793	2,205	50,084	−43,012	0	0	−24,557	−1,603	0	0	0	0	0	0	0	0	−69,172	19,089
2015	506	1	3,843	4,639	186	18,043	357	0	5,641	3,037	2,955	2,145	41,354	−42,177	0	0	−21,886	−1,304	0	0	0	0	0	0	0	0	−65,367	24,013
Maximum	**16,092**	**26**	**122,199**	**4,639**	**529**	**23,955**	**3,421**	**963**	**7,476**	**3,974**	**4,095**	**4,181**	**153,544**	**−35,068**	**0**	**0**	**−17,864**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**−65,367**	**36,911**
Minimum	**0**	**0**	**3,843**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**509**	**0**	**30,032**	**−71,157**	**−1,180**	**−5,986**	**−30,731**	**−10,233**	**−2,309**	**−420**	**−625**	**−4,282**	**−2,107**	**−2,733**	**−590**	**−5,909**	**−95,665**	**−71,591**
Average	**4,989**	**11**	**50,680**	**1,478**	**183**	**10,600**	**963**	**31**	**1,601**	**1,161**	**1,785**	**953**	**74,434**	**−49,169**	**−221**	**−357**	**−22,284**	**−3,469**	**−142**	**−37**	**−92**	**−515**	**−305**	**−592**	**−54**	**−1,056**	**−78,295**	**3,861**

Notes: AF = acre-feet; LAS = Lower Aquifer System; LPVB = Las Posas Valley Basin; PVB = Pleasant Valley Basin.

[a] Results from these tables are in calendar years, and will not exactly match data in Table 2-5 and Sections 2.3.2 and 2.3.6, which are presented in water years.

[b] A negative number indicates that water entered storage.

Table 2-7c
Groundwater Recharge and Discharge in the Lower Aquifer System

Calendar Year[a]	Groundwater Recharge (AF)										Groundwater Discharge (AF)					Storage Change (AF)
	Subsurface Inflow from PVB	*Subsurface Inflow from the UAS*	*Unincorporated Areas*	*Subsurface Inflow from Santa Paula Basin*	*Subsurface Inflow from West LPVB*	*Coastal Flux north to Channel Islands Harbor*	*Coastal flux from Channel Islands Harbor to Arnold Road*	*Sum of Coastal Flux from Arnold Road to Point Mugu*	*Subsurface Inflow from the Mound Basin*	*Total Inflow*	*Pumping*	*Subsurface Outflow to West LPVB*	*Subsurface Outflow to Santa Paula Basin*	*Subsurface Outflow to PVB*	*Total Outflow*	*Change in Groundwater Storage*[b]
1985	0	21,581	81	0	292	2,954	1,763	1,016	2,014	29,702	−34,579	0	−123	−100	−34,802	5,100
1986	285	20,735	162	0	0	2,900	1,689	899	2,482	29,151	−28,475	−292	−162	0	−28,929	−223
1987	1,146	23,240	71	0	1,091	4,005	2,176	1,185	2,687	35,601	−38,471	0	−1	0	−38,473	2,872
1988	710	24,847	109	0	470	4,187	2,203	1,183	2,272	35,981	−37,023	0	−53	0	−37,076	1,094
1989	43	26,103	77	6	1,569	4,989	2,386	1,210	3,279	39,663	−44,754	0	0	0	−44,754	5,091
1990	1,027	30,731	93	130	1,838	6,233	2,890	1,450	3,174	47,566	−51,926	0	0	0	−51,926	4,359
1991	0	27,671	132	133	911	5,865	2,811	1,392	2,356	41,272	−37,084	0	0	−491	−37,575	−3,698
1992	0	24,091	223	120	0	4,288	2,198	1,070	1,033	33,023	−23,641	−1,474	0	−1,073	−26,188	−6,835
1993	0	25,390	217	63	0	2,764	1,733	964	1,829	32,960	−25,392	−2,170	0	−1,205	−28,767	−4,192
1994	0	24,598	121	48	0	2,964	1,763	952	1,937	32,383	−32,806	−719	0	−263	−33,789	1,406
1995	0	24,364	161	57	0	2,126	1,476	848	2,150	31,184	−24,584	−1,393	0	−235	−26,212	−4,972
1996	0	22,583	125	16	0	1,763	1,351	772	2,031	28,642	−27,440	−866	0	−117	−28,423	−220
1997	167	23,393	118	0	0	2,273	1,604	885	2,679	31,120	−32,248	−557	−28	0	−32,832	1,712
1998	109	21,766	194	0	0	1,114	1,130	656	3,186	28,156	−21,883	−2,093	−13	0	−23,989	−4,167
1999	116	18,830	89	0	0	977	1,132	742	1,285	23,171	−26,844	−834	−77	0	−27,755	4,584
2000	546	20,784	90	0	0	1,814	1,392	886	1,856	27,368	−27,819	−450	−27	0	−28,295	927
2001	1,030	20,746	118	0	0	1,784	1,388	882	1,361	27,310	−23,661	−620	−2	0	−24,282	−3,028
2002	913	21,202	63	14	470	2,483	1,631	875	1,961	29,612	−33,324	0	0	0	−33,324	3,712
2003	210	18,335	61	59	36	2,124	1,444	814	1,906	24,989	−24,017	0	0	0	−24,017	−972
2004	353	19,410	59	39	529	3,060	1,796	888	1,917	28,052	−30,513	0	0	0	−30,513	2,461
2005	819	23,873	211	0	0	1,959	1,426	733	2,961	31,983	−25,225	−1,799	−9	0	−27,033	−4,950
2006	1,430	22,640	120	0	0	1,436	1,284	696	2,672	30,278	−28,316	−999	−83	0	−29,398	−880
2007	1,266	18,531	57	0	0	1,565	1,299	705	2,349	25,772	−27,854	−55	−108	0	−28,016	2,244
2008	1,608	21,473	133	0	195	2,139	1,482	751	2,862	30,643	−30,891	0	−41	0	−30,933	290
2009	1,657	18,696	67	8	772	2,338	1,538	715	2,727	28,519	−30,458	0	0	0	−30,458	1,940
2010	1,162	17,864	103	126	0	2,171	1,402	660	2,719	26,208	−23,680	−136	0	0	−23,816	−2,393
2011	1,618	20,530	143	21	0	1,785	1,359	699	2,725	28,881	−26,984	−1,115	0	0	−28,099	−782
2012	1,431	19,728	71	9	463	2,032	1,405	666	2,864	28,670	−31,169	0	0	0	−31,169	2,500
2013	1,499	20,628	56	0	1,061	3,111	1,853	857	2,921	31,986	−39,159	0	−1	0	−39,160	7,175
2014	1,346	24,557	63	109	1,681	4,593	2,441	1,060	3,150	39,000	−39,905	0	0	0	−39,905	905
2015	1,420	21,886	86	113	1,264	4,690	2,343	1,038	2,838	35,679	−38,635	0	0	0	−38,635	2,956
Maximum	**1,657**	**30,731**	**223**	**133**	**1,838**	**6,233**	**2,890**	**1,450**	**3,279**	**47,566**	**−21,883**	**0**	**0**	**0**	**−23,816**	**7,175**
Minimum	**0**	**17,864**	**56**	**0**	**0**	**977**	**1,130**	**656**	**1,033**	**23,171**	**−51,926**	**−2,170**	**−162**	**−1,205**	**−51,926**	**−6,835**
Average	**707**	**22,284**	**112**	**35**	**408**	**2,854**	**1,735**	**908**	**2,393**	**31,436**	**−31,250**	**−502**	**−24**	**−112**	**−31,888**	**452**

Notes: AF = acre-feet; LPVB = Las Posas Valley Basin; PVB = Pleasant Valley Basin; UAS = Upper Aquifer System.

[a] Results from these tables are in calendar years, and will not exactly match data in Table 2-5 and Sections 2.3.2 and 2.3.6, which are presented in water years.

[b] A negative number indicates that water entered storage.

Table 2-8
UWCD Diversions and Usage of Santa Clara River Water (AF)

Calendar Year	Freeman Diversion	Recharge in Oxnard Forebay Spreading Grounds	PTP Supply Line Deliveries (To Oxnard Subbasin Only)	PVP Supply Line Deliveries to Oxnard Subbasin and Pleasant Valley Basin[a]
1985	42,802	33,837	0	8,738
1986	69,805	59,810	35	9,851
1987	37,638	32,825	2,492	4,560
1988	49,128	40,571	3,709	6,922
1989	24,123	16,920	6,653	5,702
1990	9,553	8,892	9,762	319
1991	44,646	39,289	7,827	1,674
1992	118,151	101,421	7,622	9,320
1993	117,937	94,241	8,462	15,294
1994	71,238	50,588	9,005	12,336
1995	121,235	98,952	8,616	14,014
1996	70,280	54,047	9,513	9,356
1997	71,115	52,006	9,631	11,375
1998	142,279	118,672	7,681	16,064
1999	56,401	35,816	9,017	12,856
2000	71,868	51,793	9,155	11,682
2001	97,061	75,176	6,223	15,635
2002	31,144	20,209	8,632	6,055
2003	47,630	34,111	7,464	6,311
2004	34,160	23,166	8,389	5,245
2005	138,246	118,629	6,470	13,047
2006	101,592	80,554	8,125	12,495
2007	46,430	29,703	8,806	9,908
2008	71,933	56,433	9,639	11,333
2009	40,872	22,438	9,180	14,589
2010	64,005	46,228	7,177	11,555
2011	92,119	71,959	8,700	12,672
2012	37,036	20,816	8,129	10,182
2013	8,941	2,686	8,691	3,230
2014	4,501	2,900	6,644	199
2015	2,607	2,516	5,476	0
Maximum	**142,279**	**118,672**	**9,762**	**16,064**
Minimum	**2,607**	**2,516**	**0**	**0**
Average	**62,467**	**48,297**	**7,320**	**9,114**

Note:

[a] For water supplied by the UWCD PVP to PVCWD, 56% is used in the Oxnard Subbasin and 44% in the Pleasant Valley Basin; only the 56% used in the Oxnard Subbasin is shown in this table.

Table 2-9
United Water Conservation District Water (AF)

Calendar Year	Recharge to Saticoy	Recharge to Noble	Recharge to El Rio	Total Recharge
1985	19,909	0	13,928	33,837
1986	43,407	0	16,403	59,810
1987	16,152	0	16,673	32,825
1988	21,496	0	19,075	40,571
1989	9,729	0	7,192	16,920
1990	3,308	0	5,584	8,892
1991	23,306	0	15,982	39,289
1992	55,606	0	45,815	101,421
1993	45,064	0	49,177	94,241
1994	17,982	0	32,606	50,588
1995	35,419	10,657	52,876	98,952
1996	25,608	3,806	24,633	54,047
1997	22,323	4,412	25,271	52,006
1998	56,935	18,710	43,027	118,672
1999	16,539	1,285	17,992	35,816
2000	28,620	0	23,173	51,793
2001	26,918	8,824	39,434	75,176
2002	5,291	32	14,886	20,209
2003	7,158	44	26,909	34,111
2004	8,105	0	15,061	23,166
2005	46,872	19,490	52,267	118,629
2006	29,005	10,709	40,840	80,554
2007	11,404	99	18,200	29,703
2008	28,631	8,562	19,240	56,433
2009	9,215	0	13,223	22,438
2010	15,108	995	30,125	46,228
2011	23,435	10,679	37,845	71,959
2012	3,985	538	16,293	20,816
2013	34	263	2,389	2,686
2014	387	578	1,935	2,900
2015	1,231	0	1,285	2,516
Maximum	**56,935**	**19,490**	**52,876**	**118,672**
Minimum	**34**	**0**	**1,285**	**2,516**
Average	**21,232**	**3,216**	**23,850**	**48,297**

Table 2-10
Summary of Water Deliveries

Calendar Year	PVCWD (AF)[a]			United Water Conservation District (AF)											Total UWCD and PVCWD Water Deliveries in Oxnard Subbasin (AF)
				PTP (Oxnard Subbasin Only)					O-H Supply Line (Oxnard Subbasin Only)			PVP (Oxnard Subbasin and Pleasant Valley Basin)[c]			
	Conejo Creek Flows Delivered by CWD for Agriculture[b]	Pumped Groundwater from Oxnard Subbasin Basin	Total PVCWD Water Delivered	PTP Wells 1–5 (LAS)	Saticoy Wells (UAS)	Total PTP Groundwater Pumpage	Total PTP Surface Water	Total PTP Water	Municipal Deliveries	Agriculture Deliveries	Total O-H Water	Diversions of Santa Clara River Water Used in the Oxnard Subbasin for Agriculture	Recharged Spreading Water Pumped and Used in the Oxnard Subbasin for Agriculture (Saticoy Wells)[d]	Total PVP Water	
1985	0	−170	−170	0	0	0	0	0	13,901	0	13,901	4,893	0	4,893	18,624
1986	0	−282	−282	0	0	0	35	35	14,096	0	14,096	5,517	0	5,517	19,366
1987	0	−231	−231	2,321	0	2,321	171	2,492	15,364	0	15,364	2,554	0	2,554	20,179
1988	0	387	387	2,184	0	2,184	1,525	3,709	15,513	0	15,513	3,876	0	3,876	23,486
1989	0	121	121	5,301	0	5,301	1,352	6,653	14,494	0	14,494	3,193	0	3,193	24,462
1990	0	273	273	9,506	0	9,506	256	9,762	14,757	0	14,757	179	0	179	24,971
1991	0	708	708	5,042	0	5,042	2,785	7,827	12,644	0	12,644	938	0	938	22,117
1992	0	−604	−604	989	0	989	6,633	7,622	12,669	0	12,669	5,219	0	5,219	24,906
1993	0	−197	−197	825	0	825	7,637	8,462	14,977	0	14,977	8,565	0	8,565	31,807
1994	0	−369	−369	1,564	0	1,564	7,441	9,005	13,092	0	13,092	6,908	0	6,908	28,635
1995	0	−308	−308	1,128	0	1,128	7,488	8,616	8,664	0	8,664	7,848	0	7,848	24,820
1996	0	−1,007	−1,007	3,264	0	3,264	6,249	9,513	6,881	0	6,881	5,239	0	5,239	20,627
1997	0	−425	−425	2,389	0	2,389	7,242	9,631	17,776	0	17,776	6,370	0	6,370	33,351
1998	0	107	107	511	0	511	7,170	7,681	16,784	0	16,784	8,996	0	8,996	33,567
1999	0	−119	−119	2,142	0	2,142	6,875	9,017	17,671	0	17,671	7,200	0	7,200	33,769
2000	0	−376	−376	1,341	0	1,341	7,814	9,155	14,043	79	14,122	6,542	0	6,542	29,442
2001	0	−484	−484	423	0	423	5,800	6,223	13,337	0	13,337	8,756	0	8,756	27,832
2002	1,468	−145	1,323	4,120	0	4,120	4,512	8,632	14,132	786	14,918	3,391	0	3,391	28,264
2003	3,364	−298	3,066	758	0	758	6,706	7,464	16,759	0	16,759	3,534	0	3,534	30,823
2004	2,995	−767	2,228	2,682	0	2,682	5,276	7,958	11,644	431	12,075	2,937	0	2,937	25,197
2005	3,115	−1,051	2,064	59	0	59	6,411	6,470	9,796	0	9,796	7,307	0	7,307	25,636
2006	3,607	2	3,609	105	0	105	8,020	8,125	9,906	0	9,906	6,997	0	6,997	28,637
2007	3,382	−41	3,342	898	696	1,594	7,211	8,806	22,763	0	22,763	5,245	303	5,548	40,459
2008	2,718	−213	2,505	2,936	1,452	4,388	5,251	9,639	17,304	51	17,356	5,534	813	6,347	35,846
2009	2,239	−218	2,021	2,995	685	3,680	5,500	9,180	18,160	68	18,228	7,179	990	8,170	37,598
2010	2,733	77	2,810	512	382	894	6,283	7,177	15,709	19	15,727	6,260	211	6,471	32,185
2011	3,598	164	3,762	817	254	1,071	7,629	8,700	10,747	0	10,747	6,826	271	7,096	30,305
2012	2,415	−5	2,410	929	1,031	1,960	6,169	8,129	14,210	0	14,210	5,389	313	5,702	30,451
2013	1,822	101	1,923	4,647	349	4,996	2,696	7,692	12,854	998	13,852	1,737	72	1,809	25,276

Table 2-10
Summary of Water Deliveries

Calendar Year	PVCWD (AF)[a]			United Water Conservation District (AF)											Total UWCD and PVCWD Water Deliveries in Oxnard Subbasin (AF)
				PTP (Oxnard Subbasin Only)					O-H Supply Line (Oxnard Subbasin Only)			PVP (Oxnard Subbasin and Pleasant Valley Basin)[c]			
	Conejo Creek Flows Delivered by CWD for Agriculture[b]	*Pumped Groundwater from Oxnard Subbasin Basin*	*Total PVCWD Water Delivered*	*PTP Wells 1–5 (LAS)*	*Saticoy Wells (UAS)*	*Total PTP Groundwater Pumpage*	*Total PTP Surface Water*	*Total PTP Water*	*Municipal Deliveries*	*Agriculture Deliveries*	*Total O-H Water*	*Diversions of Santa Clara River Water Used in the Oxnard Subbasin for Agriculture*	*Recharged Spreading Water Pumped and Used in the Oxnard Subbasin for Agriculture (Saticoy Wells)*[d]	*Total PVP Water*	
2014	1,151	−287	864	7,027	0	7,027	22	7,049	10,773	0	10,773	112	0	112	18,798
2015	1,319	−876	443	5,476	0	5,476	0	5,476	10,920	0	10,920	0	0	0	16,839
Maximum	**3,607**	**708**	**3,762**	**9,506**	**1,452**	**9,506**	**8,020**	**9,762**	**22,763**	**998**	**22,763**	**16,064**	**990**	**8,996**	**40,459**
Minimum	**0**	**−1,051**	**−1,007**	**0**	**0**	**0**	**0**	**0**	**6,881**	**0**	**6,881**	**0**	**0**	**0**	**16,839**
Average	**1,159**	**−211**	**948**	**2,351**	**156**	**2,508**	**4,779**	**7,287**	**13,947**	**78**	**14,025**	**9,113**	**96**	**5,104**	**27,364**

Notes: AF = acre-feet; CWD = Camrosa Water District; LAS = Lower Aquifer System; O-H = Oxnard–Hueneme; PTP = Pumping Trough Pipeline; PVCWD = Pleasant Valley County Water District; PVP = Pleasant Valley Pipeline; UAS = Upper Aquifer System; UWCD = United Water Conservation District.

[a] Negative value indicates groundwater pumped in the Oxnard Subbasin and used in Pleasant Valley.

[b] For water supplied by Camrosa Water District to PVCWD, 56% is used in the Oxnard Subbasin and 44% in the Pleasant Valley Basin; only the 56% used in the Oxnard Subbasin is shown in this table.

[c] For water supplied via the UWCD PVP to PVCWD, 56% is used in the Oxnard Subbasin and 44% in the PVB; only the 56% used in the Oxnard Subbasin is shown in this table.

[d] UWCD extracts limited amounts of temporarily stored water from shallow wells at its Saticoy Spreading Grounds to the PVP during periods of mounding, as authorized by FCGMA Resolution 2011-02.

Table 2-11
Recharge by Type (AF)

Calendar Year	UWCD Spreading	Precipitation	Pumped Groundwater	Applied Water (M&I and Domestic)	PTP/PVP System	Total Recharge
1985	33,837	4,937	18,562	753	1,254	59,343
1986	59,810	14,048	16,017	747	1,399	92,021
1987	32,825	7,149	17,878	744	1,353	59,949
1988	40,579	6,096	16,719	771	1,934	66,100
1989	16,920	2,130	17,158	869	2,542	39,620
1990	8,904	1,502	16,449	939	2,051	29,844
1991	39,289	11,869	14,044	745	2,510	68,455
1992	101,421	15,752	11,886	863	3,336	133,258
1993	94,241	15,461	11,778	784	4,230	126,494
1994	50,588	6,173	12,936	853	4,003	74,553
1995	98,952	19,121	10,501	874	4,075	133,525
1996	54,047	12,566	10,908	635	3,771	81,928
1997	52,261	10,592	13,396	725	3,995	80,970
1998	118,672	21,656	9,555	755	4,022	154,660
1999	35,816	4,927	11,928	846	4,114	57,631
2000	51,793	8,733	11,216	1,113	3,906	76,762
2001	75,176	15,715	10,105	1,079	3,748	105,823
2002	20,209	5,728	11,440	1,116	3,137	41,630
2003	34,111	8,670	9,949	1,003	3,343	57,076
2004	23,166	10,322	10,642	1,342	3,658	49,129
2005	118,629	14,794	8,733	1,292	4,053	147,501
2006	80,554	8,575	9,855	1,239	4,564	104,786
2007	29,703	2,704	11,588	779	4,072	48,846
2008	56,433	7,548	10,761	1,036	4,689	80,468
2009	22,438	6,057	10,135	932	4,690	44,252
2010	46,228	16,086	8,695	954	3,899	75,861
2011	71,959	6,759	9,425	1,079	4,544	93,767
2012	20,816	3,695	10,640	975	3,643	39,768
2013	2,686	735	11,663	1,044	2,698	18,825
2014	2,900	6,182	11,404	1,011	1,999	23,496
2015	2,516	1,064	11,278	857	1,671	17,386
Maximum	**118,672**	**21,656**	**18,562**	**1,342**	**4,690**	**154,660**

Table 2-11
Recharge by Type (AF)

Calendar Year	UWCD Spreading	Precipitation	Pumped Groundwater	Applied Water (M&I and Domestic)	PTP/PVP System	Total Recharge
Minimum	**2,516**	**735**	**8,695**	**635**	**1,254**	**17,386**
Average	**48,306[a]**	**8,947**	**12,169**	**928**	**3,319**	**73,669**

Notes: AF = acre-feet; M&I = municipal and industrial; PTP = Pumping Trough Pipeline; PVP = Pleasant Valley Pipeline; UWCD = United Water Conservation District.

[a] The difference between 48,306 AFY in this table and 48,279 AFY in Table 2-9 is caused by how UWCD tracks monthly spreading. The UWCD hydrologist entered a negative number in some of the monthly records to reconcile their percolation total. So for the following 3 months, Table 2-7 has:

- August 1988 recharge to Saticoy is −8 acre-feet.
- April 1990 recharge to Saticoy is −11.34 acre-feet.
- September 1997 recharge to Saticoy is −255.06 acre-feet.

Table 2-12
Stream Flows in Arroyo Las Posas and Conejo Creek, and Conejo Creek Diversion and Deliveries to the Pleasant Valley County Water District (AF)

Calendar Year	Arroyo Las Posas Flows Measured at Stream Gauge 806 until 1997 and 806A to 2005	Conejo Creek Flows Measured at Stream Gauge 800 until 2011 and 800A to 2012	Conejo Creek Water Delivered by CWD for Agriculture (AF)[a]	Conejo Creek Flows Delivered by CWD for Agriculture In PVCWD[b]	Conejo Creek Flows Delivered by CWD for M&I	Total CWD Conejo Creek Flows Diversions
1985	1,174	14,265	2,450	0	0	2,450
1986	11,707	25,621	2,450	0	0	2,450
1987	3,487	16,851	2,450	0	0	2,450
1988	3,256	16,922	2,450	0	0	2,450
1989	840	14,785	2,450	0	0	2,450
1990	1,068	12,608	2,450	0	0	2,450
1991	9,715	20,227	2,450	0	0	2,450
1992	26,792	44,305	2,450	0	0	2,450
1993	27,749	52,306	2,450	0	0	2,450
1994	2,956	16,195	2,450	0	0	2,450
1995	26,984	45,909	2,450	0	0	2,450
1996	9,919	22,862	2,450	0	0	2,450
1997	10,742	22,905	2,450	0	0	2,450
1998	47,361	49,704	2,450	0	0	2,450
1999	923	16,479	2,450	0	0	2,450
2000	4,884	18,000	2,450	0	0	2,450
2001	18,819	28,092	2,450	0	0	2,450
2002	3,003	16,744	2,450	2,621	0	5,071
2003	12,973	21,592	1,249	6,008	256	7,513
2004	13,757	23,522	1,345	5,348	276	6,969
2005	54,549	46,396	1,639	5,562	336	7,537
2006	NA	23,175	1,457	6,441	298	8,196

Table 2-12
Stream Flows in Arroyo Las Posas and Conejo Creek, and Conejo Creek Diversion and Deliveries to the Pleasant Valley County Water District (AF)

Calendar Year	Arroyo Las Posas Flows Measured at Stream Gauge 806 until 1997 and 806A to 2005	Conejo Creek Flows Measured at Stream Gauge 800 until 2011 and 800A to 2012	Conejo Creek Water Delivered by CWD for Agriculture (AF)[a]	Conejo Creek Flows Delivered by CWD for Agriculture In PVCWD[b]	Conejo Creek Flows Delivered by CWD for M&I	Total CWD Conejo Creek Flows Diversions
2007	NA	17,048	3,288	6,040	674	10,002
2008	NA	25,254	2,895	4,854	358	8,107
2009	NA	19,099	3,225	3,998	673	7,896
2010	NA	20,293	2,554	4,880	594	8,028
2011	NA	17,518	2,359	6,425	533	9,317
2012	NA	7,612	2,603	4,312	653	7,568
2013	NA	NA	2,999	3,253	754	7,006
2014	NA	NA	2,858	2,055	854	5,767
2015	NA	NA	2,555	2,355	794	5,704
Maximum	**54,549**	**52,306**	**3,288**	**6,441**	**854**	**10,002**
Minimum	**840**	**7,612**	**1,249**	**0**	**0**	**2,450**
Average	**13,936**	**24,153**	**2,423**	**2,069**	**227**	**4,720**

Notes: AF = acre-feet; CWD = Camrosa Water District; M&I = municipal and industrial; NA = not applicable; PVCWD = Pleasant Valley County Water District.

[a] 2,450 AFY between 1985 and 2002 accounts for riparian water rights holders' use of Conejo Creek water prior to development of CWD's Diversion Facility and non-potable surface water system. Between 2003 and 2006, deliveries are less than previous assumptions as not all riparian customers had connected to the CWD non-potable system. It is fair to assume the difference between those volumes and 2,450 were still applied to land.

[b] For water supplied by CWD to PVCWD, 56% is used in the Oxnard Subbasin and 44% in the PVB.

Table 2-13
Sales and Usage of Imported Water Supplied by the Calleguas Municipal Water District (AF)

Calendar Year	Delivered and Used by the City of Oxnard for M&I	Delivered and Used by Port Hueneme Water Agency for M&I	Total Imported Water Supplied
1985	14,094	0	14,094
1986	14,023	0	14,023
1987	14,422	0	14,422
1988	14,565	0	14,565
1989	15,026	0	15,026
1990	16,853	0	16,853
1991	12,705	0	12,705
1992	15,576	0	15,576
1993	14,799	0	14,799
1994	11,441	0	11,441
1995	14,513	0	14,513
1996	12,392	64	12,456
1997	13,615	641	14,256
1998	12,675	2,234	14,909
1999	14,721	2,615	17,336
2000	14,487	2,935	17,422
2001	13,201	1,731	14,932
2002	13,591	3,054	16,645
2003	12,858	1,072	13,930
2004	13,742	1,595	15,337
2005	12,447	1,590	14,037
2006	11,994	2,067	14,061
2007	14,008	2,221	16,229
2008	15,150	1,197	16,347
2009	10,431	1,278	11,709
2010	11,238	838	12,076
2011	11,506	1,072	12,578
2012	13,474	1,047	14,521
2013	15,331	2,011	17,342
2014	13,550	1,483	15,033
2015	11,116	556	11,672
Maximum[a]	**16,853**	**3,054**	**17,422**
Minimum[a]	**10,431**	**64**	**11,441**
Average[a]	**13,534**	**1,565**	**14,543**

Notes: AF = acre-feet; M&I = municipal and industrial.

[a] Maximum, minimum, and average values are calculated for the period over which water deliveries occurred.

INTENTIONALLY LEFT BLANK

Table 2-14
Oxnard Subbasin Groundwater Used

Calendar Year	Agricultural Pumpage (AF)				M&I Pumpage (AF)				Domestic Pumpage (AF)				Totals (AF)			
	Pumpage (UAS)	*Pumpage (LAS)*	*Pumpage (Semi-Perched)*	*Total Agricultural*	*Pumpage (UAS)*	*Pumpage (LAS)*	*Pumpage (Semi-Perched)*	*Total M&I*	*Pumpage (UAS)*	*Pumpage (LAS)*	*Pumpage (Semi-Perched)*	*Total Domestic*	*Pumpage (UAS)*	*Pumpage (LAS)*	*Pumpage (Semi-Perched)*	*Total Pumpage*
1985	42,652	27,990	26	70,669	23,578	5,996	15	29,589	4,926	593	3	5,522	71,157	34,579	44	105,780
1986	36,285	23,167	37	59,489	24,196	5,038	24	29,258	3,752	270	4	4,026	64,234	28,475	65	92,773
1987	39,028	33,285	38	72,350	25,198	5,004	24	30,226	3,122	182	3	3,307	67,347	38,471	65	105,883
1988	34,505	31,938	33	66,476	26,475	4,574	25	31,074	2,683	511	3	3,196	63,663	37,023	61	100,746
1989	34,238	35,435	41	69,713	24,548	8,521	29	33,098	2,657	798	3	3,458	61,443	44,754	73	106,269
1990	34,082	42,137	83	76,302	23,000	9,780	56	32,837	738	8	2	748	57,820	51,926	141	109,887
1991	25,830	30,008	67	55,905	19,682	7,068	51	26,801	4,134	7	11	4,152	49,646	37,084	128	86,858
1992	24,076	20,070	48	44,194	21,286	3,562	43	24,892	491	9	1	501	45,853	23,641	92	69,587
1993	23,621	19,757	35	43,413	23,294	5,626	34	28,954	589	8	1	598	47,504	25,392	70	72,966
1994	26,820	23,981	48	50,849	22,505	8,818	40	31,363	544	7	1	552	49,868	32,806	89	82,764
1995	21,580	17,759	30	39,369	17,335	6,818	24	24,177	605	7	1	613	39,520	24,584	55	64,159
1996	21,642	22,211	17	43,870	12,866	5,221	10	18,096	560	8	0	568	35,068	27,440	27	62,535
1997	25,190	25,725	10	50,925	26,612	6,515	10	33,138	320	8	0	327	52,122	32,248	20	84,390
1998	20,263	15,279	3	35,545	22,611	6,597	3	29,211	204	7	0	211	43,078	21,883	6	64,966
1999	23,082	23,765	5	46,852	24,871	3,073	5	27,949	316	5	0	322	48,269	26,844	10	75,123
2000	21,982	21,027	5	43,014	23,380	6,788	6	30,174	199	4	0	203	45,561	27,819	11	73,390
2001	19,046	17,194	4	36,244	23,292	6,460	5	29,757	212	6	0	219	42,551	23,661	8	66,220
2002	20,837	24,502	0	45,338	23,555	8,819	0	32,374	179	3	0	182	44,571	33,324	0	77,895
2003	17,772	17,645	0	35,417	29,374	6,368	0	35,742	182	4	0	186	47,327	24,017	0	71,345
2004	19,299	21,732	0	41,031	27,091	8,775	0	35,866	280	6	0	286	46,670	30,513	0	77,183
2005	16,464	15,140	0	31,604	24,213	10,080	0	34,292	357	5	0	362	41,034	25,225	0	66,258
2006	18,290	16,268	0	34,558	24,405	12,044	0	36,449	163	4	0	168	42,858	28,316	0	71,174
2007	24,110	20,802	0	44,912	30,289	7,047	0	37,336	165	5	0	170	54,564	27,854	0	82,418
2008	23,618	22,853	0	46,471	27,999	8,034	0	36,033	159	5	0	163	51,775	30,891	0	82,667
2009	20,027	22,784	0	42,811	31,272	7,670	0	38,942	132	5	0	137	51,431	30,458	0	81,890
2010	17,056	16,767	0	33,822	26,963	6,890	0	33,853	126	23	0	150	44,145	23,680	0	67,825
2011	18,648	18,253	0	36,901	22,832	8,725	0	31,558	128	6	0	134	41,608	26,984	0	68,592
2012	20,914	22,376	0	43,290	22,415	8,790	0	31,205	131	3	0	134	43,460	31,169	0	74,629
2013	22,514	29,341	0	51,855	22,202	9,816	0	32,018	184	2	0	186	44,900	39,159	0	84,059
2014	22,536	32,236	0	54,772	20,224	7,667	0	27,891	252	2	0	254	43,012	39,905	0	82,917
2015	23,102	32,870	1	55,973	18,884	5,762	1	24,648	191	3	0	193	42,177	38,635	2	80,814
Maximum	**42,652**	**42,137**	**83**	**76,302**	**31,272**	**12,044**	**56**	**38,942**	**4,926**	**798**	**11**	**5,522**	**71,157**	**51,926**	**141**	**109,887**
Minimum	**16,464**	**15,140**	**0**	**31,604**	**12,866**	**3,073**	**0**	**18,096**	**126**	**2**	**0**	**134**	**35,068**	**21,883**	**0**	**62,535**
Average	**24,487**	**24,010**	**17**	**48,514**	**23,756**	**7,160**	**13**	**30,929**	**925**	**81**	**1**	**1,007**	**49,169**	**31,250**	**31**	**80,450**

Notes: AF = acre-feet; LAS = Lower Aquifer System; M&I = municipal and industrial; UAS = Upper Aquifer System.
Pumping amounts are from the UWCD model and usage type is from the FCGMA well database.

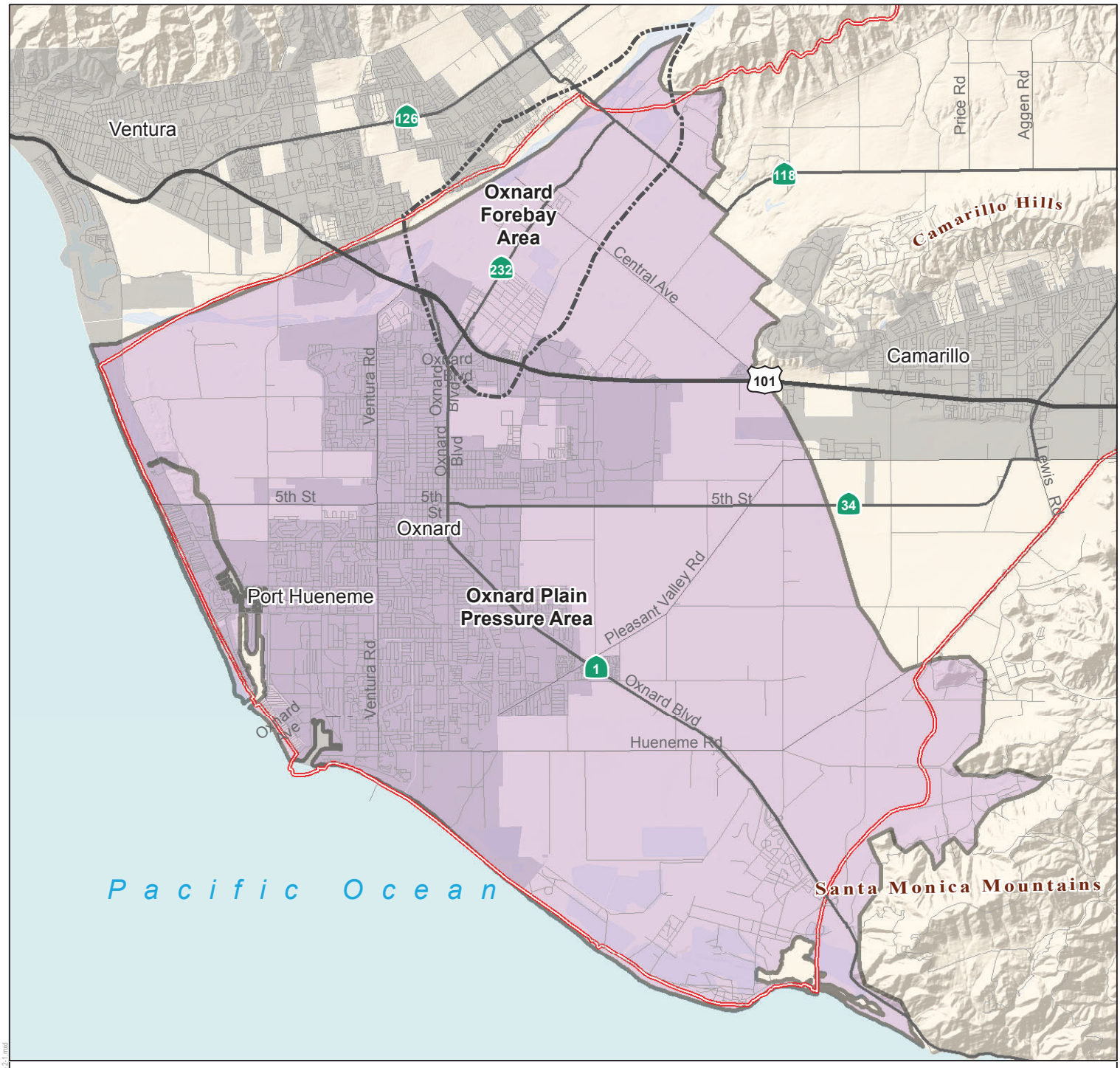
INTENTIONALLY LEFT BLANK

Table 2-15
Modeled 2040–2069 Groundwater Extraction Rates and Surface Water Deliveries for the Oxnard Subbasin

Model Scenario	Upper Aquifer System Groundwater Extractions (AFY)	Lower Aquifer System Groundwater Extractions (AFY)	Total Groundwater Extractions (AFY)
Future Baseline	39,000	29,000	68,000
Future Baseline With Projects	41,000	25,000	66,000
Reduction With Projects	27,000	13,000	40,000
Reduction Without Projects Scenario 1	27,000	12,000	39,000
Reduction Without Projects Scenario 2	18,000	12,000	30,000
Reduction Without Projects Scenario 3	18,000	12,000	30,000

Notes: AFY = acre-feet per year.

INTENTIONALLY LEFT BLANK



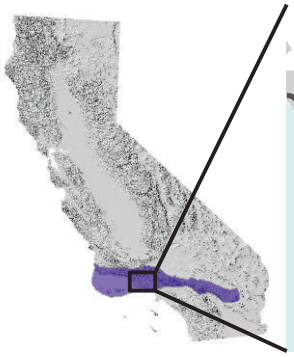
Legend

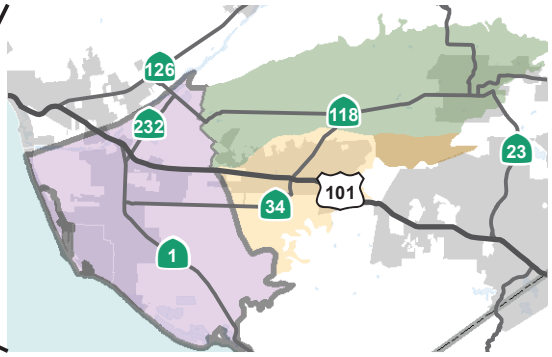
Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Historical FCGMA Forebay Area
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Transverse Ranges Geomorphic Province

N

0 1 2 3 4 5 Miles





DUDEK

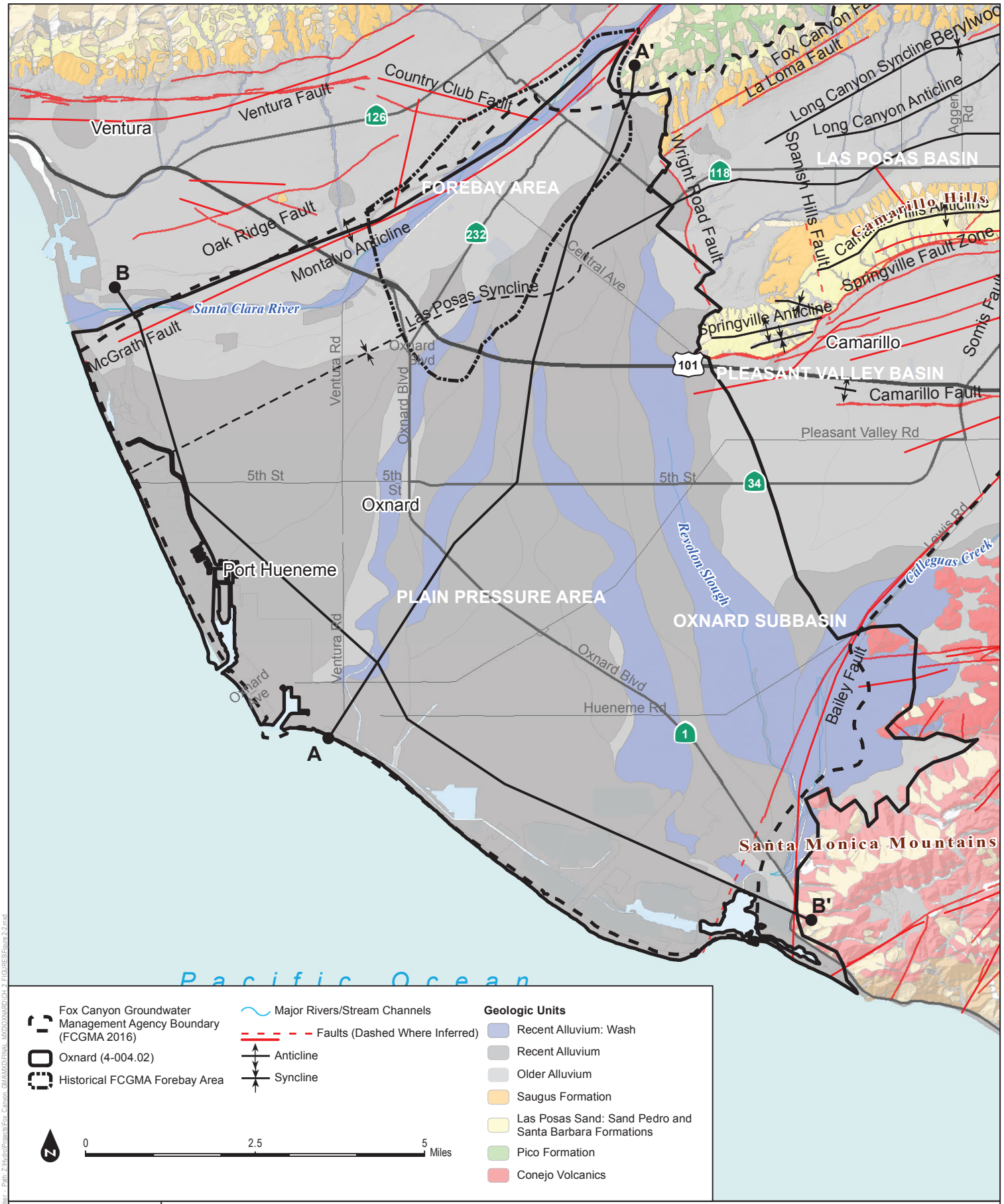
SOURCE: CGS 2002; DWR 2016; Cal-Atlas 2016; FCGMA 2016

FIGURE 2-1

Oxnard Subbasin Vicinity Map

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



DUDEK

SOURCE: DWR; FCGMA; surficial geology after California Geological Survey; folds after Dibblee 1992a and 1992b, Devecchio 2012a, Turner 1975; faults after DeVecchio et al. 2012a

FIGURE 2-2

Geology of the Oxnard Subbbasin

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

West

East

A

A′

Oxnard Pressure Plain Area

Forebay Area

Pacific Ocean

South Mountain

Hueneme Road

State Hwy. 1

E. Fifth Street

Hwy. 101

Central Ave.

Hwy. 118

ELEVATION IN FEET

400
200
0
-200
-400
-600
-800
-1000
-1200
-1400
-1600
-1800
-2000

0
10,000
20,000
30,000
40,000
50,000
60,000

Shallow ("Semi-perched") aquifer

Upper Aquifer System (Oxnard and Mugu Aquifer Zones)

Lower Aquifer System: Fox Canyon Aquifer Zone

Clay Marker Bed / Low Permeability Sediments

Lower Aquifer System (Upper San Pedro / Hueneme Aquifer Zone)

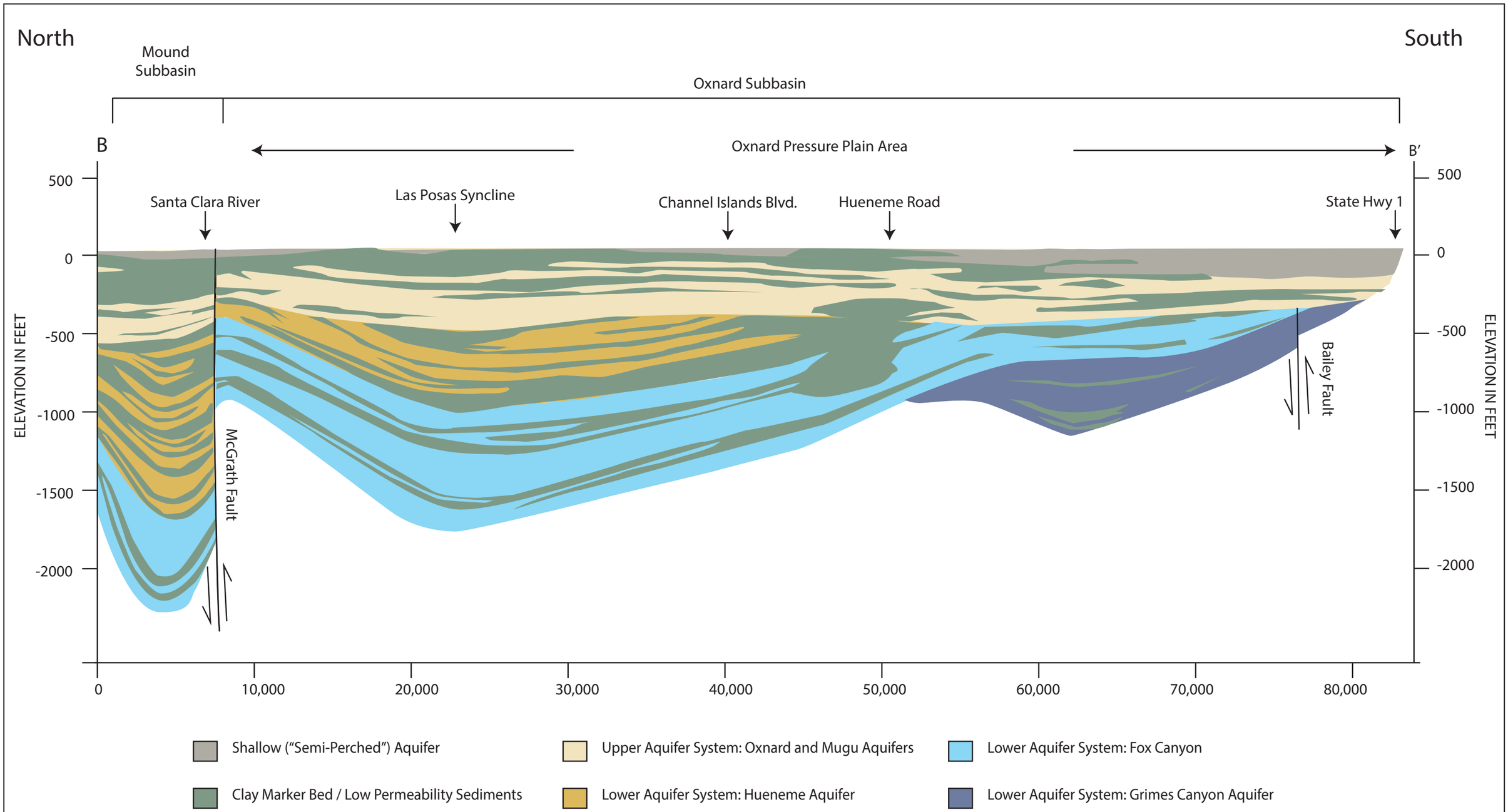
SOURCE: Turner 1975; Based on Plates 9A and 9B (Cross Section C-C').

DUDEK

FIGURE 2-3
Cross Section A-A'

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



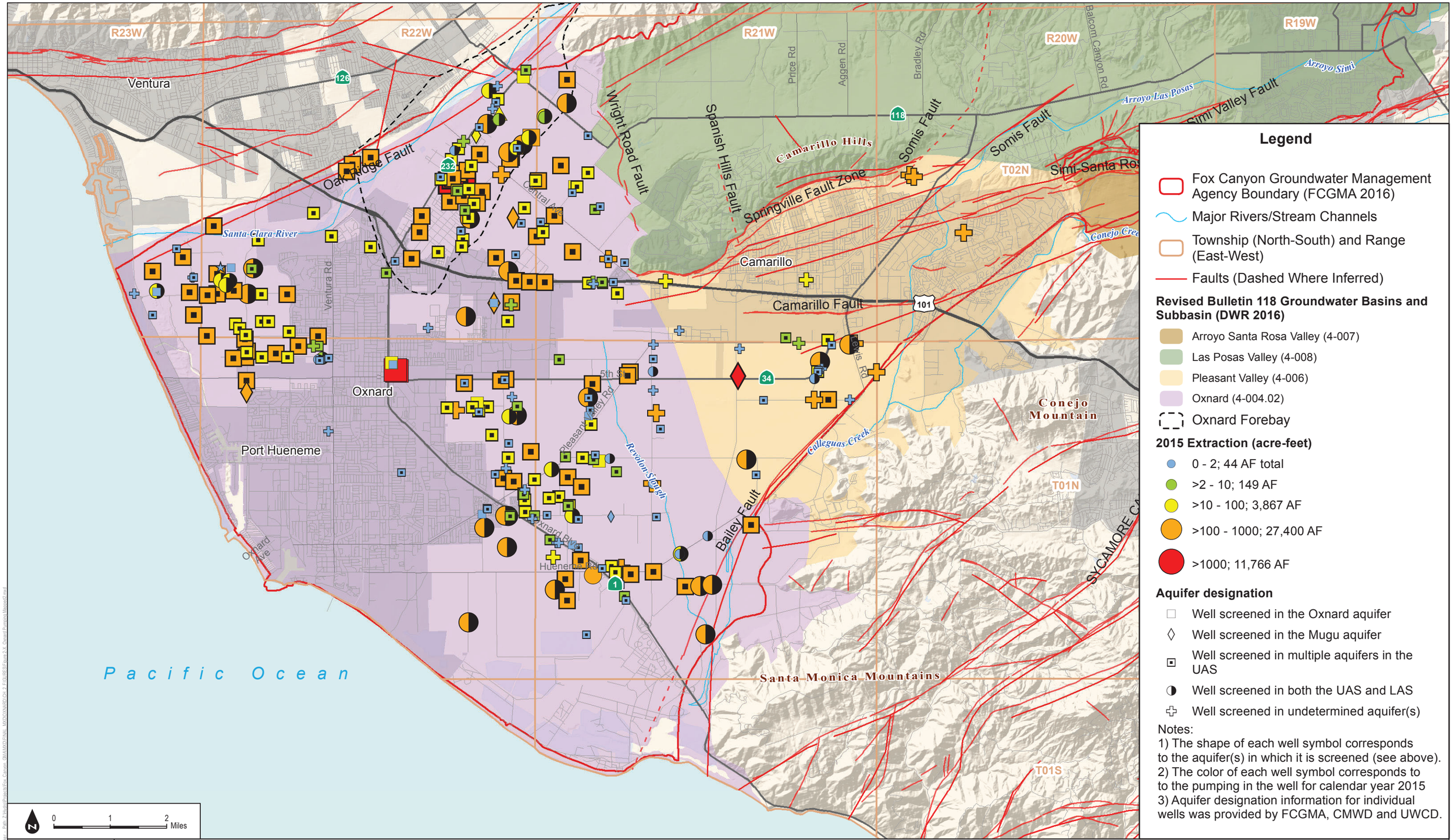
SOURCE: Turner 1975; Based on Plates 7A and 7B (Cross Section A-A').

DUDEK

FIGURE 2-4
Cross Section B-B'

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)
- Faults (Dashed Where Inferred)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

2015 Extraction (acre-feet)

- 0 - 2; 44 AF total
- >2 - 10; 149 AF
- >10 - 100; 3,867 AF
- >100 - 1000; 27,400 AF
- >1000; 11,766 AF

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Well screened in multiple aquifers in the UAS
- Well screened in both the UAS and LAS
- Well screened in undetermined aquifer(s)

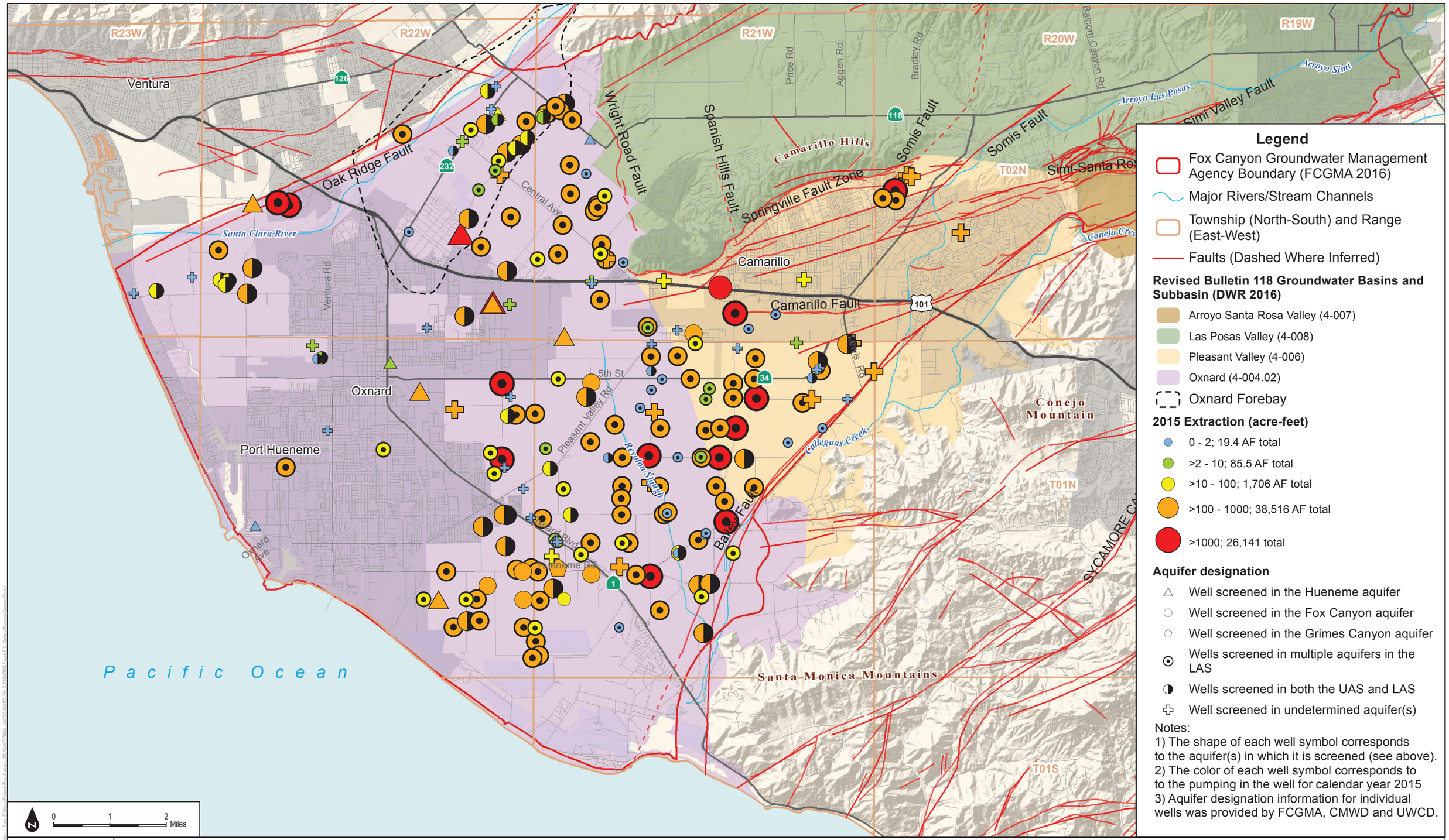
Notes:
1) The shape of each well symbol corresponds to the aquifer(s) in which it is screened (see above).
2) The color of each well symbol corresponds to to the pumping in the well for calendar year 2015
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-5

Upper Aquifer System 2015 Extraction (acre-feet) in Oxnard and Pleasant Valley

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)
- Faults (Dashed Where Inferred)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

2015 Extraction (acre-feet)

- 0 - 2; 19.4 AF total
- >2 - 10; 85.5 AF total
- >10 - 100; 1,706 AF total
- >100 - 1000; 38,516 AF total
- >1000; 26,141 total

Aquifer designation

- Well screened in the Hueneme aquifer
- Well screened in the Fox Canyon aquifer
- Well screened in the Grimes Canyon aquifer
- Wells screened in multiple aquifers in the LAS
- Wells screened in both the UAS and LAS
- Well screened in undetermined aquifer(s)

Notes:
1) The shape of each well symbol corresponds to the aquifer(s) in which it is screened (see above).
2) The color of each well symbol corresponds to to the pumping in the well for calendar year 2015
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

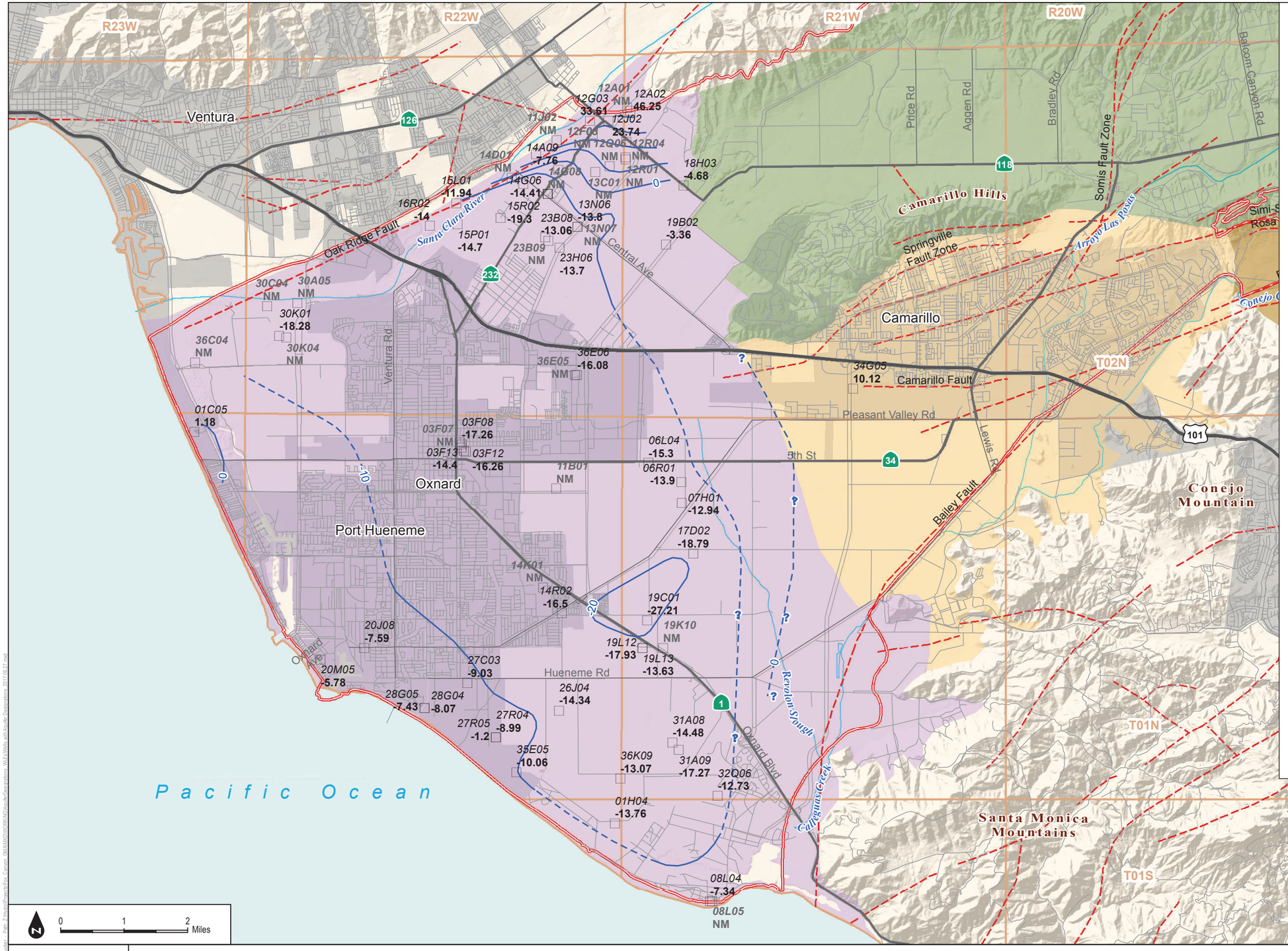
DUDEK

FIGURE 2-6

Lower Aquifer System 2015 Extraction (acre-feet) in Oxnard and Pleasant Valley

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- Well screened in the Oxnard aquifer
- 15P01 Abbreviated State Well Number (see notes)
- -14.7 Groundwater elevation feet AMSL
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (Ventura County 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) "NM" indicates no water level measurement was collected within the specified time window.
3) Groundwater elevations not used to create contours are shown in parentheses.
4) All elevation values are in feet above mean sea level (ft AMSL).
5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

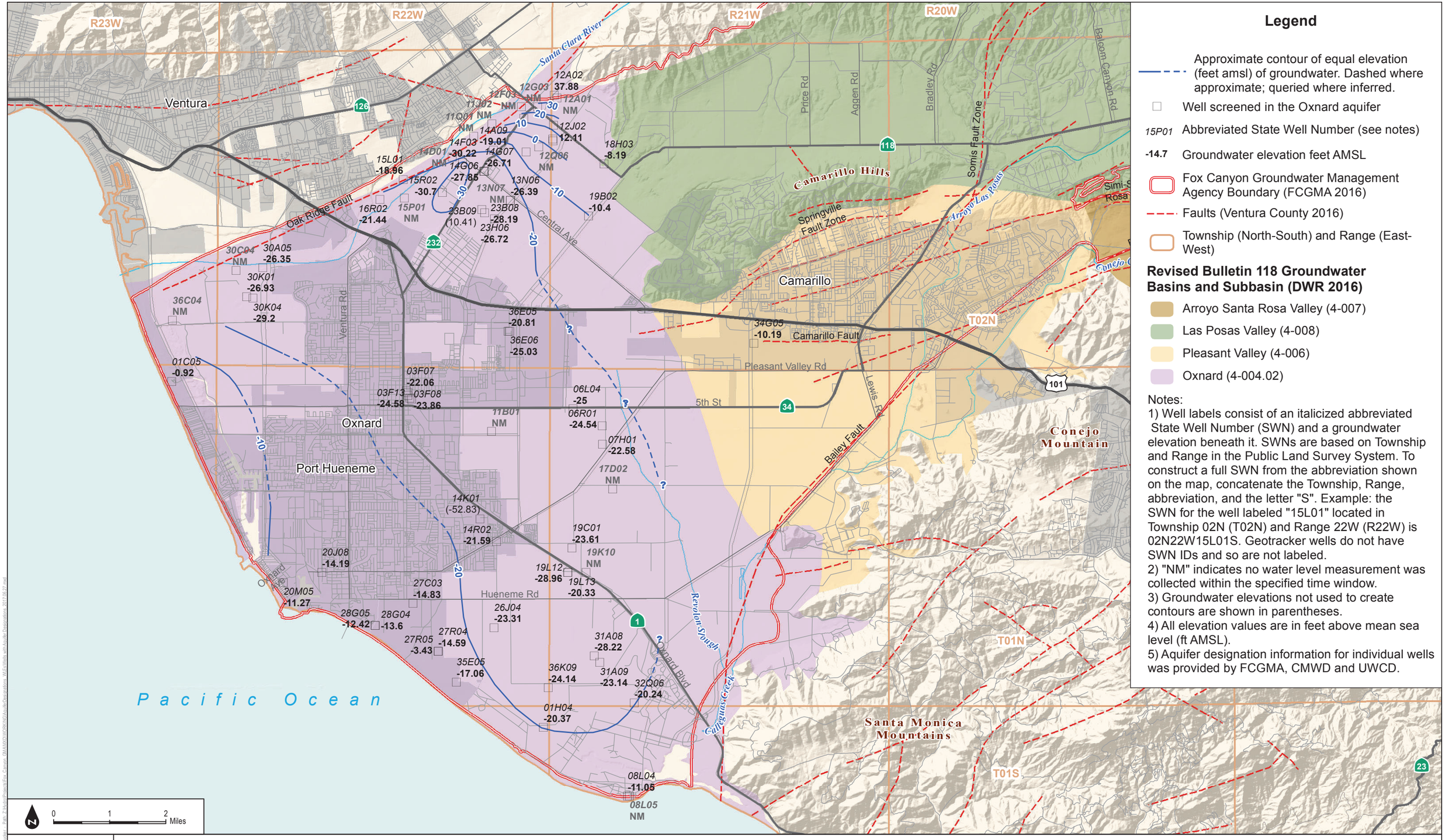
SOURCE: DWR; Ventura County; UWCD; CMWD

FIGURE 2-7

Groundwater Elevation Contours in the Oxnard Aquifer, March 2-29, 2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- Well screened in the Oxnard aquifer
- *15P01* Abbreviated State Well Number (see notes)
- -14.7 Groundwater elevation feet AMSL
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (Ventura County 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) "NM" indicates no water level measurement was collected within the specified time window.
3) Groundwater elevations not used to create contours are shown in parentheses.
4) All elevation values are in feet above mean sea level (ft AMSL).
5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

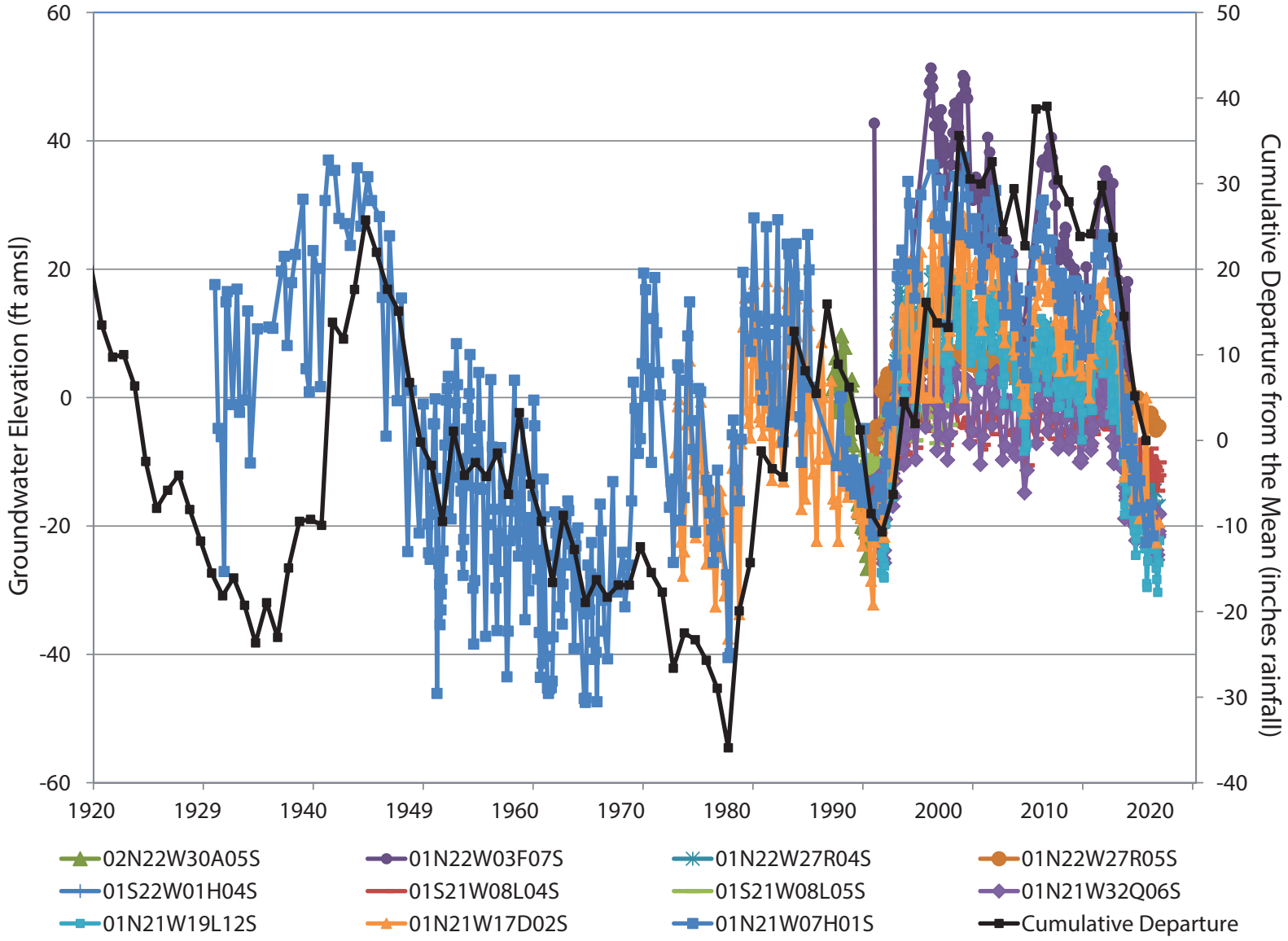
SOURCE: DWR; Ventura County; UWCD; CMWD

FIGURE 2-8

Groundwater Elevation Contours in the Oxnard Aquifer, October 2-29, 2015

DUDEK

INTENTIONALLY LEFT BLANK

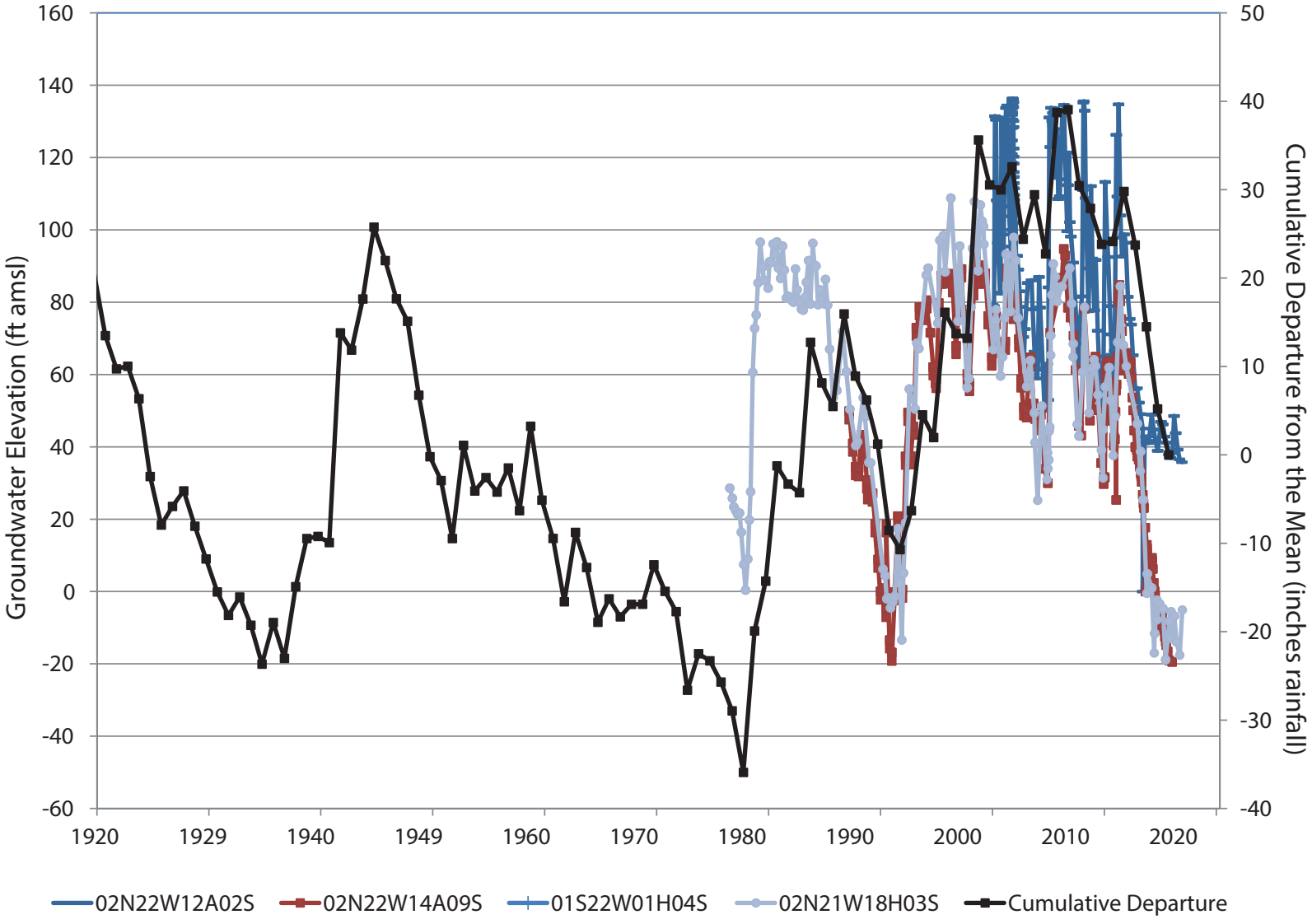


DUDEK

FIGURE 2-9A

Groundwater Well Hydrographs in the Oxnard Aquifer - Oxnard Plain

INTENTIONALLY LEFT BLANK

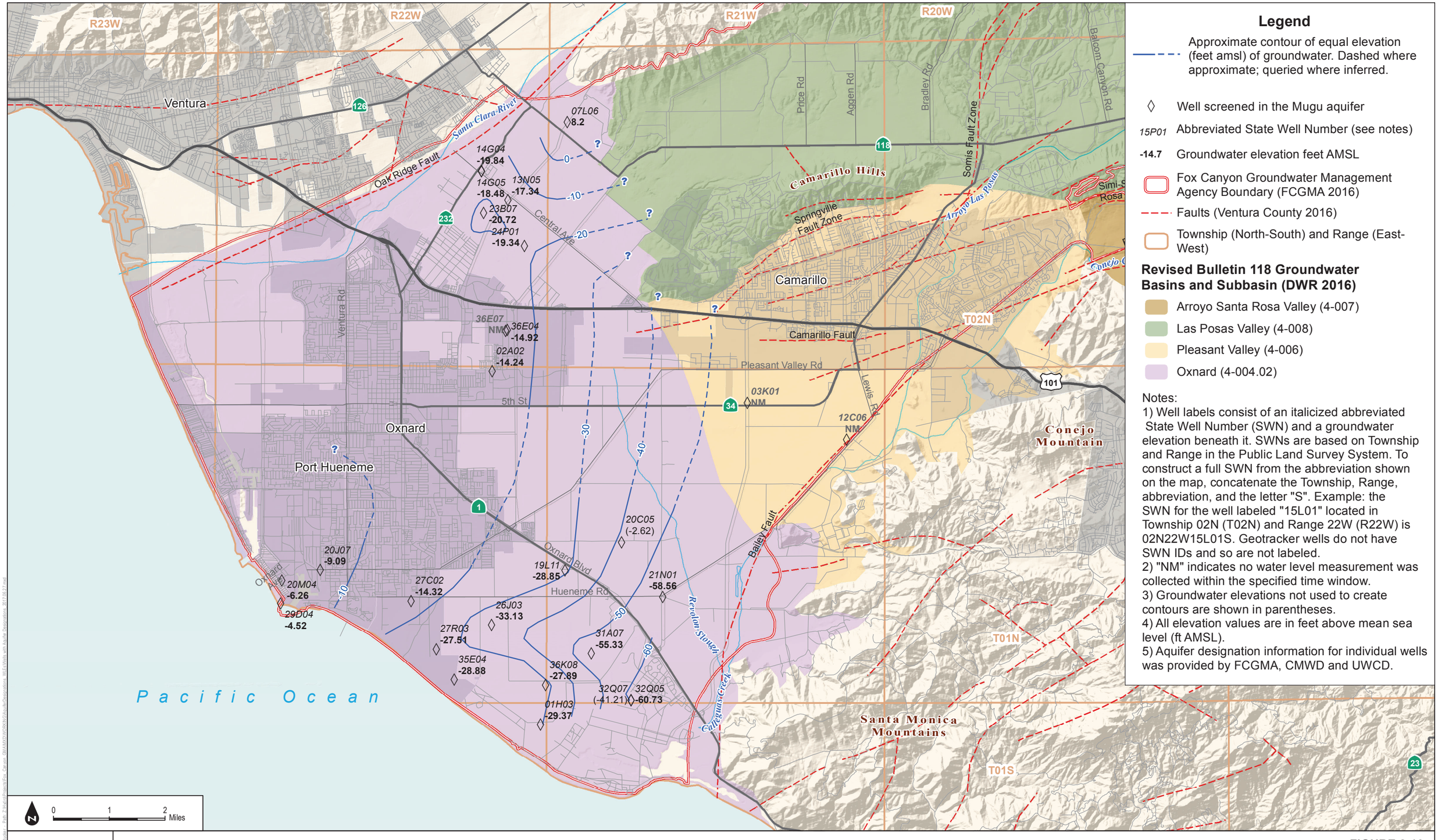


DUDEK

FIGURE 2-9B

Groundwater Well Hydrographs in the Oxnard Aquifer - Forebay Area

INTENTIONALLY LEFT BLANK



Legend

Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.

◊ Well screened in the Mugu aquifer

15P01 Abbreviated State Well Number (see notes)

-14.7 Groundwater elevation feet AMSL

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (Ventura County 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.

2) "NM" indicates no water level measurement was collected within the specified time window.

3) Groundwater elevations not used to create contours are shown in parentheses.

4) All elevation values are in feet above mean sea level (ft AMSL).

5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; Ventura County; UWCD; CMWD

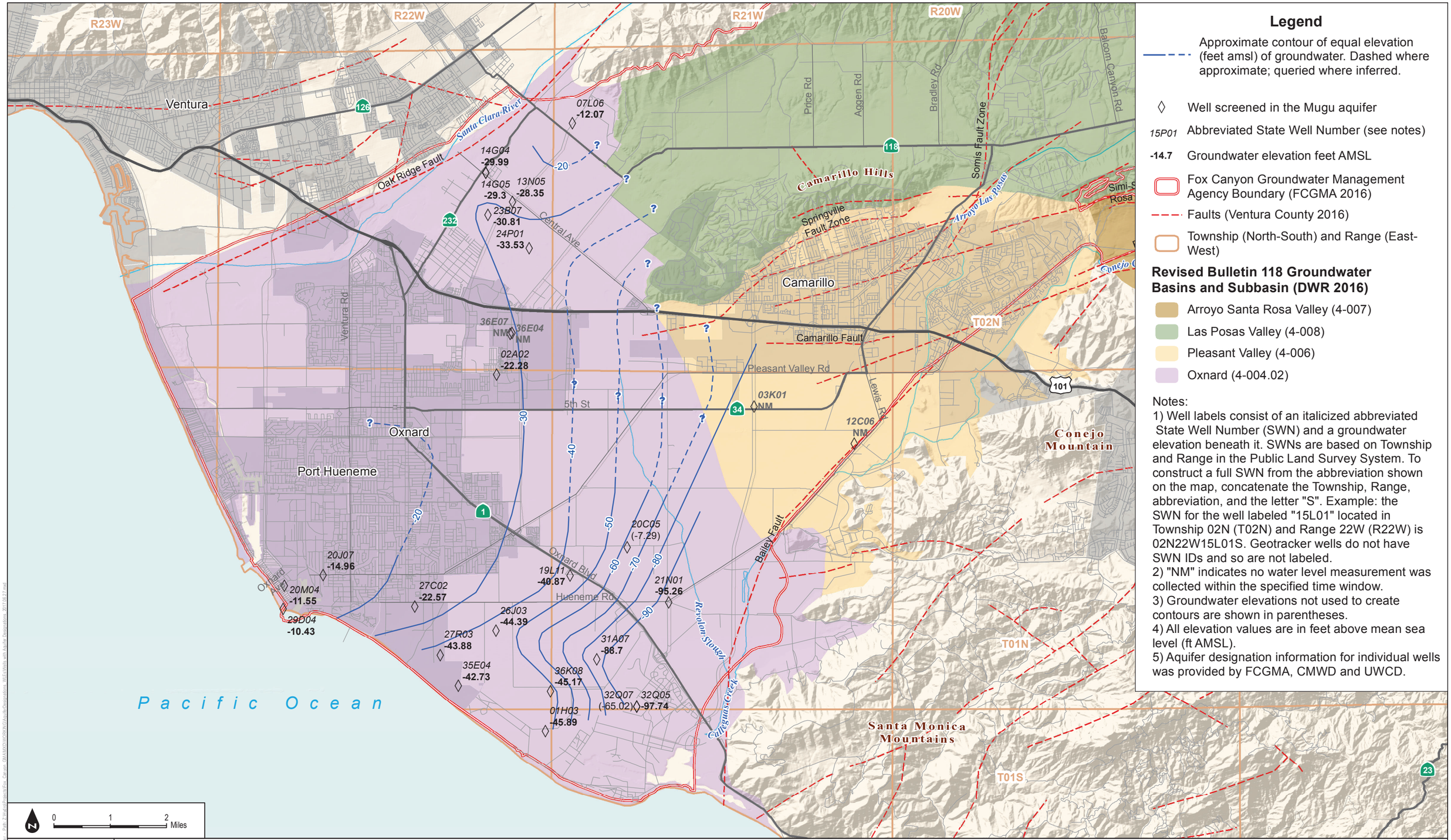
FIGURE 2-10

Groundwater Elevation Contours in the Mugu Aquifer, March 2-29, 2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.

◊ Well screened in the Mugu aquifer

15P01 Abbreviated State Well Number (see notes)

-14.7 Groundwater elevation feet AMSL

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (Ventura County 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.

2) "NM" indicates no water level measurement was collected within the specified time window.

3) Groundwater elevations not used to create contours are shown in parentheses.

4) All elevation values are in feet above mean sea level (ft AMSL).

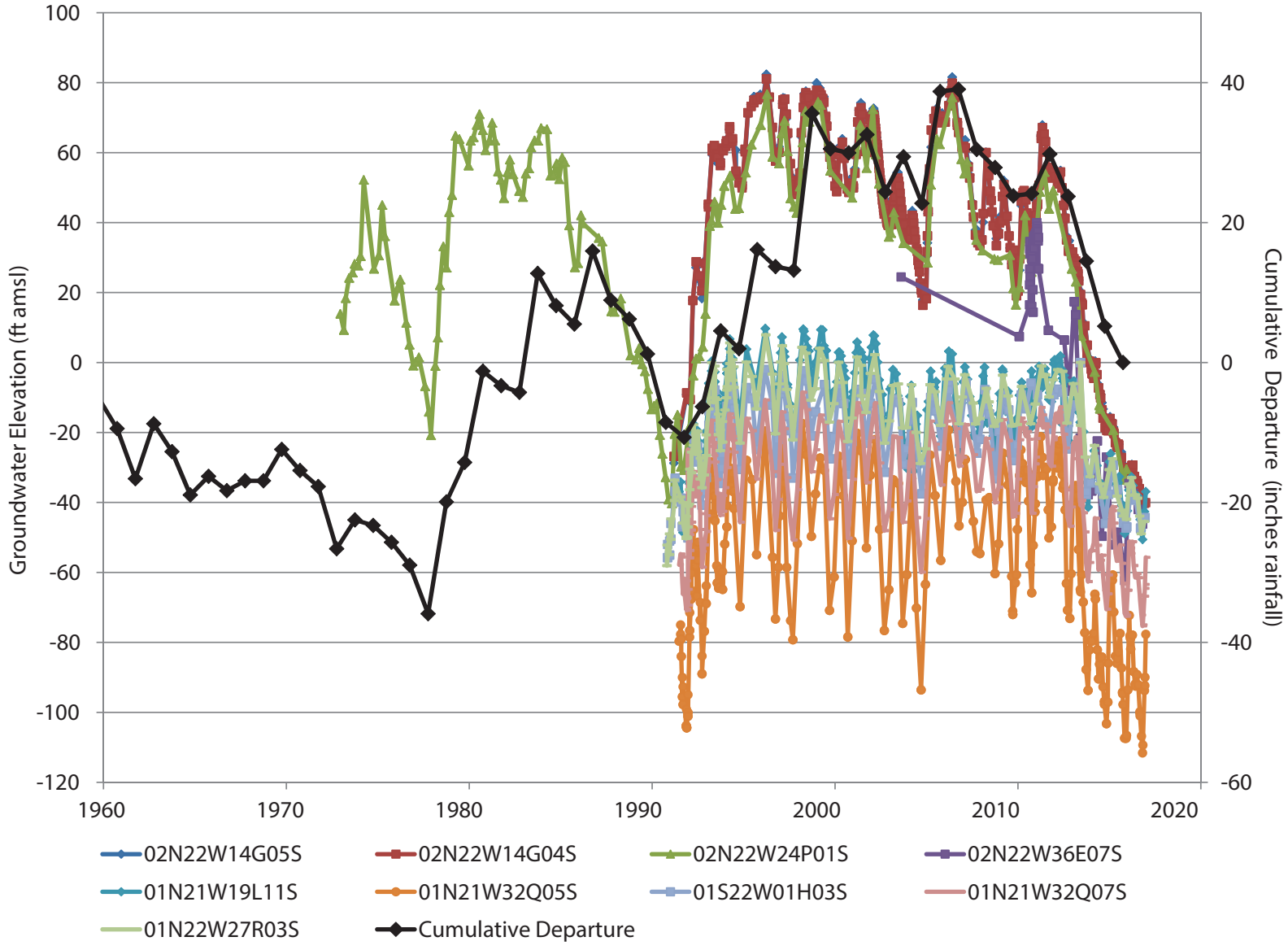
5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; Ventura County; UWCD; CMWD

FIGURE 2-11

Groundwater Elevation Contours in the Mugu Aquifer, October 2-29, 2015

INTENTIONALLY LEFT BLANK

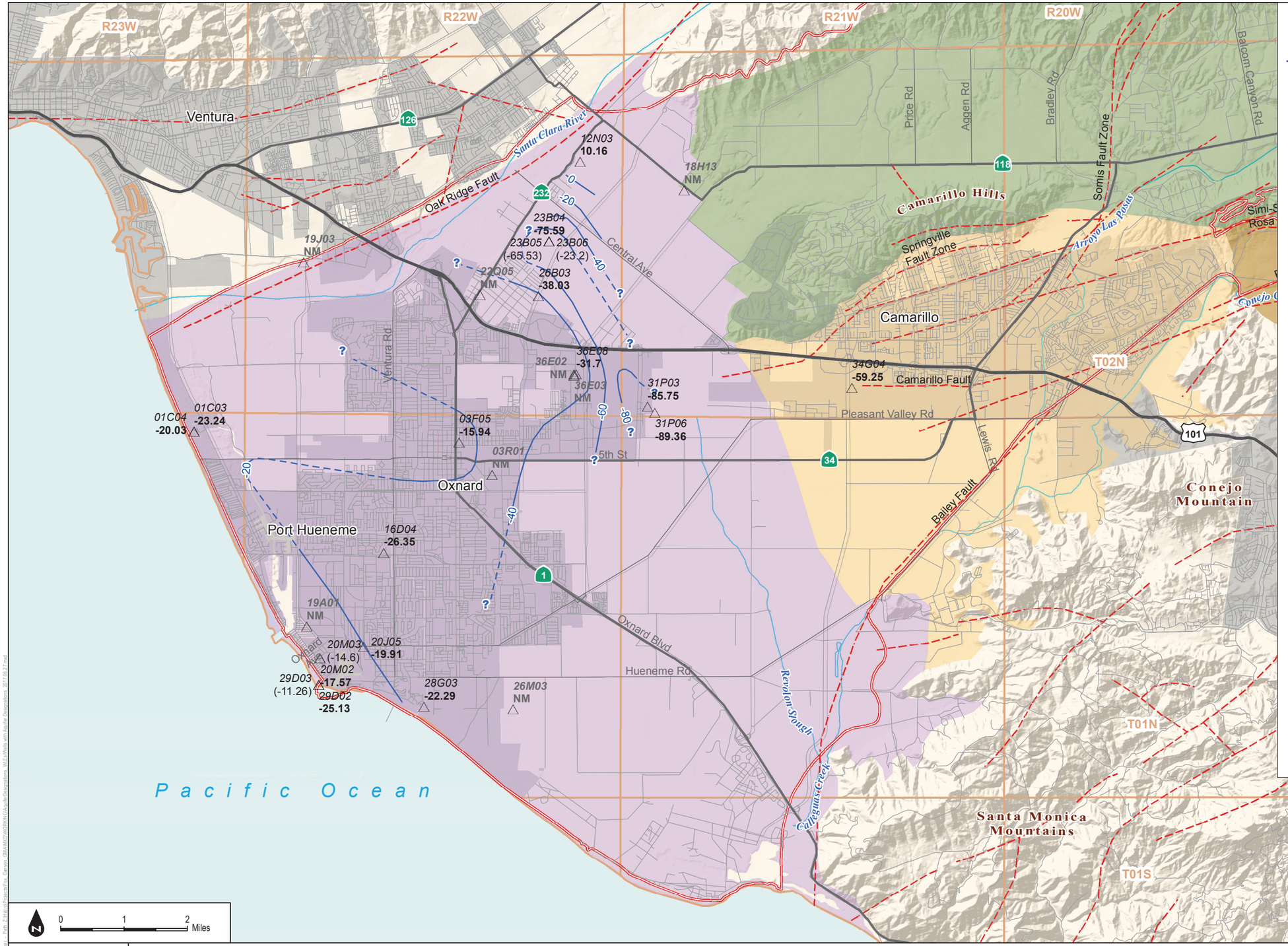


DUDEK

FIGURE 2-12

Groundwater Well Hydrographs in the Mugu Aquifer

INTENTIONALLY LEFT BLANK



Legend

- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- △ Well screened in the Hueneme aquifer
- *15P01* Abbreviated State Well Number (see notes)
- **-14.7** Groundwater elevation feet AMSL
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (Ventura County 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.

2) "NM" indicates no water level measurement was collected within the specified time window.

3) Groundwater elevations not used to create contours are shown in parentheses.

4) All elevation values are in feet above mean sea level (ft AMSL).

5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

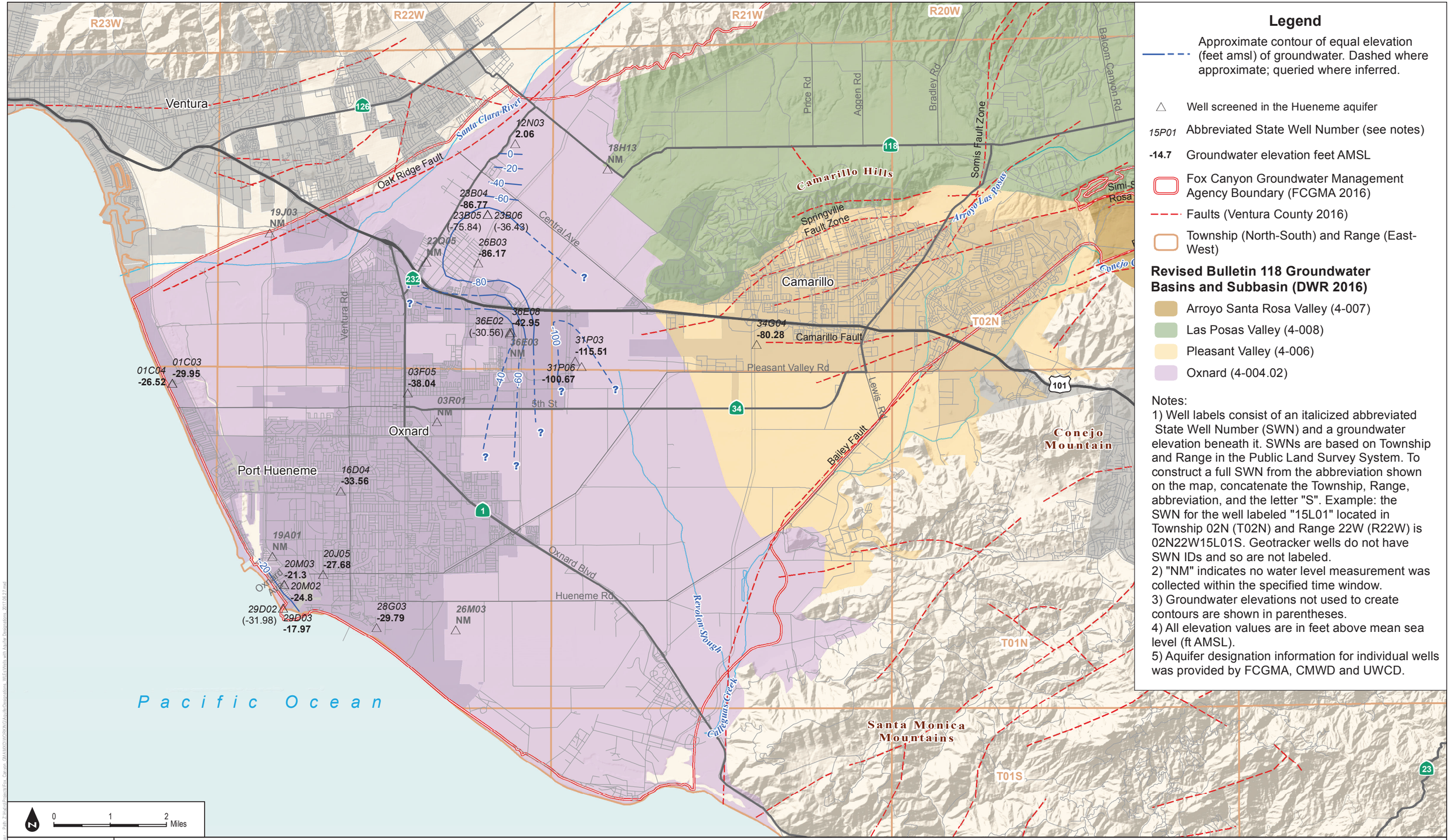
SOURCE: DWR; Ventura County; UWCD; CMWD

FIGURE 2-13

Groundwater Elevation Contours in the Hueneme Aquifer, March 2-29, 2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.

△ Well screened in the Hueneme aquifer

15P01 Abbreviated State Well Number (see notes)

-14.7 Groundwater elevation feet AMSL

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (Ventura County 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.

2) "NM" indicates no water level measurement was collected within the specified time window.

3) Groundwater elevations not used to create contours are shown in parentheses.

4) All elevation values are in feet above mean sea level (ft AMSL).

5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; Ventura County; UWCD; CMWD

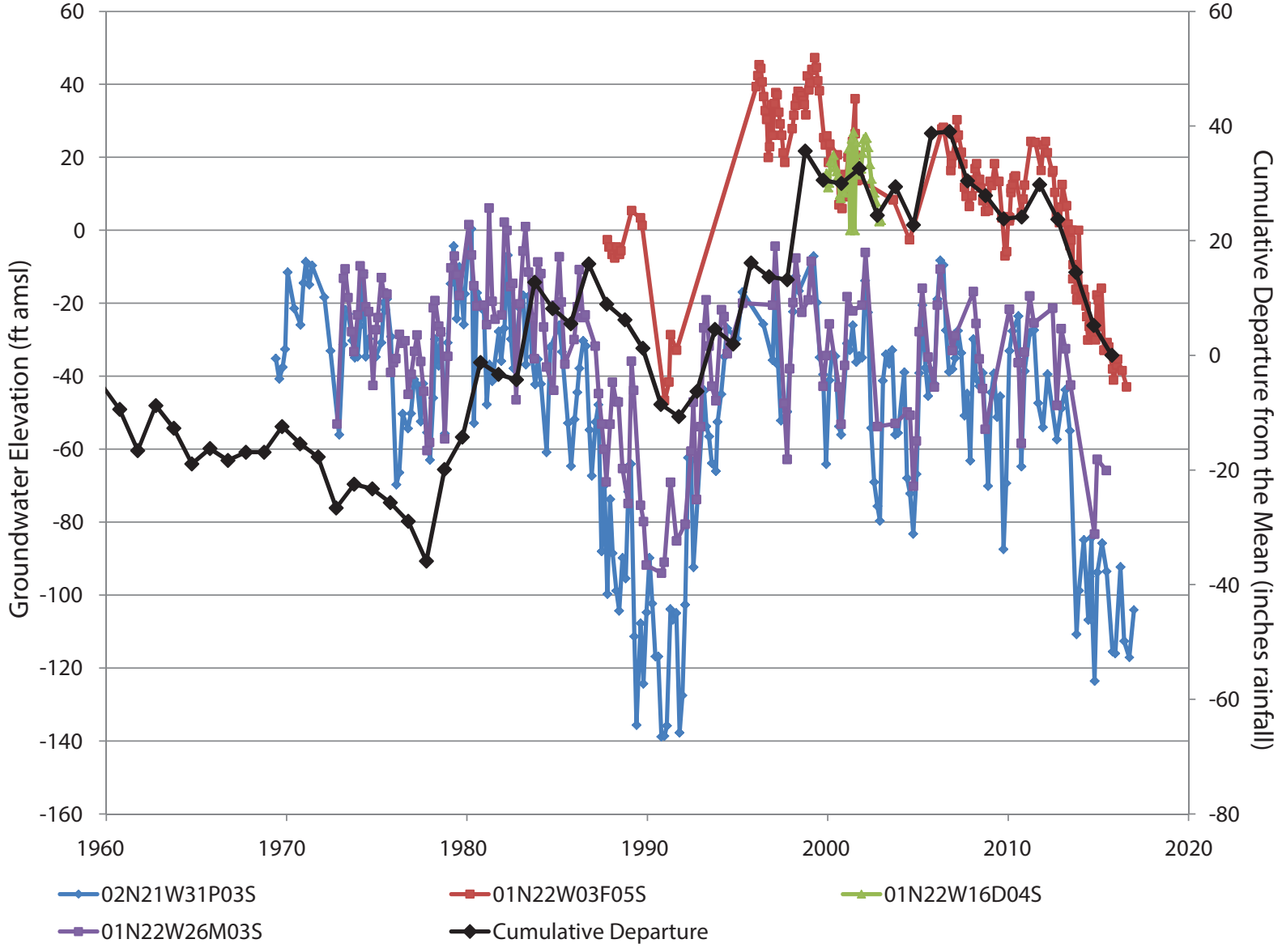
FIGURE 2-14

Groundwater Elevation Contours in the Hueneme Aquifer, October 2-29, 2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

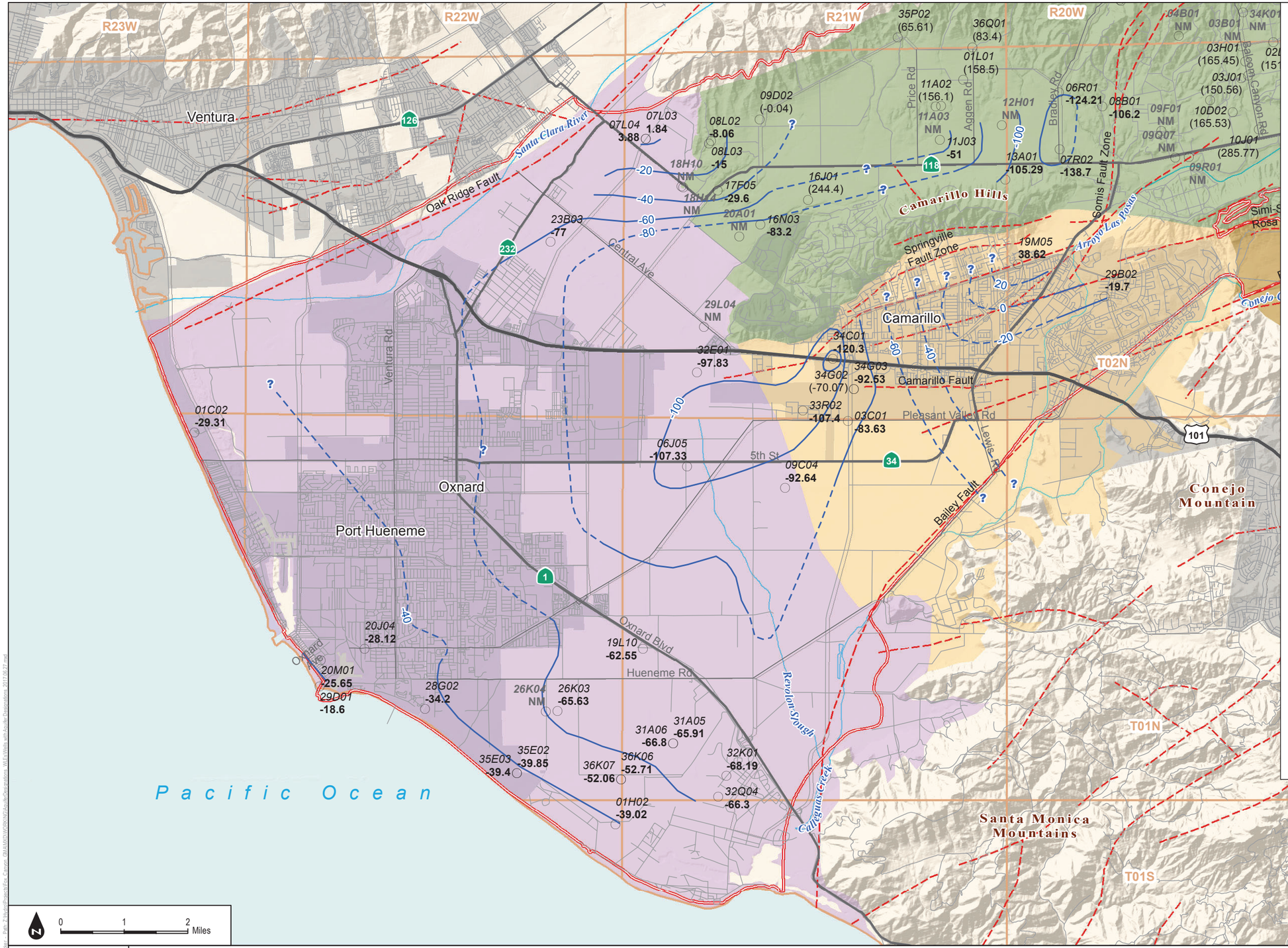


DUDEK

FIGURE 2-15

Groundwater Well Hydrographs in the Hueneme Aquifer

INTENTIONALLY LEFT BLANK



Legend

- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- Well screened in the Fox Canyon aquifer
- 15P01 Abbreviated State Well Number (see notes)
- -14.7 Groundwater elevation feet AMSL
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (Ventura County 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

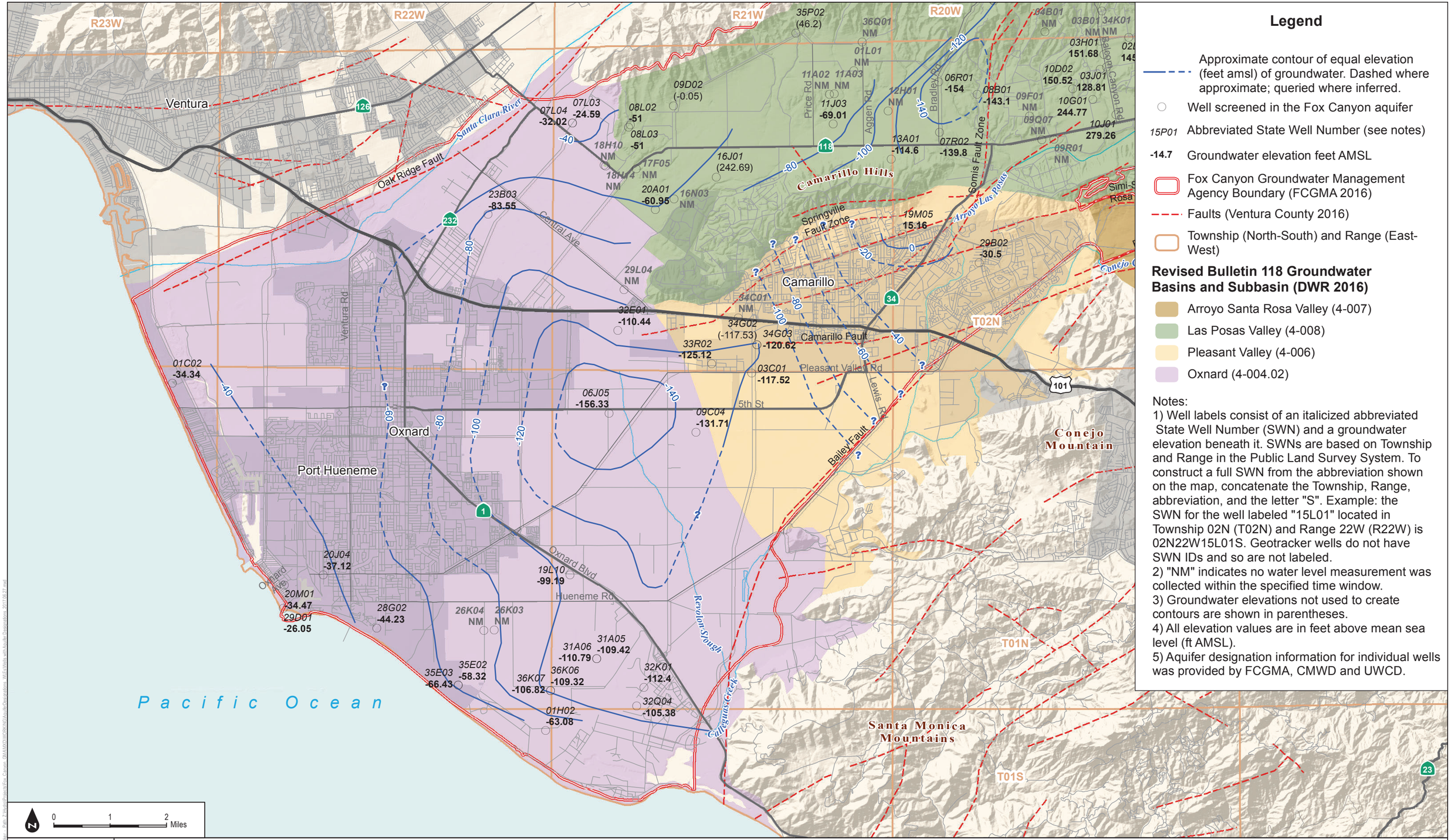
Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) "NM" indicates no water level measurement was collected within the specified time window.
3) Groundwater elevations not used to create contours are shown in parentheses.
4) All elevation values are in feet above mean sea level (ft AMSL).
5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; Ventura County; UWCD; CMWD

FIGURE 2-16

Groundwater Elevation Contours in the Fox Canyon Aquifer, March 2-29, 2015

INTENTIONALLY LEFT BLANK



Legend

- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- Well screened in the Fox Canyon aquifer
- 15P01 Abbreviated State Well Number (see notes)
- -14.7 Groundwater elevation feet AMSL
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (Ventura County 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

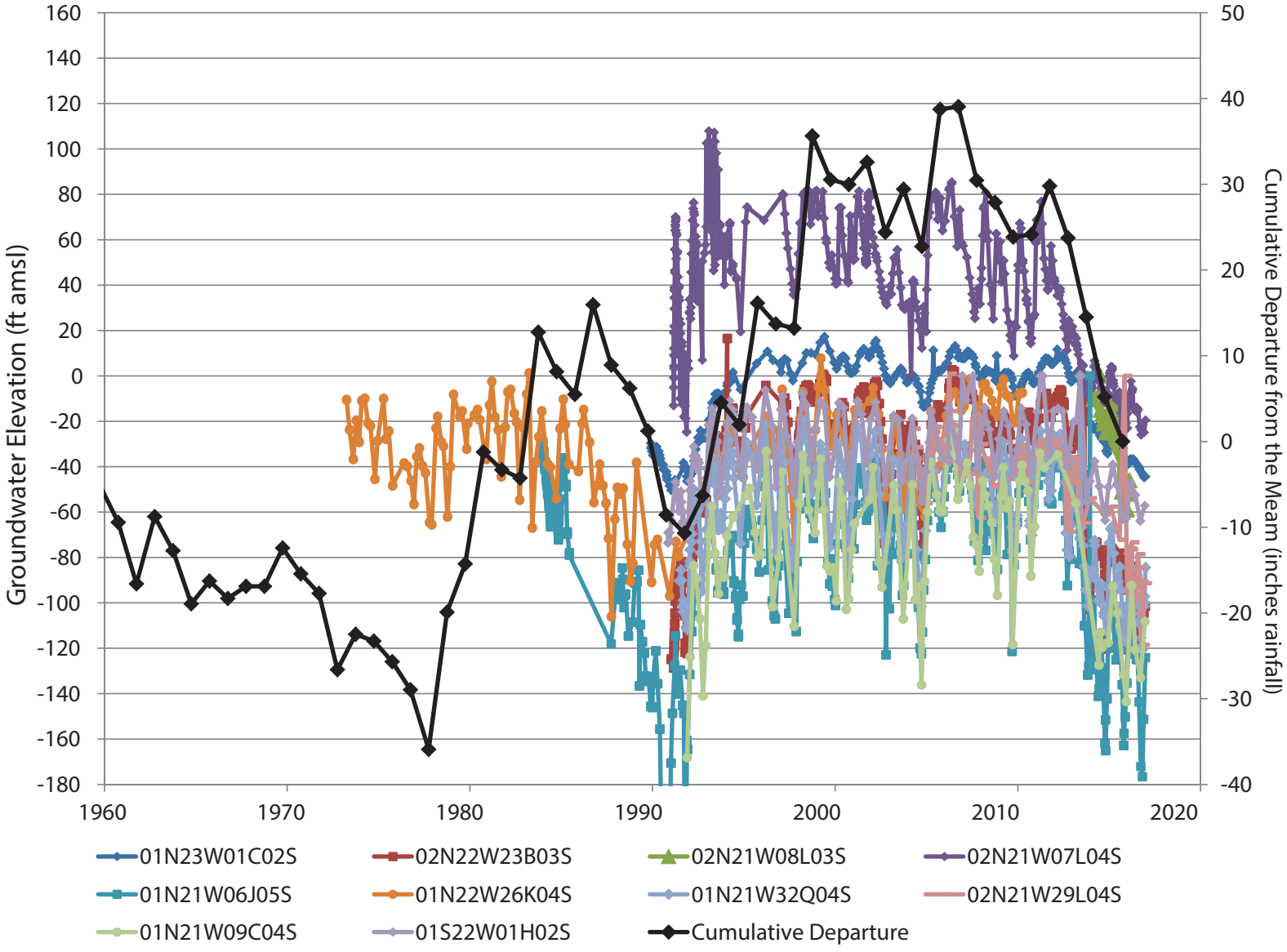
Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) "NM" indicates no water level measurement was collected within the specified time window.
3) Groundwater elevations not used to create contours are shown in parentheses.
4) All elevation values are in feet above mean sea level (ft AMSL).
5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; Ventura County; UWCD; CMWD

FIGURE 2-17

Groundwater Elevation Contours in the Fox Canyon Aquifer, October 2-29, 2015

INTENTIONALLY LEFT BLANK

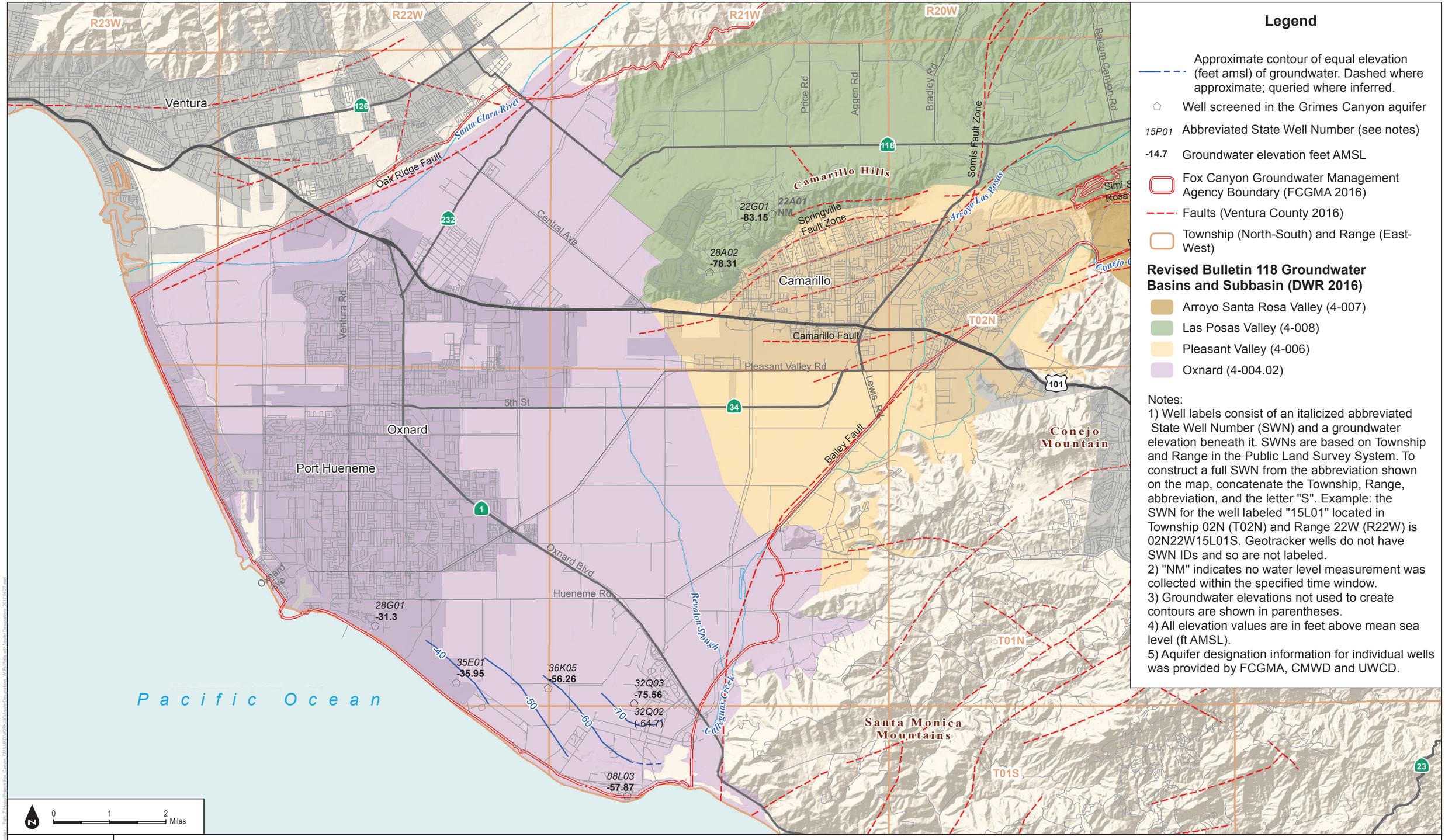


DUDEK

FIGURE 2-18

Groundwater Well Hydrographs in the Fox Canyon Aquifer

INTENTIONALLY LEFT BLANK



Legend

- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- Well screened in the Grimes Canyon aquifer
- *15P01* Abbreviated State Well Number (see notes)
- **-14.7** Groundwater elevation feet AMSL
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (Ventura County 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.

2) "NM" indicates no water level measurement was collected within the specified time window.

3) Groundwater elevations not used to create contours are shown in parentheses.

4) All elevation values are in feet above mean sea level (ft AMSL).

5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

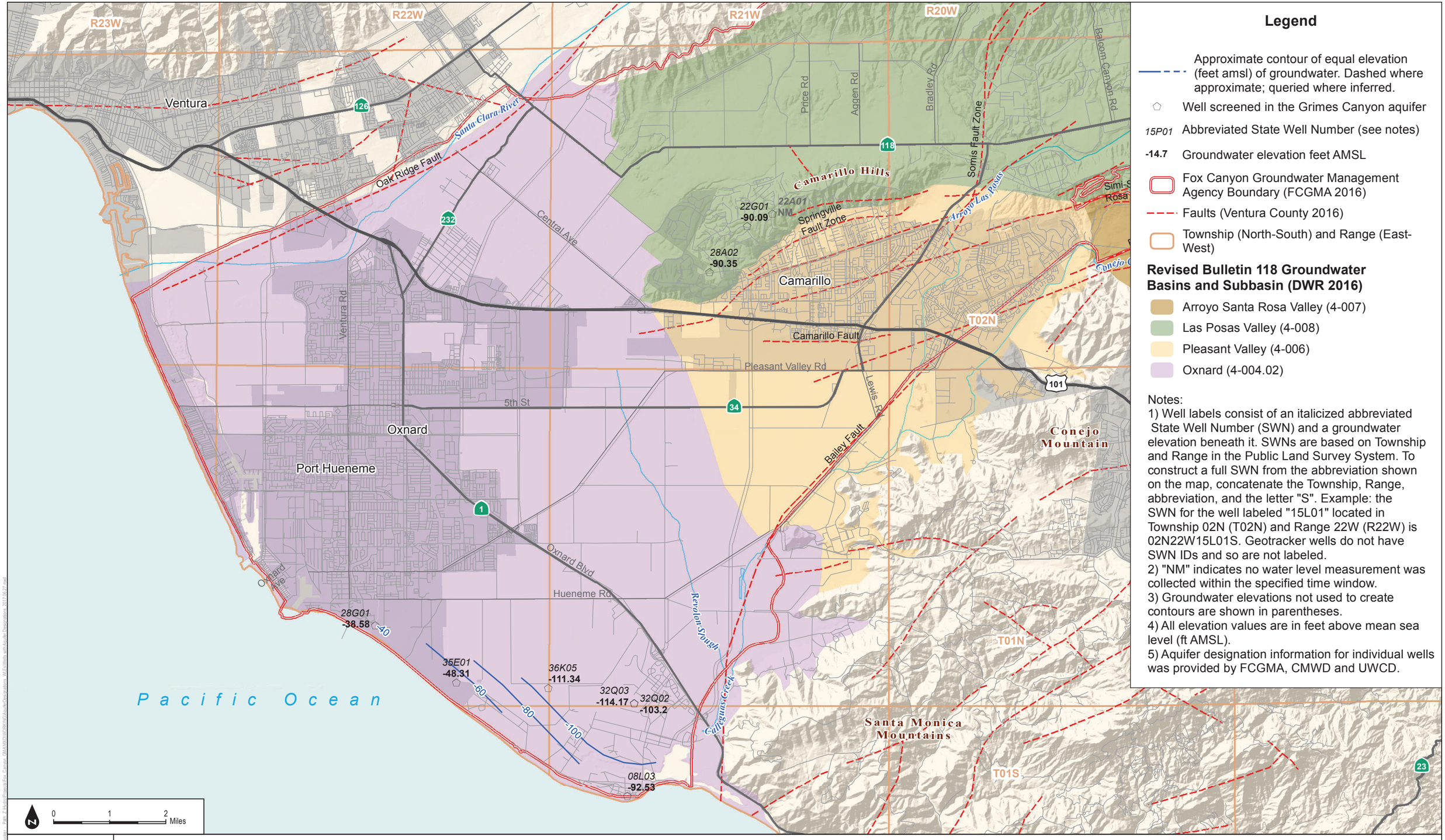
SOURCE: DWR; Ventura County; UWCD; CMWD

FIGURE 2-19

Groundwater Elevation Contours in the Grimes Canyon Aquifer, March 2-29, 2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- Well screened in the Grimes Canyon aquifer
- *15P01* Abbreviated State Well Number (see notes)
- **-14.7** Groundwater elevation feet AMSL
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (Ventura County 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) "NM" indicates no water level measurement was collected within the specified time window.
3) Groundwater elevations not used to create contours are shown in parentheses.
4) All elevation values are in feet above mean sea level (ft AMSL).
5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

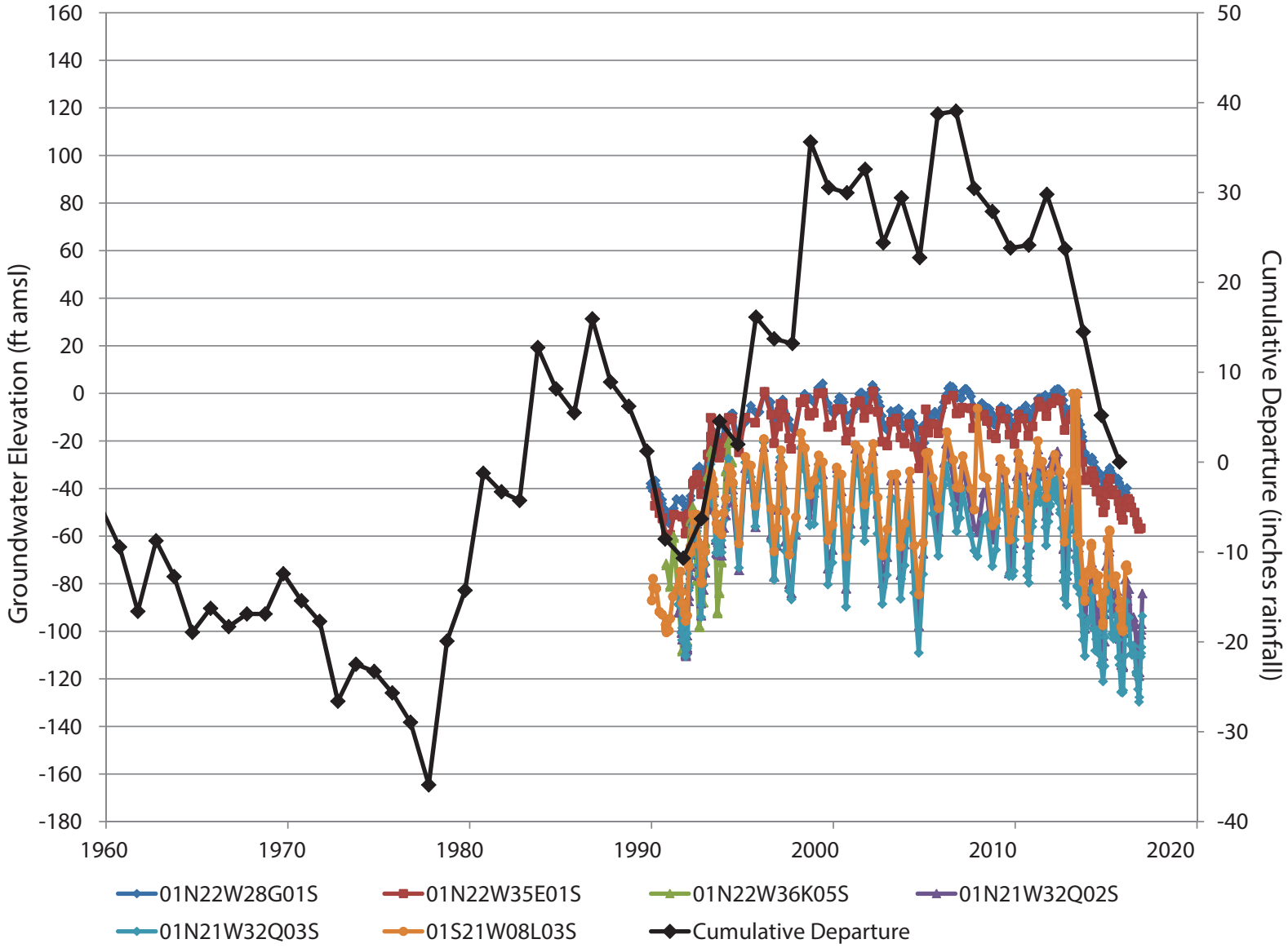
SOURCE: DWR; Ventura County; UWCD; CMWD

FIGURE 2-20

Groundwater Elevation Contours in the Grimes Canyon Aquifer, October 2-29, 2015

DUDEK

INTENTIONALLY LEFT BLANK

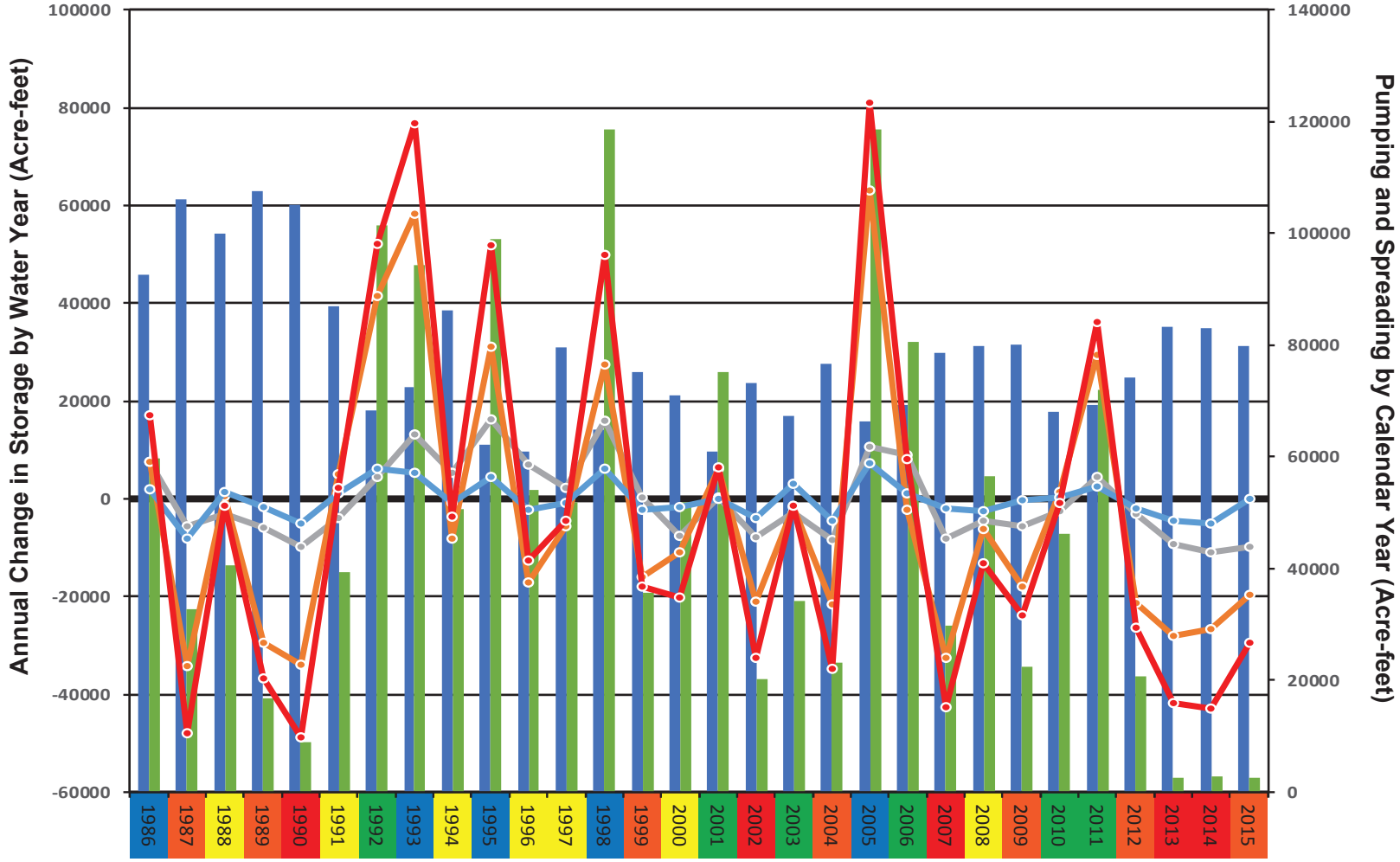


DUDEK

FIGURE 2-21

Groundwater Well Hydrographs in the Grimes Canyon Aquifer

INTENTIONALLY LEFT BLANK



Notes:

1) Estimated Annual Change in Storage is from the United Water Conservation District (UWCD) numerical groundwater model report from July 2018. Estimated Change in Storage is the sum of the Change in Storage from all aquifers in the basin included in the UWCD numerical groundwater model.

2) Water year is October 1 to September 30 (e.g., water year 2012 is from October 1, 2011, to September 30, 2012)

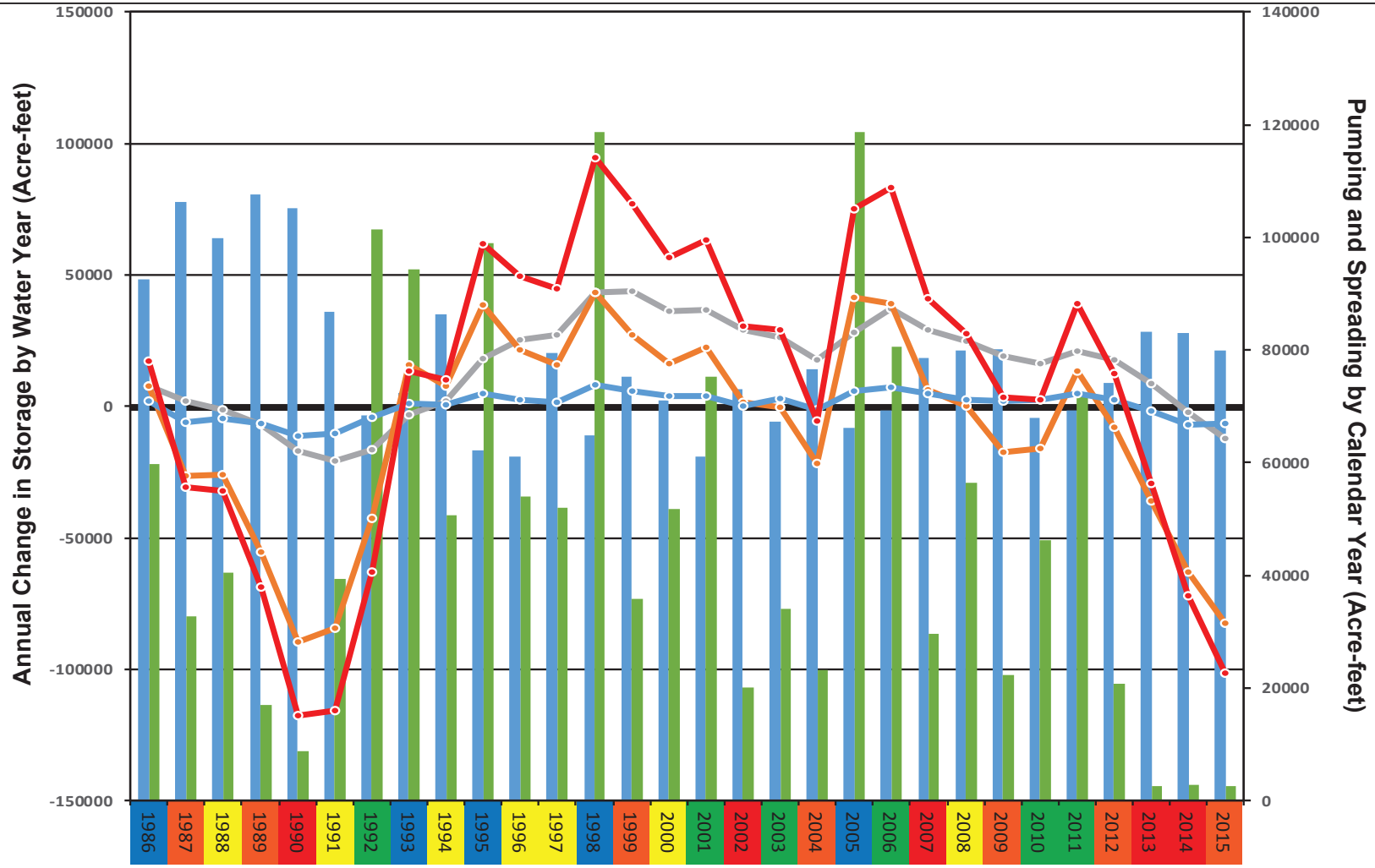
3) Water year type is based on the percentage of the water year precipitation compared to the 30-year precipitation average. Types are defined as Wet (≥150% of average), Above Normal (≥100% to <150% of average), Below Normal (≥75% to <100% of average), Dry (≥50% to <75% of average), and Critical (<50% of average).

DUDEK

FIGURE 2-22

Oxnard Subbasin Annual Change in Storage

INTENTIONALLY LEFT BLANK



Notes:

1) Estimated Annual Change in Storage is from the United Water Conservation District (UWCD) numerical groundwater model report from July 2018. Estimated Change in Storage is the sum of the Change in Storage from all aquifers in the basin included in the UWCD numerical groundwater model.

2) Water year is October 1 to September 30 (e.g., water year 2012 is from October 1, 2011, to September 30, 2012)

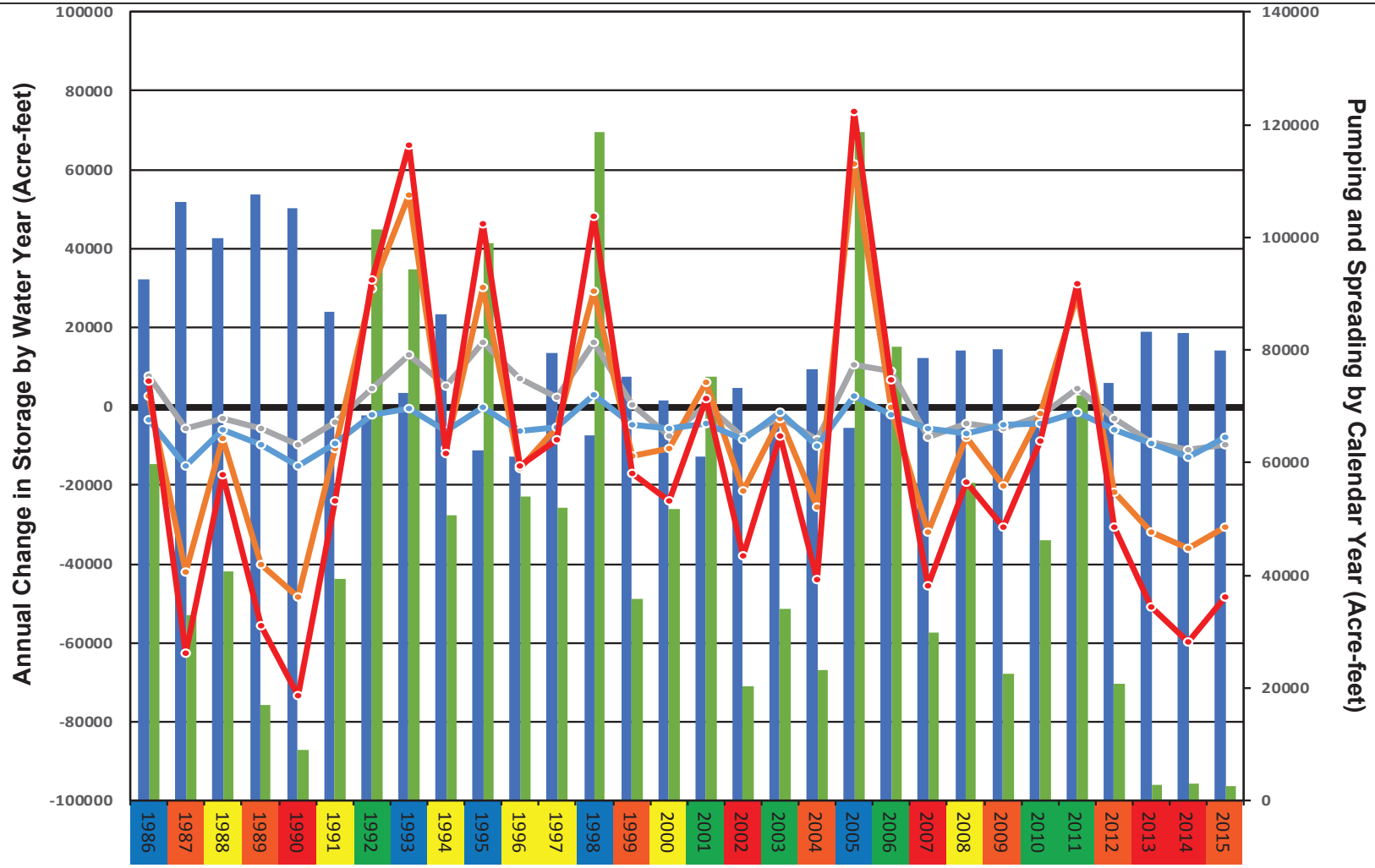
3) Water year type is based on the percentage of the water year precipitation compared to the 30-year precipitation average. Types are defined as Wet (≥150% of average), Above Normal (≥100% to <150% of average), Below Normal (≥75% to <100% of average), Dry (≥50% to <75% of average), and Critical (<50% of average).

DUDEK

FIGURE 2-23

Oxnard Subbasin Cumulative Change in Storage

INTENTIONALLY LEFT BLANK



Notes:

1) Estimated Annual Change in Storage is from the United Water Conservation District (UWCD) numerical groundwater model report from July 2018. Estimated Change in Storage is the sum of the Change in Storage from all aquifers in the basin included in the UWCD numerical groundwater model.

2) Water year is October 1 to September 30 (e.g., water year 2012 is from October 1, 2011, to September 30, 2012)

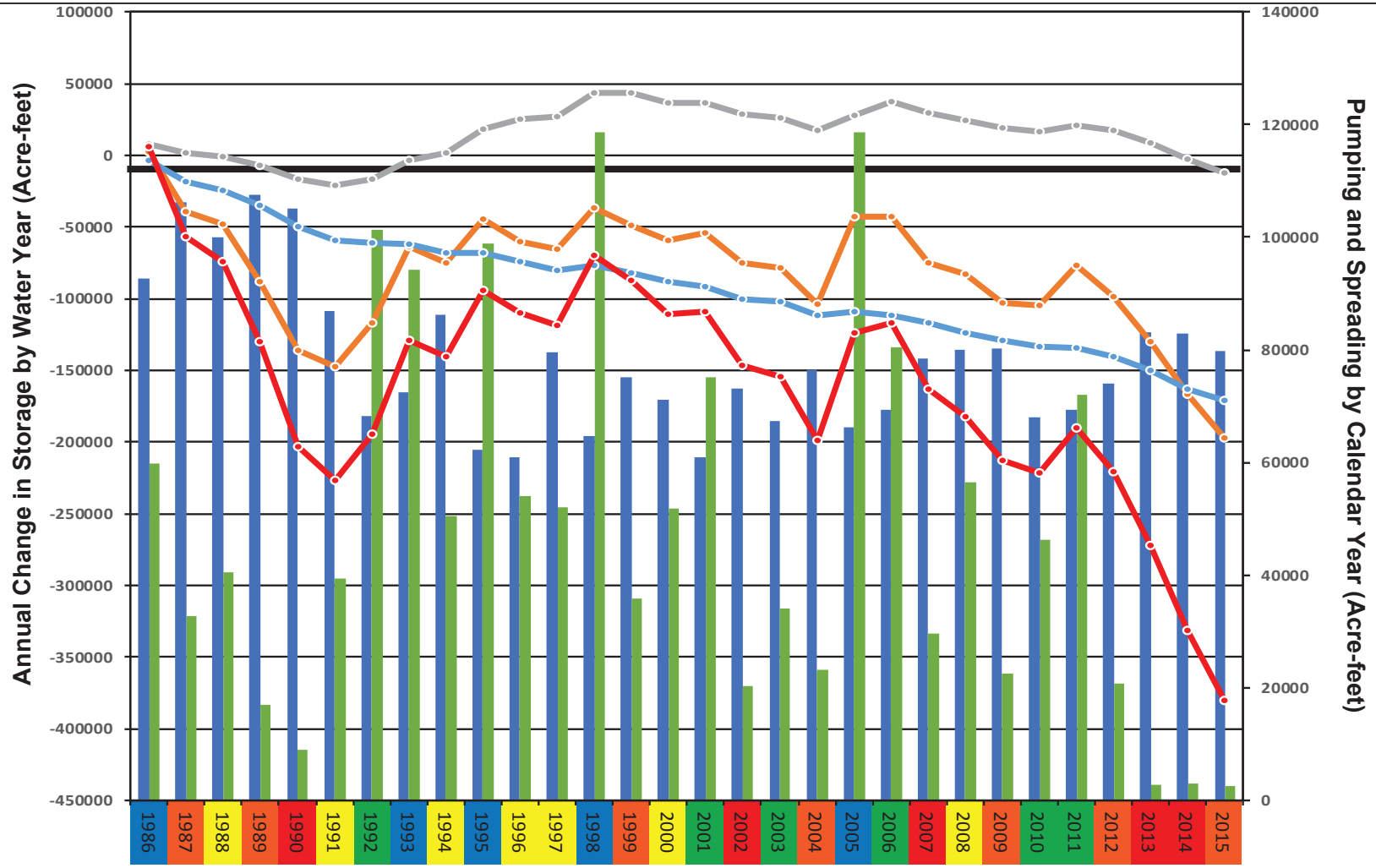
3) Water year type is based on the percentage of the water year precipitation compared to the 30-year precipitation average. Types are defined as Wet (≥150% of average), Above Normal (≥100% to <150% of average), Below Normal (≥75% to <100% of average), Dry (≥50% to <75% of average), and Critical (<50% of average).

DUDEK

FIGURE 2-24

Oxnard Subbasin Annual Change in Storage Without Coastal Flux

INTENTIONALLY LEFT BLANK



Notes:

1) Estimated Annual Change in Storage is from the United Water Conservation District (UWCD) numerical groundwater model report from July 2018. Estimated Change in Storage is the sum of the Change in Storage from all aquifers in the basin included in the UWCD numerical groundwater model.

2) Water year is October 1 to September 30 (e.g., water year 2012 is from October 1, 2011, to September 30, 2012)

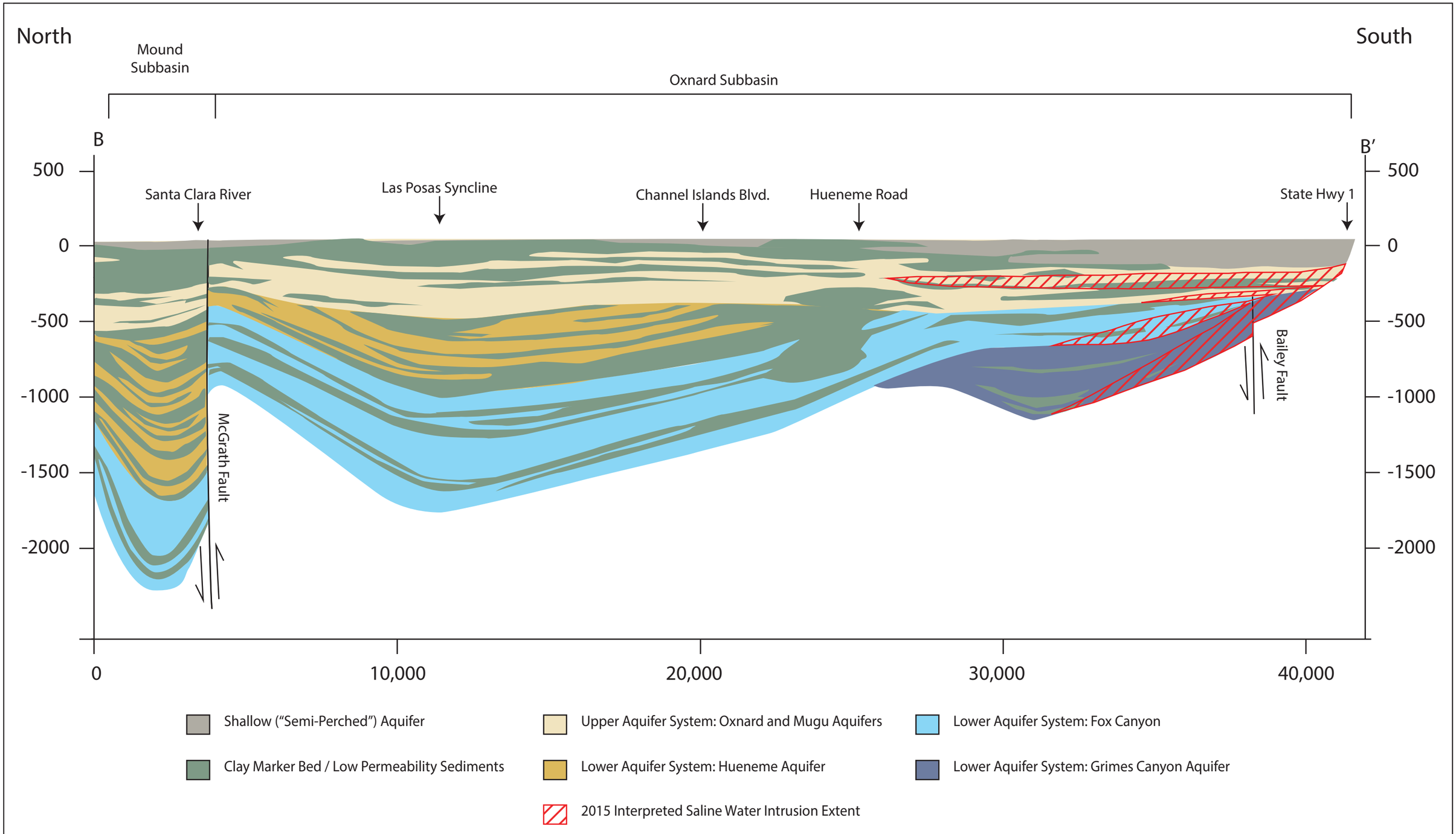
3) Water year type is based on the percentage of the water year precipitation compared to the 30-year precipitation average. Types are defined as Wet (≥150% of average), Above Normal (≥100% to <150% of average), Below Normal (≥75% to <100% of average), Dry (≥50% to <75% of average), and Critical (<50% of average).

DUDEK

FIGURE 2-25

Oxnard Subbasin Cumulative Change in Storage Without Coastal Flux

INTENTIONALLY LEFT BLANK

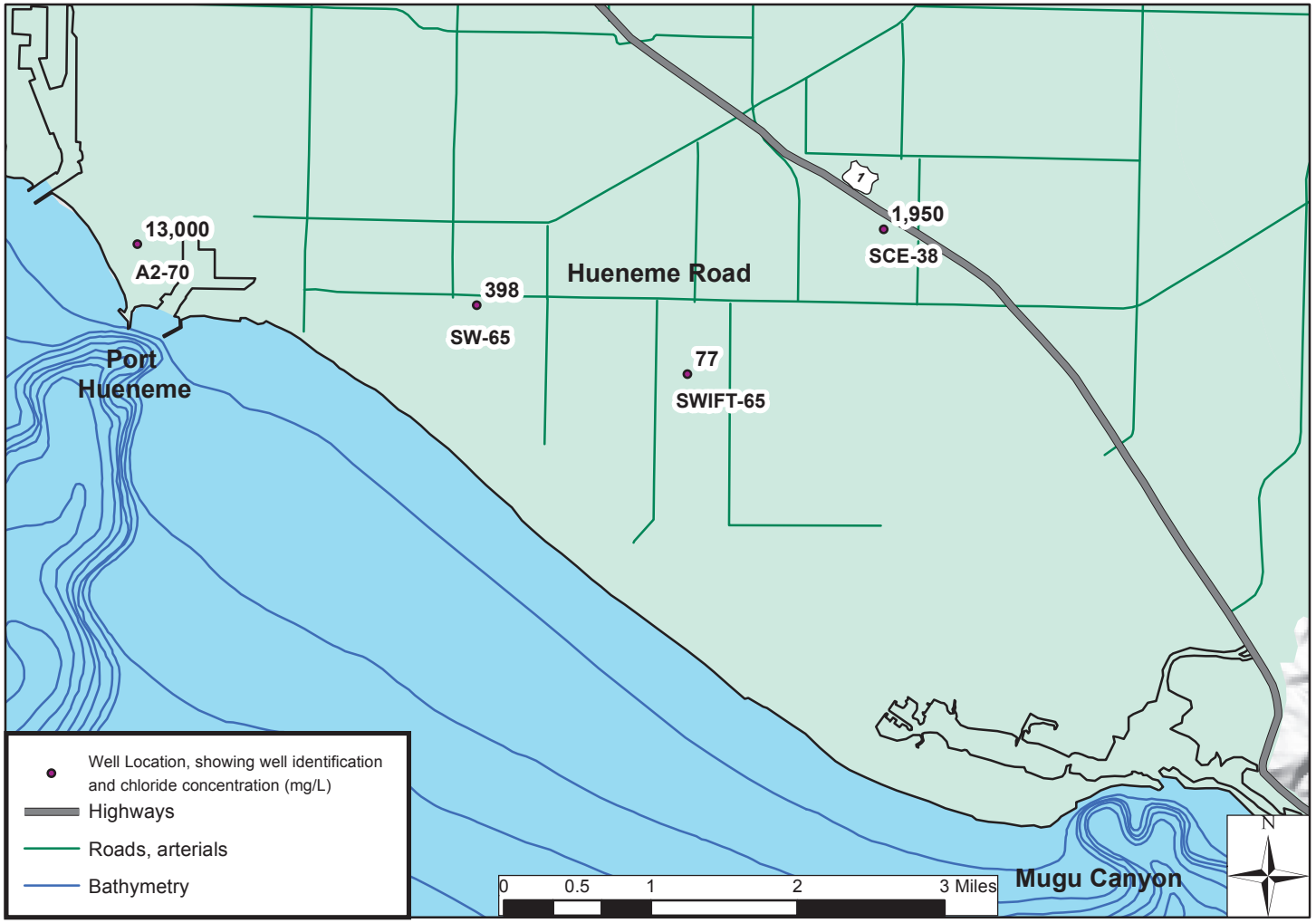


SOURCE: Cross Section: Turner 1975; Based on Plates 7A and 7B (Cross Section A-A')
Interpreted Seawater Inrusion Extent: United Water Conservation District Open File Report, October 2016

DUDEK

FIGURE 2-26
Approximate 2015 North-South Saline Water Intrusion Extent

INTENTIONALLY LEFT BLANK

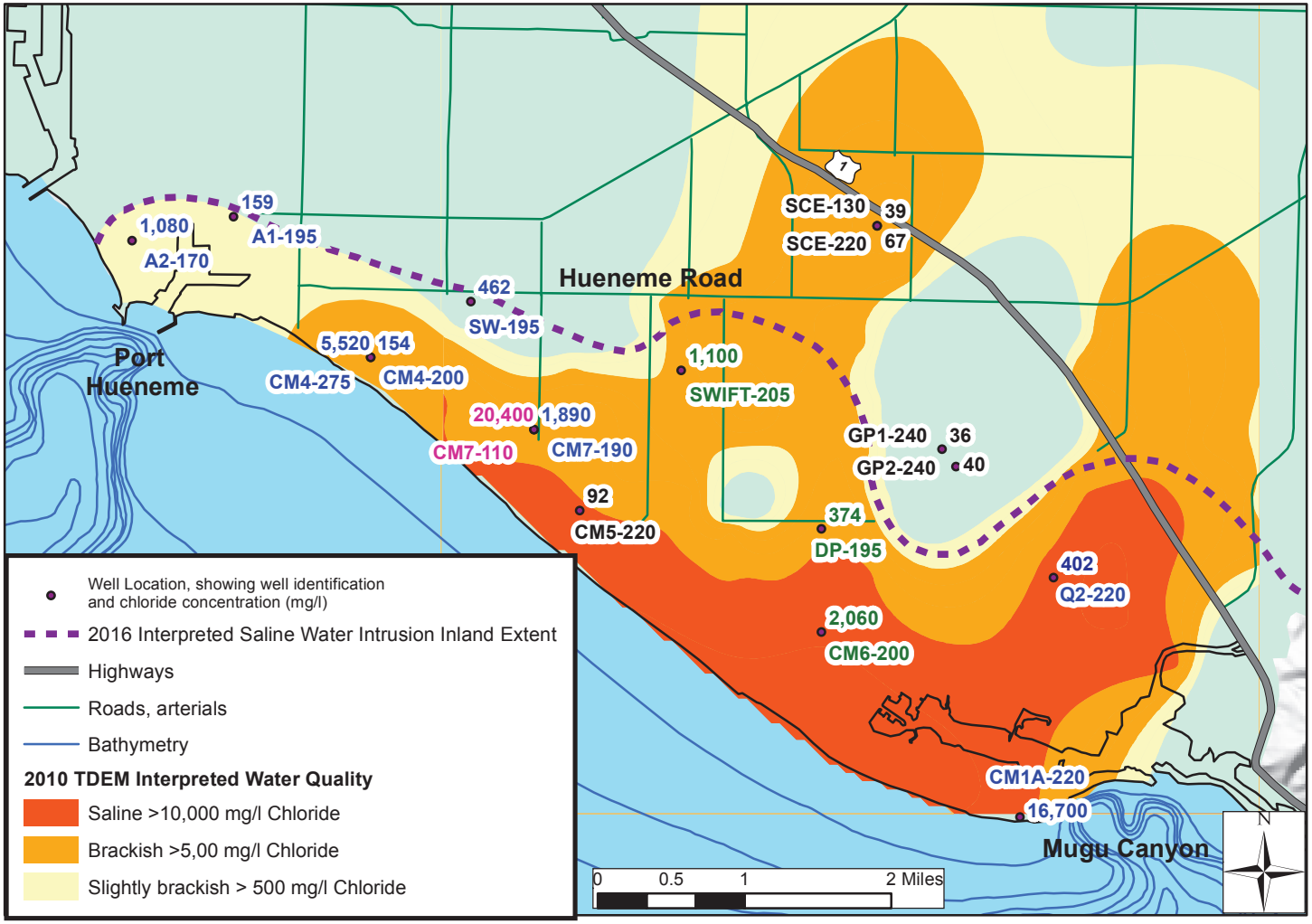


Source: UWCD 2016

FIGURE 2-27

Semi-Perched Aquifer Coastal Chloride Concentrations, Fall 2015

INTENTIONALLY LEFT BLANK



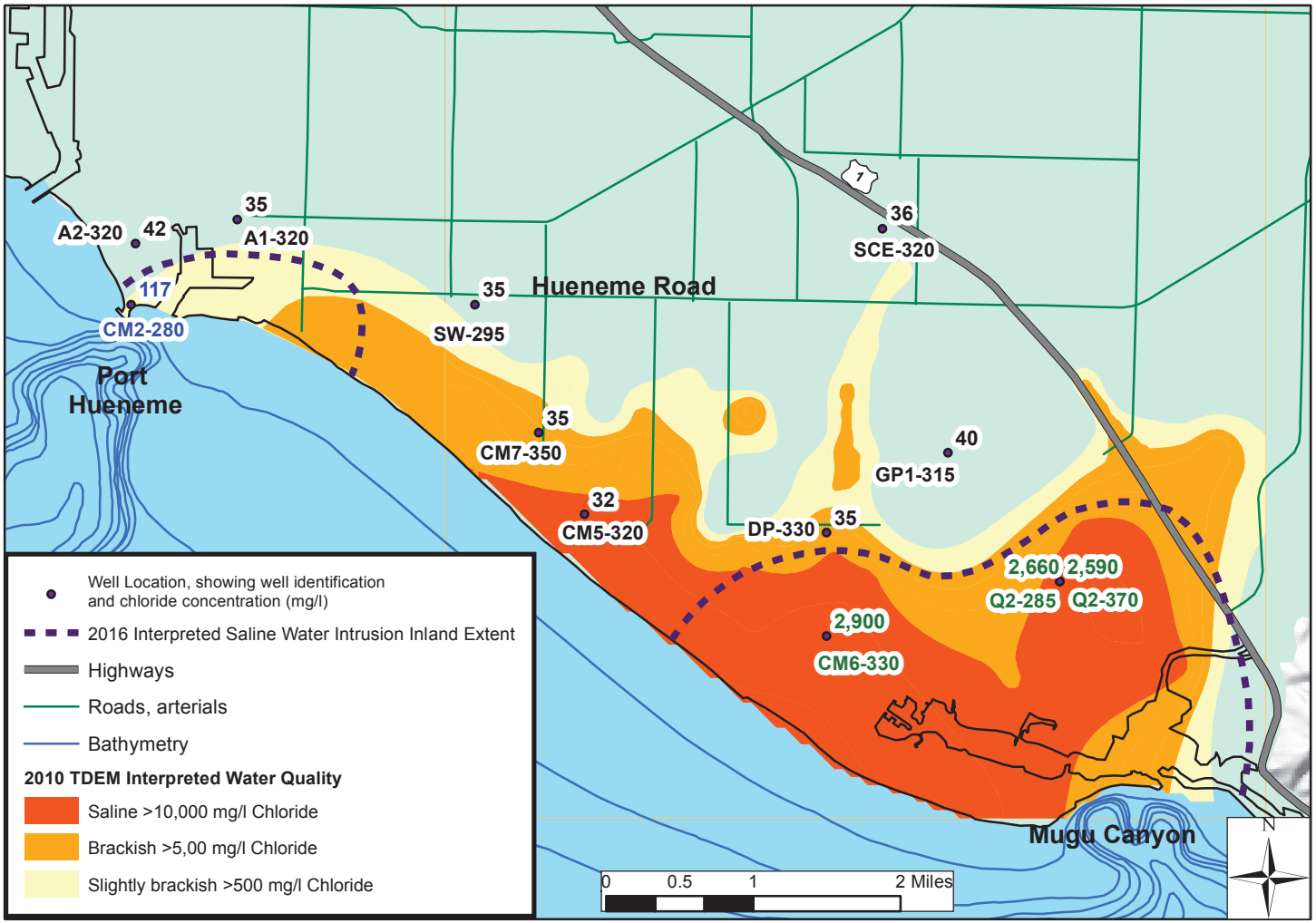
DUDEK

Source: UWCD 2016

FIGURE 2-28

Oxnard Aquifer Coastal Chloride Concentrations, Fall 2015

INTENTIONALLY LEFT BLANKINTENTIONALLY LEFT BLANK



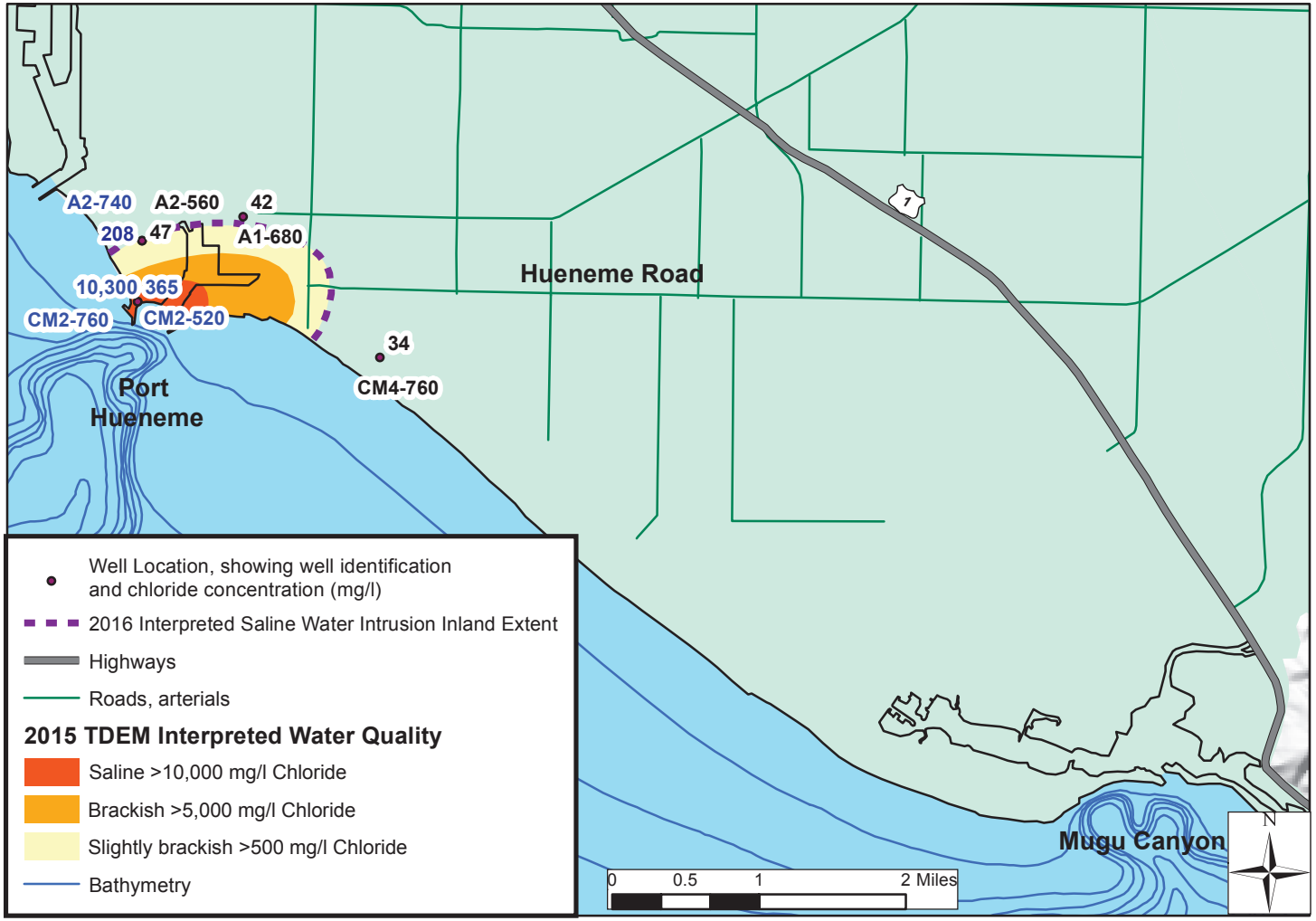
DUDEK

Source: UWCD 2016

FIGURE 2-29

Mugu Aquifer Coastal Chloride Concentrations, Fall 2015

INTENTIONALLY LEFT BLANK



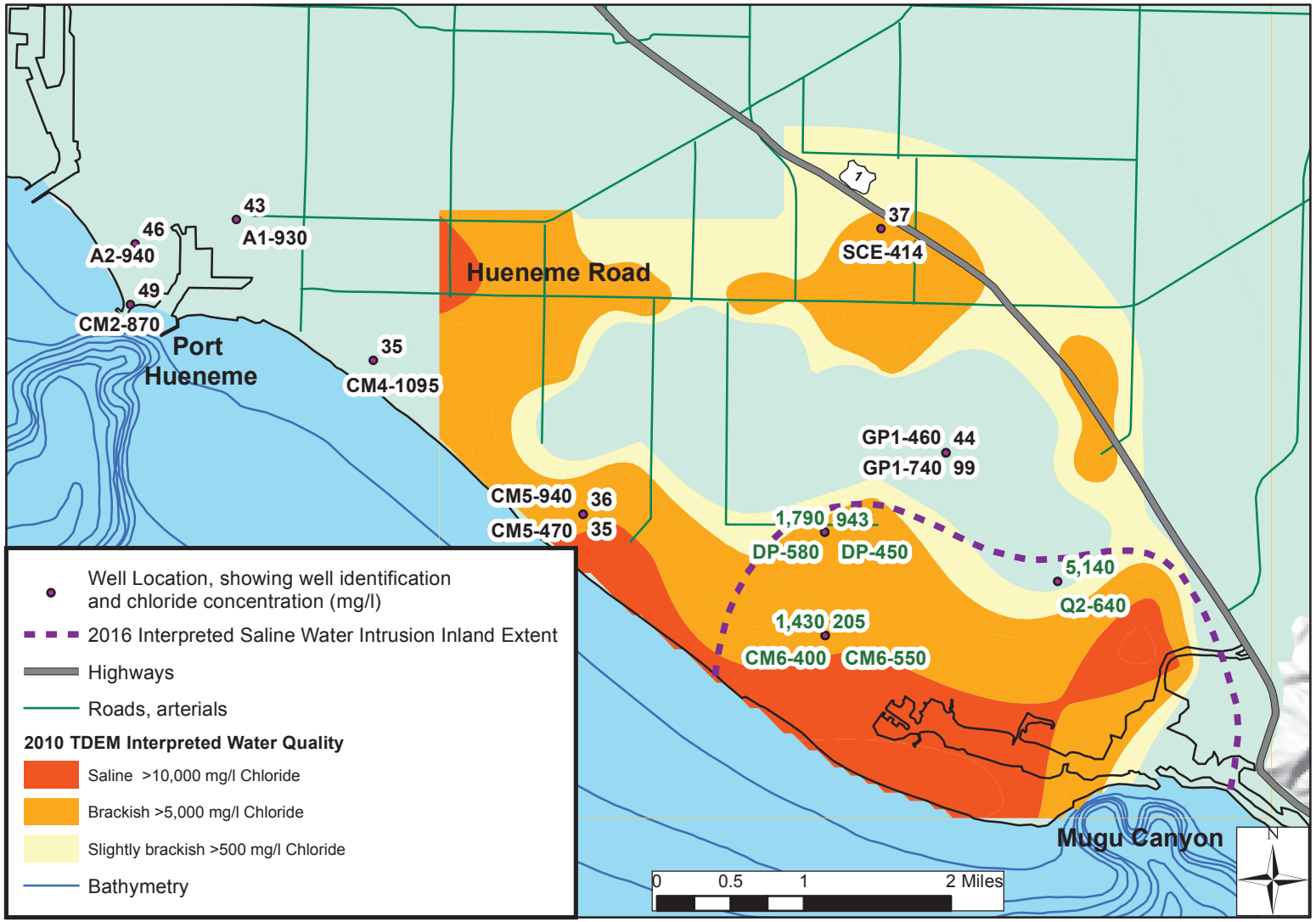
DUDEK

Source: UWCD 2016

FIGURE 2-30

Hueneme Aquifer Coastal Chloride Concentrations, Fall 2015

INTENTIONALLY LEFT BLANK



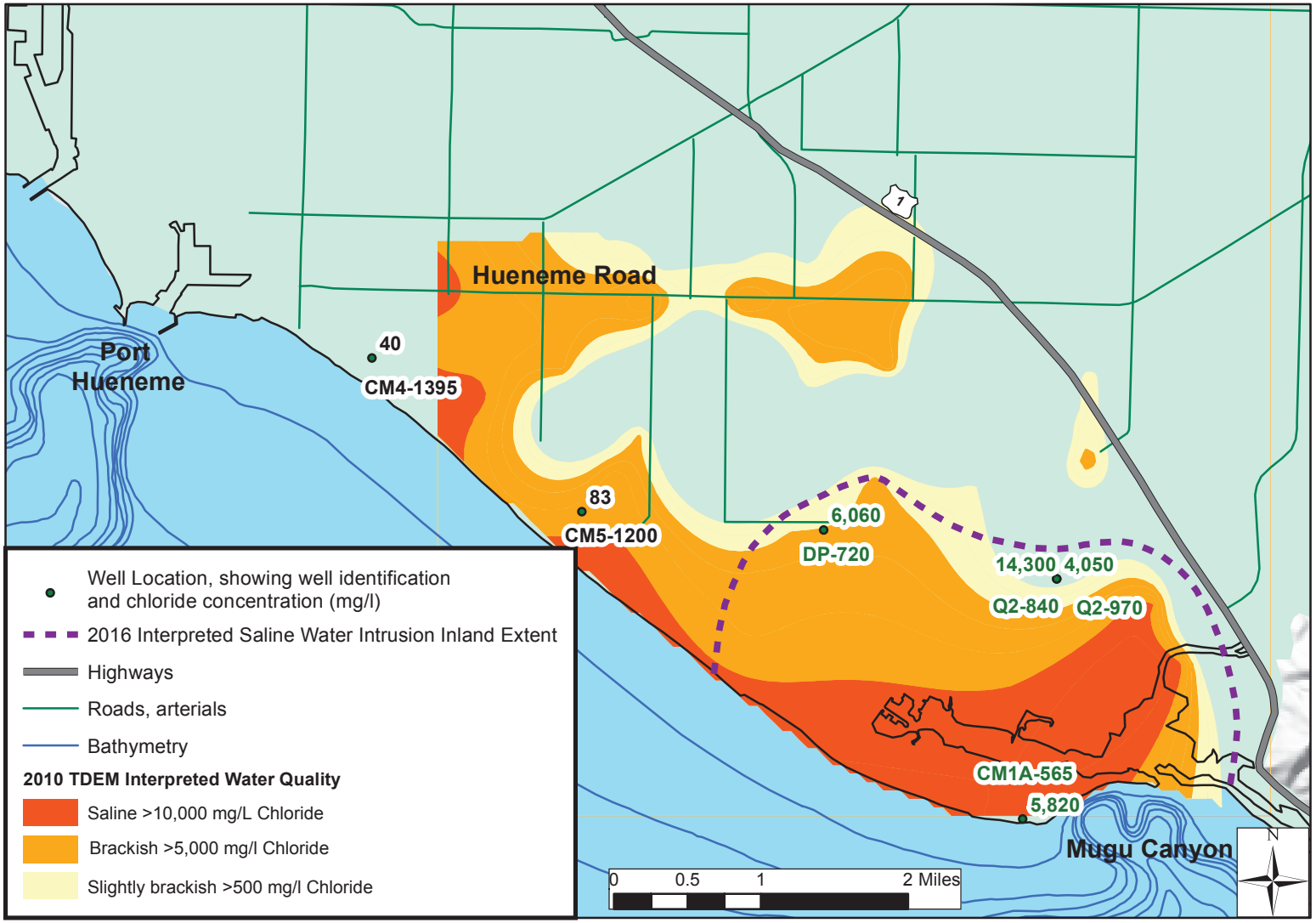
DUDEK

Source: UWCD 2016

FIGURE 2-31

Fox Canyon Aquifer Coastal Chloride Concentrations, Fall 2015

INTENTIONALLY LEFT BLANK



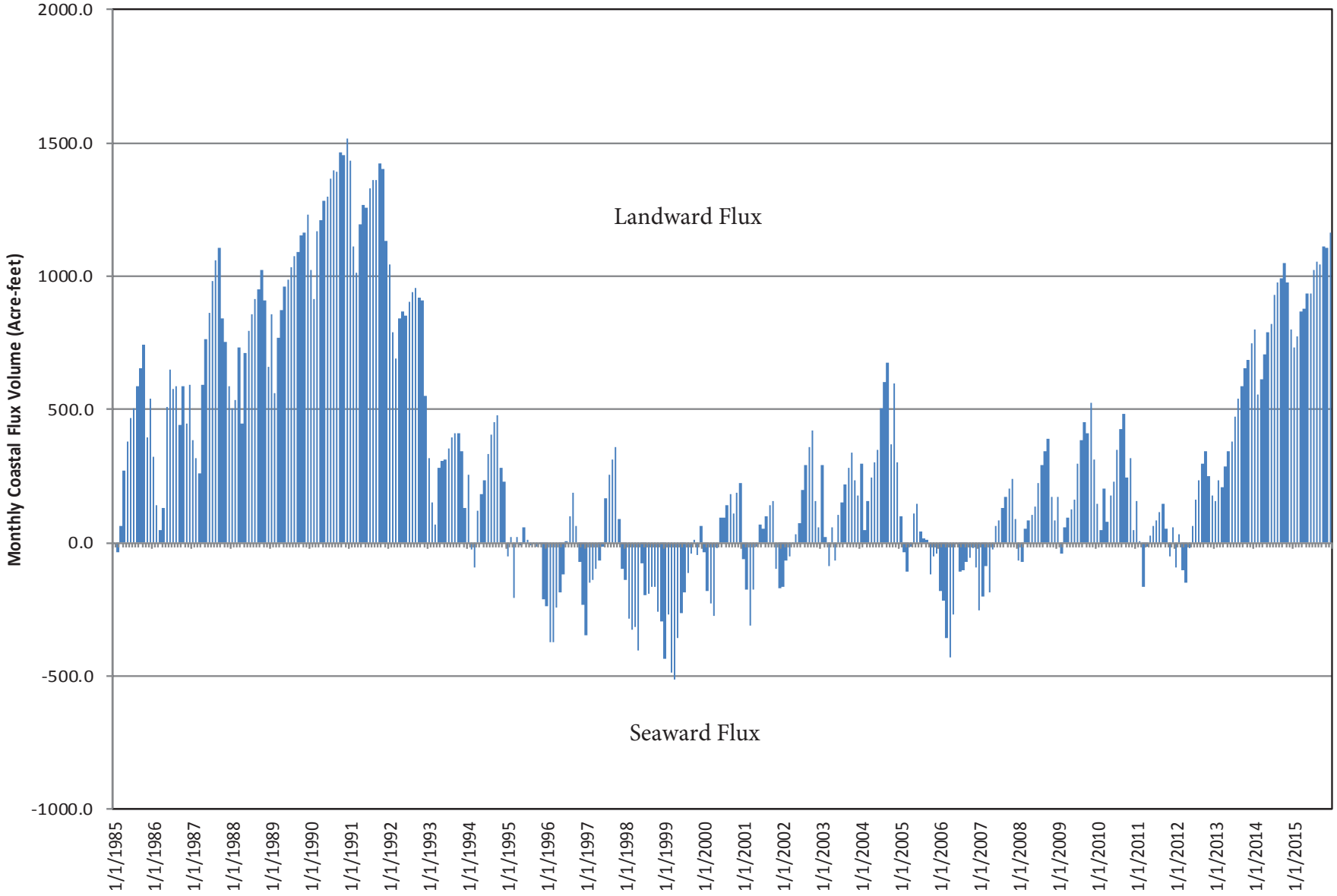
DUDEK

Source: UWCD 2016

FIGURE 2-32

Grimes Canyon Aquifer Coastal Chloride Concentrations, Fall 2015

INTENTIONALLY LEFT BLANK

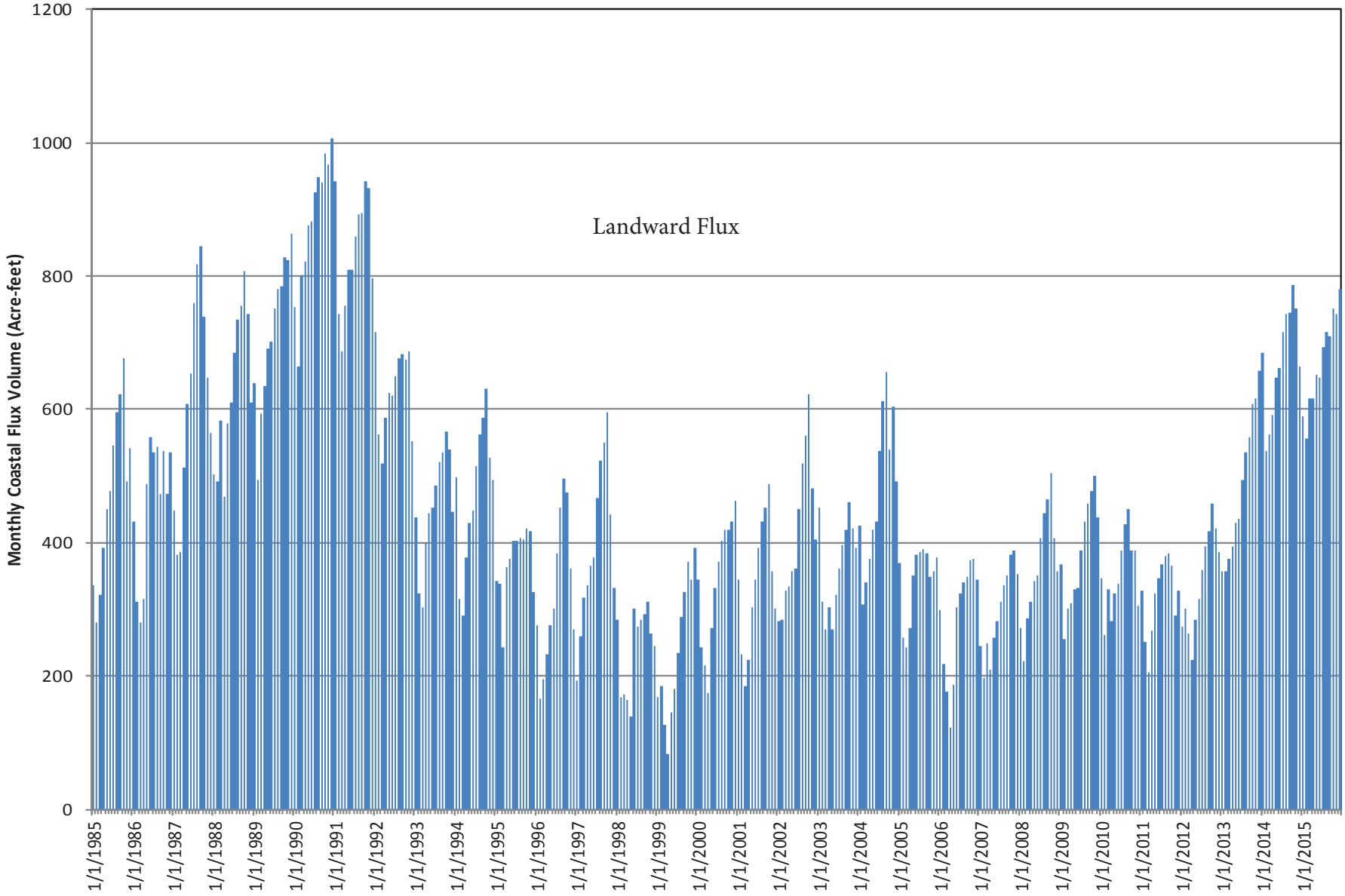


DUDEK

FIGURE 2-33

Groundwater Flux along the Coast in the Upper Aquifer System

INTENTIONALLY LEFT BLANK

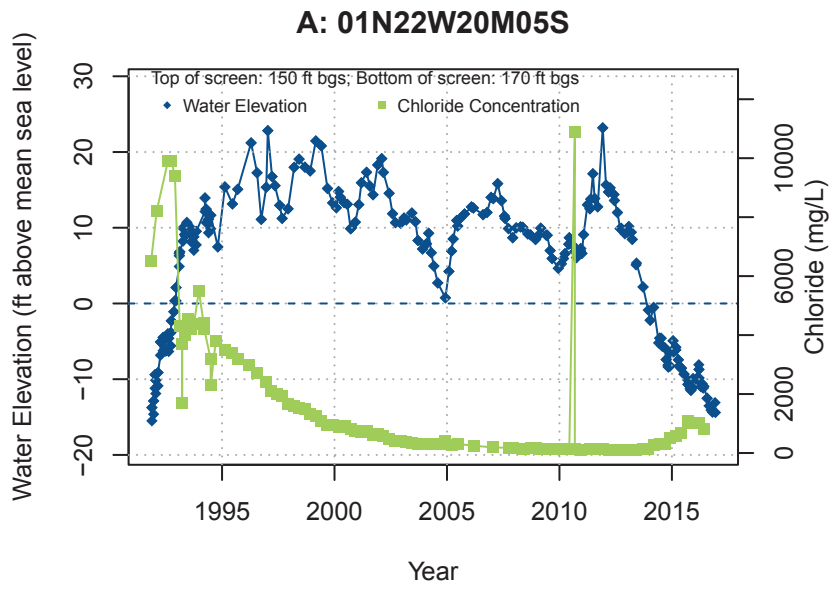


DUDEK

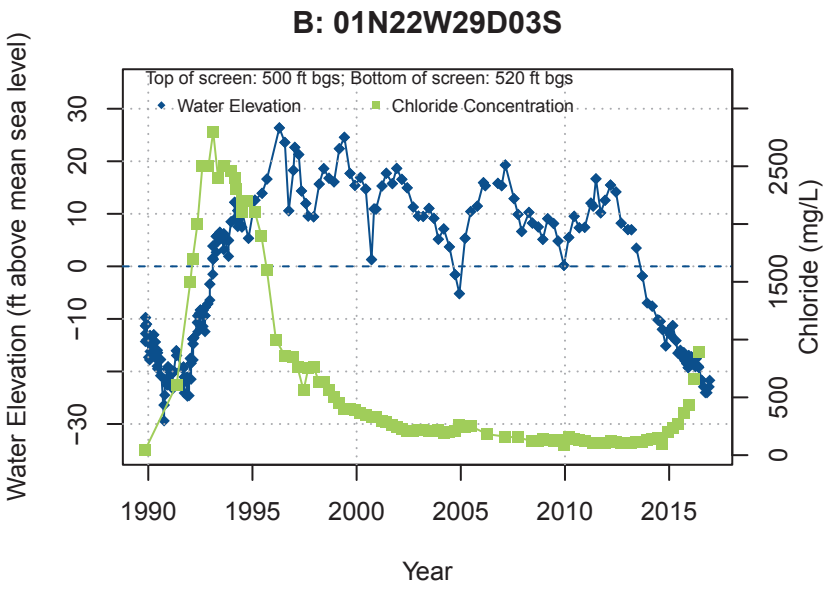
FIGURE 2-34

Groundwater Flux along the Coast in the Lower Aquifer System

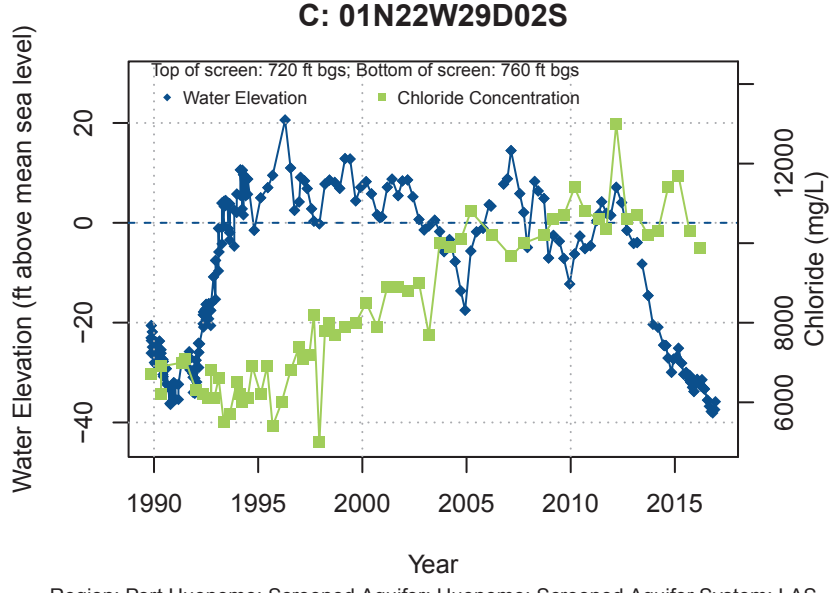
INTENTIONALLY LEFT BLANK



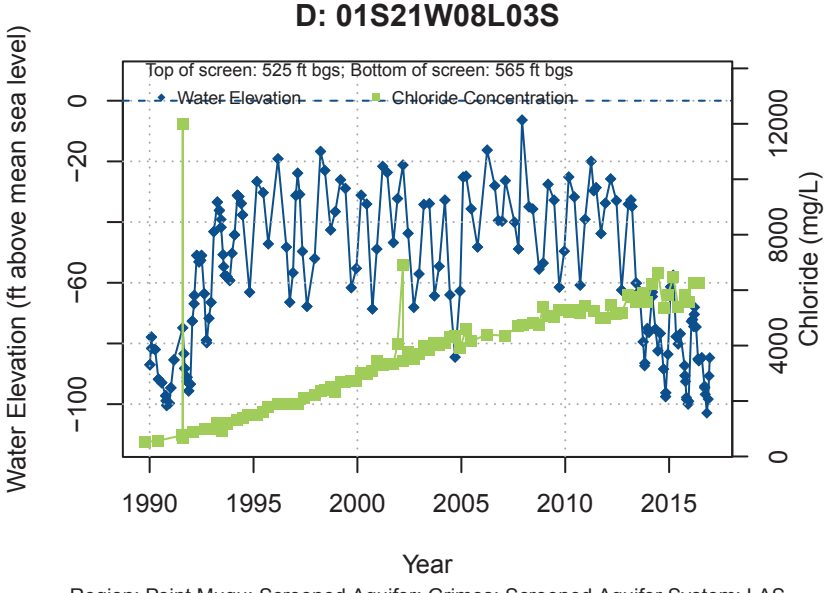
Region: Port Hueneme; Screened Aquifer: Oxnard; Screened Aquifer System: UAS



Region: Port Hueneme; Screened Aquifer: Hueneme; Screened Aquifer System: LAS



Region: Port Hueneme; Screened Aquifer: Hueneme; Screened Aquifer System: LAS



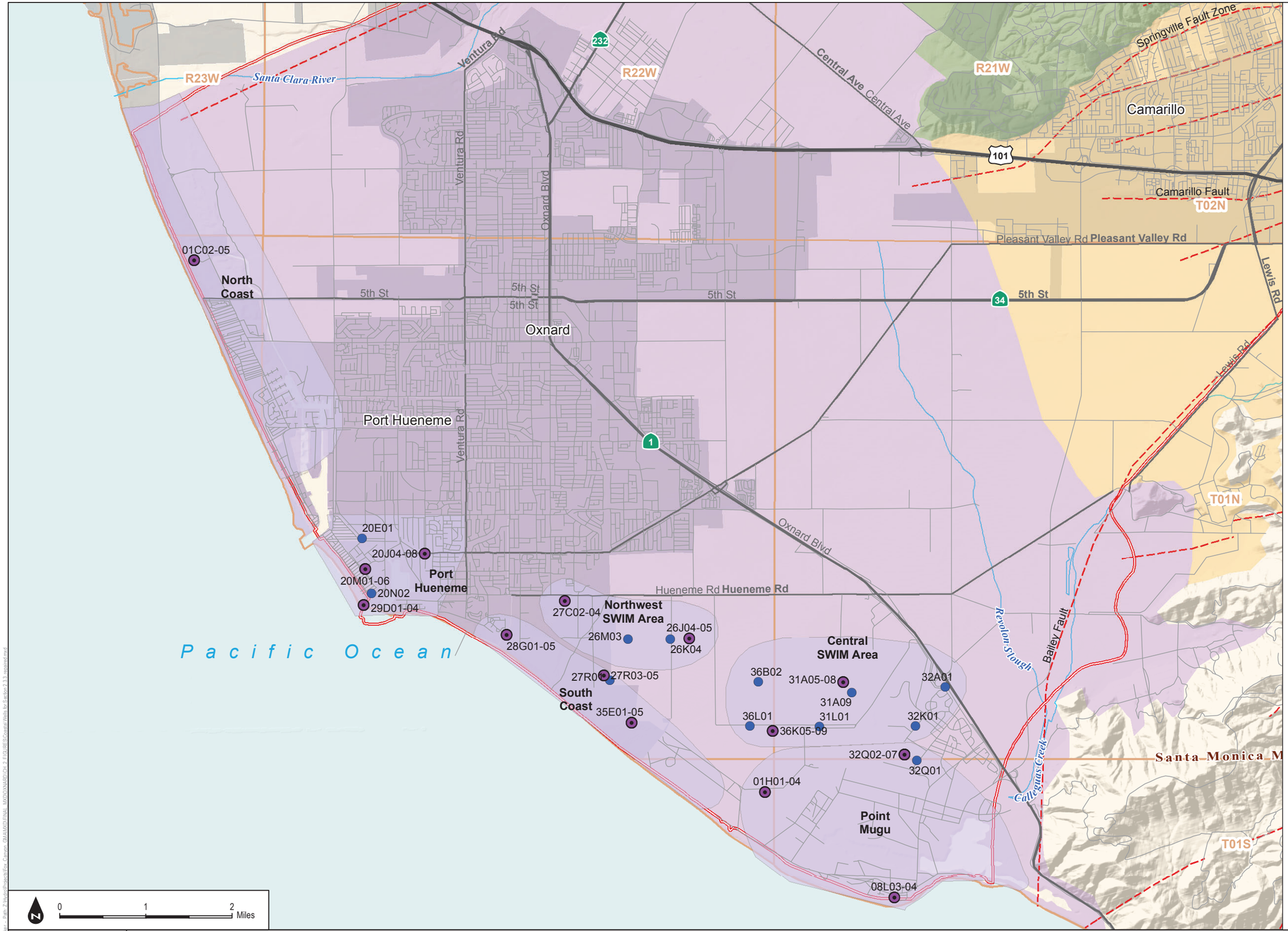
Region: Point Mugu; Screened Aquifer: Grimes; Screened Aquifer System: LAS

DUDEK

FIGURE 2-35

Selected Historical Records of Water Elevation and Chloride Concentration

INTENTIONALLY LEFT BLANK



Legend

- Nested Well Set
- Single Well
- Regions for SWI Characterization
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Township (North-South) and Range (East-West)
- Faults (Ventura County 2016)
- Major Rivers/Stream Channels

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

15P01 Abbreviated State Well Number (see notes)

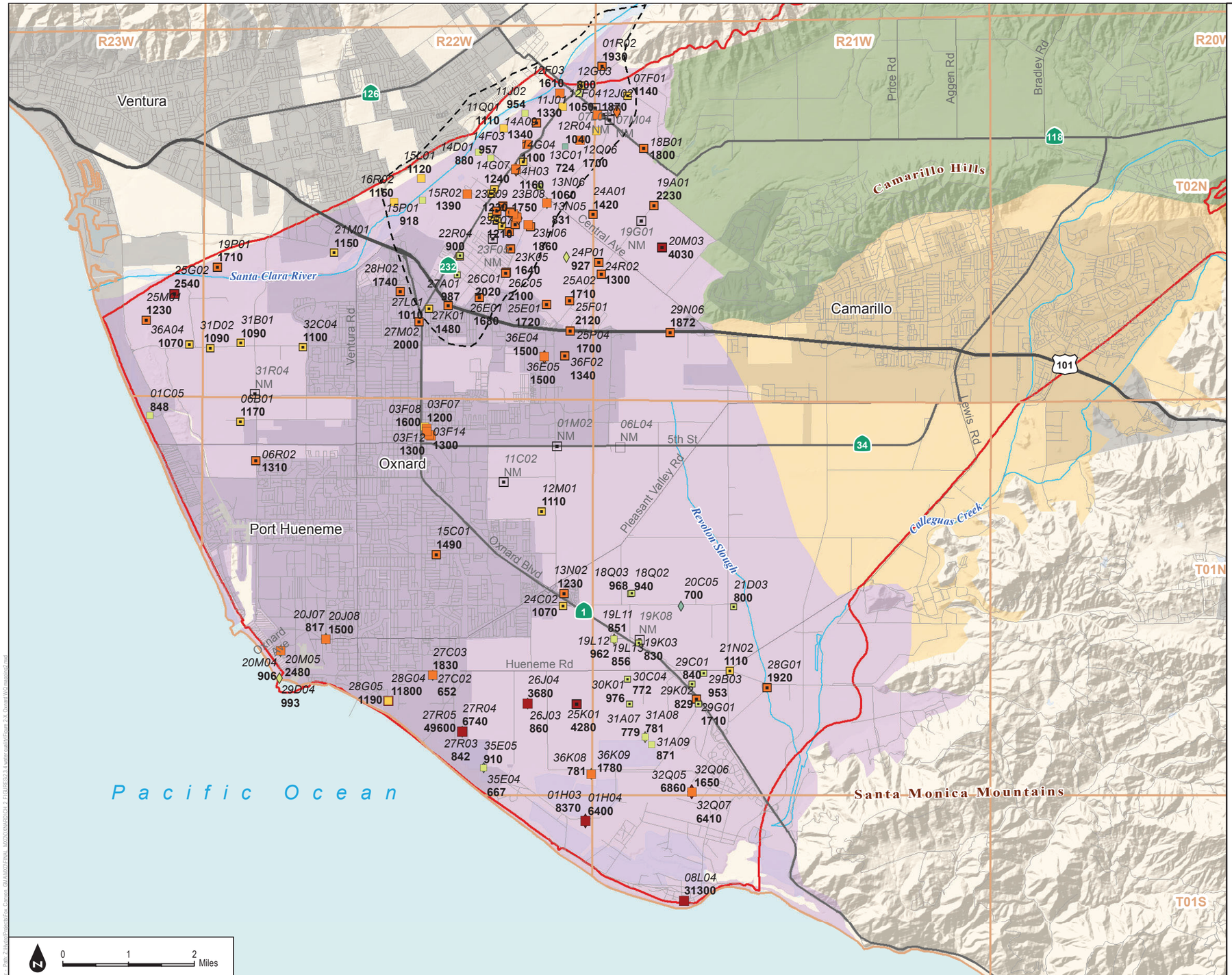
Notes:
1) Single well labels consist of an italicized abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "20E01" located in Township 01N (T01N) and Range 22W (R22W) is 01N22W20E01S.
2) Labels for nested well sets indicate the range of the last two digits in the SWNs completed in each set. Example: The SWNs completed in the nested set labeled "01H01-04," located in Township 01S (T01S) and Range 22W (R22W) are 01S22W01H01S, 01S22W01H02S, 01S22W01H03S, and 01S22W01H04S.
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; Ventura County; UWCD; CMWD

FIGURE 2-36

Locations of Selected Coastal Wells with Historical Measurements of Chloride Concentration and Water Elevation

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

TDS concentration (mg/L), 2011-2015

- 290 - 500
- >500 - 750
- >750 - 1000
- >1000 - 1200
- >1200 - 2500
- >2500 - 49,800

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

15P01 Abbreviated State Well Number (see notes)

10.5 Concentration (mg/L)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

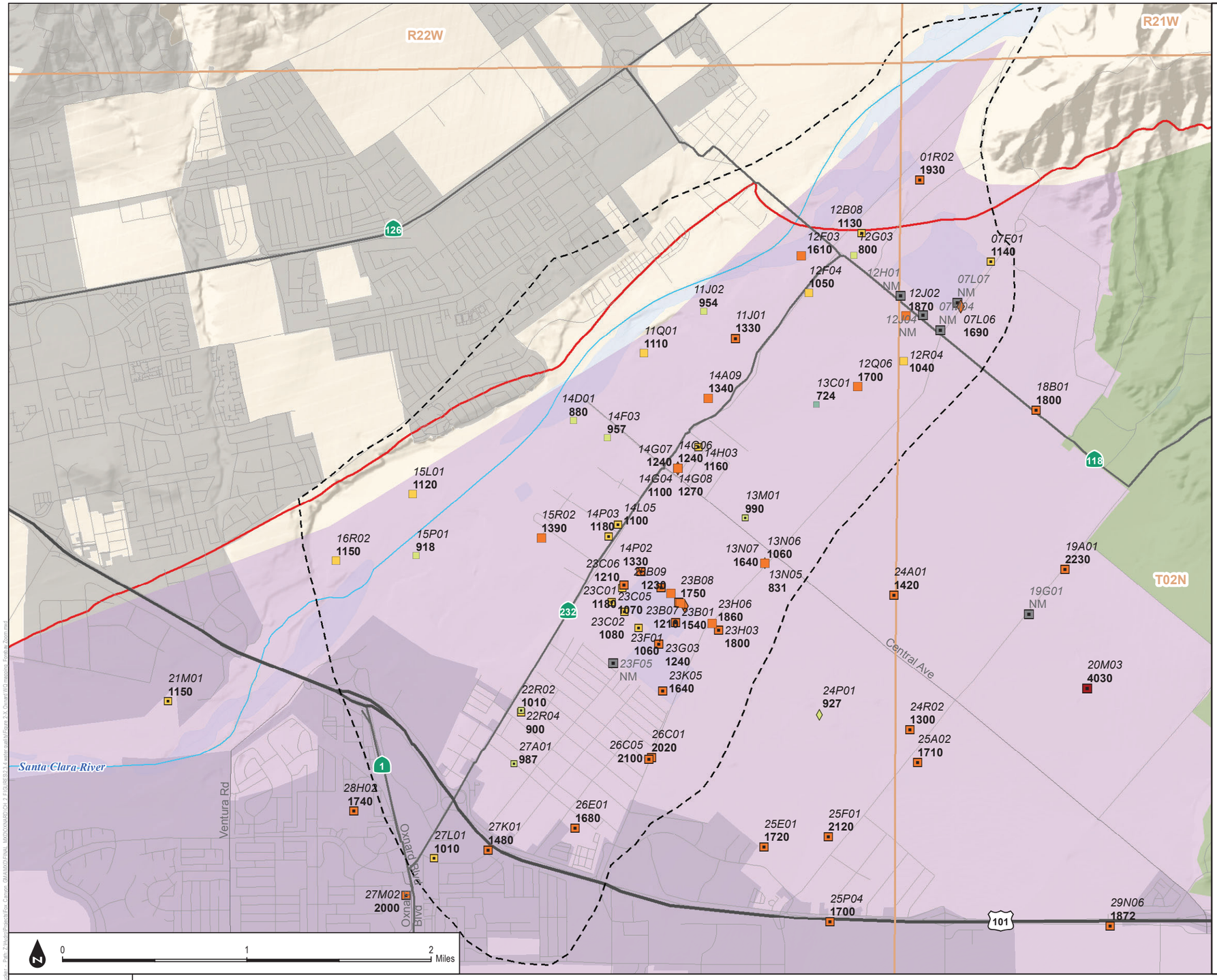
FIGURE 2-37A

Upper Aquifer System - Most Recent Total Dissolved Solids (mg/L) Measured 2011-2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

TDS concentration (mg/L), 2011-2015

- 290 - 500
- >500 - 750
- >750 - 1000
- >1000 - 1200
- >1200 - 2500
- >2500 - 49,800
- Not Measured (NM)

15P01 Abbreviated State Well Number (see notes)

10.5 Concentration (mg/L)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix C.
2) "ND" signifies non-detect. "NM" signifies not measured.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well. A solid gray well symbol has no data between 2011 and 2015.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

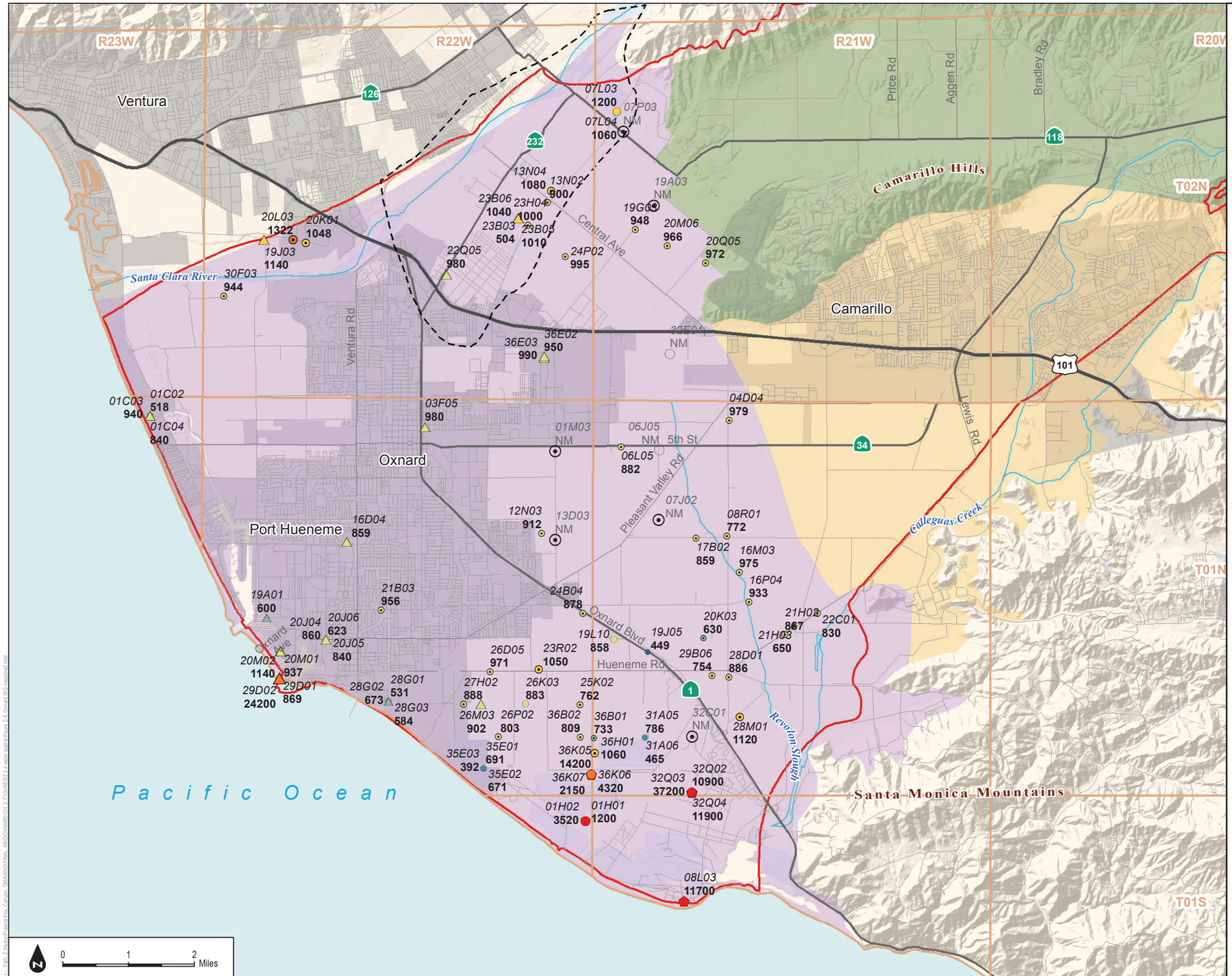
FIGURE 2-37B

Upper Aquifer System, Forebay Area - Most Recent Total Dissolved Solids (mg/L) Measured 2011-2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

TDS concentration (mg/L), 2011-2015

- 290 - 500
- >500 - 750
- >750 - 1000
- >1000 - 1200
- >1200 - 2500
- >2500 - 49,800

Aquifer designation

- Well screened in the Hueneme aquifer
- Well screened in the Fox Canyon aquifer
- Well screened in the Grimes Canyon aquifer
- Wells screened in multiple aquifers in the LAS
- 15P01 Abbreviated State Well Number (see notes)
- 10.5 Concentration (mg/L)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

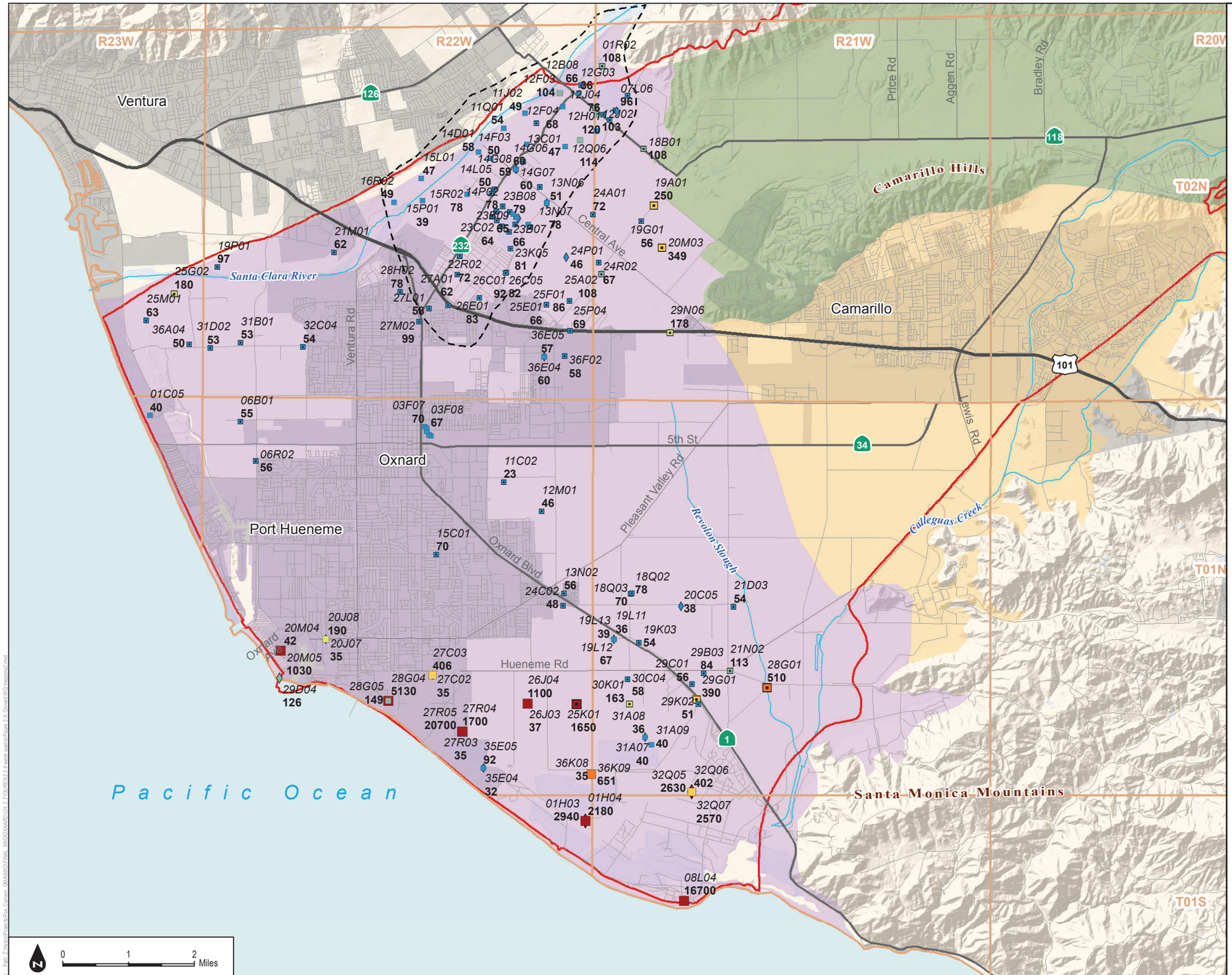
FIGURE 2-38

Lower Aquifer System - Most Recent Total Dissolved Solids (mg/L) Measured 2011-2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Chloride concentration (mg/L), 2011-2015

- 23 - 100
- 101 - 150
- 151 - 200
- 201 - 500
- 501 - 1000
- 1001 - 22500

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

15P01 Abbreviated State Well Number (see notes)
10.5 Concentration (mg/L)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

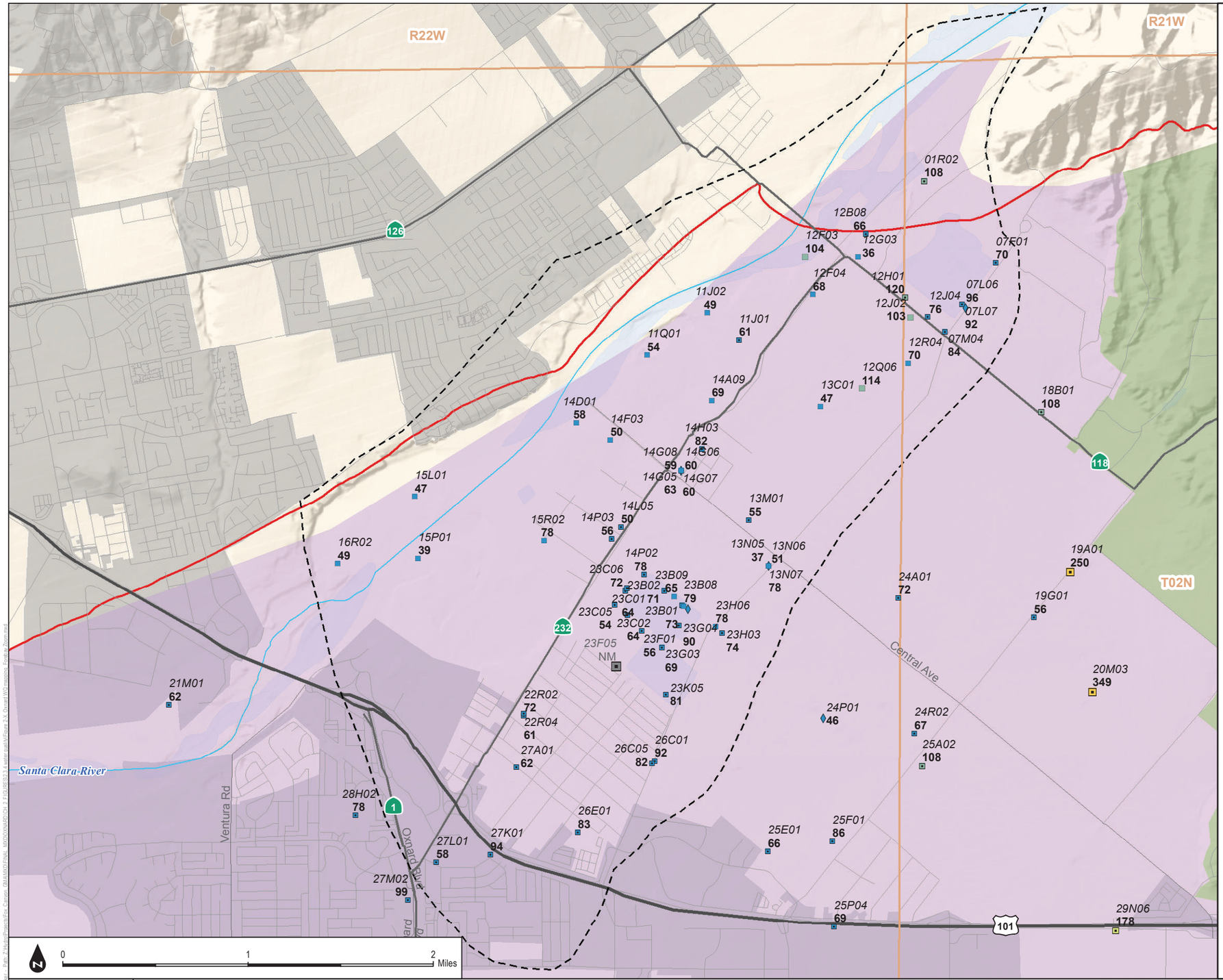
SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-39A

Upper Aquifer System - Most Recent Chloride (mg/L) Measured 2011-2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

Chloride concentration (mg/L), 2011-2015

- 23 - 100
- 101 - 150
- 151 - 200
- 201 - 500
- 501 - 1000
- 1001 - 22500
- Not Measured (NM)
- *15P01* Abbreviated State Well Number (see notes)
- **10.5** Concentration (mg/L)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix C.
2) "ND" signifies non-detect. "NM" signifies not measured.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well. A solid gray well symbol has no data between 2011 and 2015.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

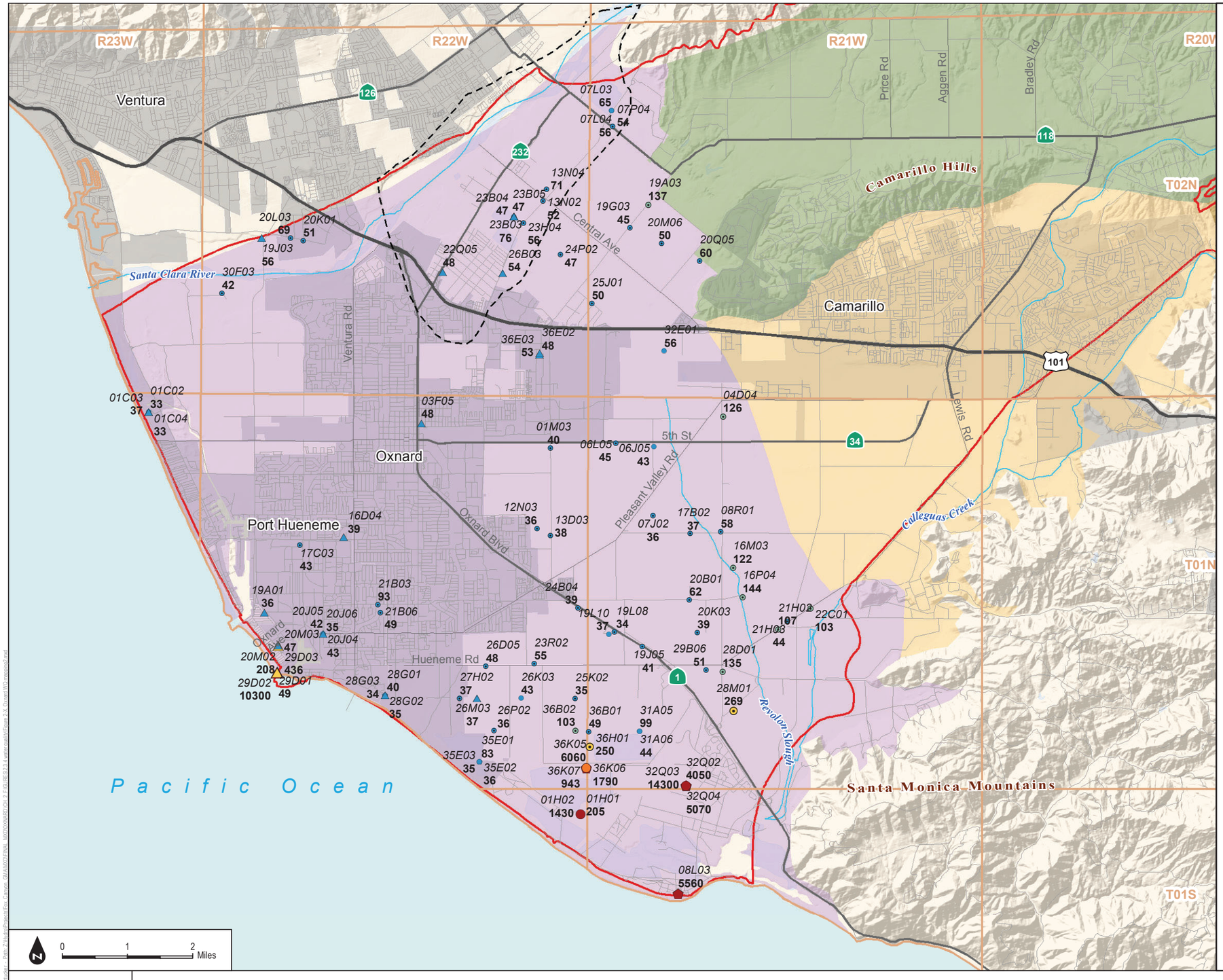
SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-39B

Upper Aquifer System, Forebay Area - Most Recent Chloride (mg/L) Measured 2011-2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Chloride concentration (mg/L), 2011-2015

- 23 - 100
- 101 - 150
- 151 - 200
- 201 - 500
- 501 - 1000
- 1001 - 22500

Aquifer designation

- △ Well screened in the Hueneme aquifer
- ○ Well screened in the Fox Canyon aquifer
- ⬠ Well screened in the Grimes Canyon aquifer
- ⦿ Wells screened in multiple aquifers in the LAS

15P01 Abbreviated State Well Number (see notes)
10.5 Concentration (mg/L)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

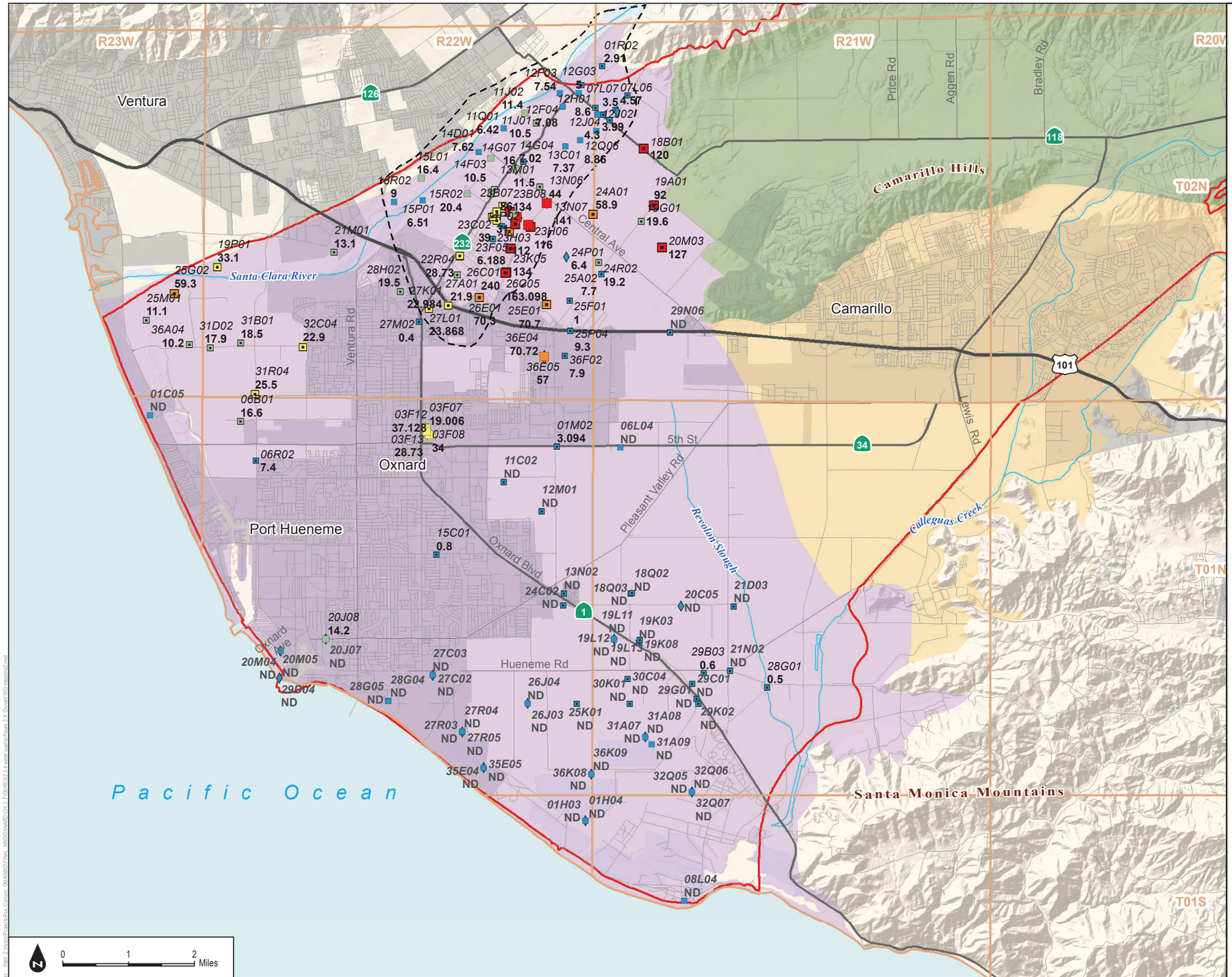
SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-40

Lower Aquifer System - Most Recent Chloride (mg/L) Measured 2011-2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Nitrate concentration (mg/L as Nitrate), 2011-2015

- 0 - 10
- >10 - 22.5
- >22.5 - 45
- >45 - 90
- >90 - 528

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

15P01 Abbreviated State Well Number (see notes)
10.5 Concentration (mg/L)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

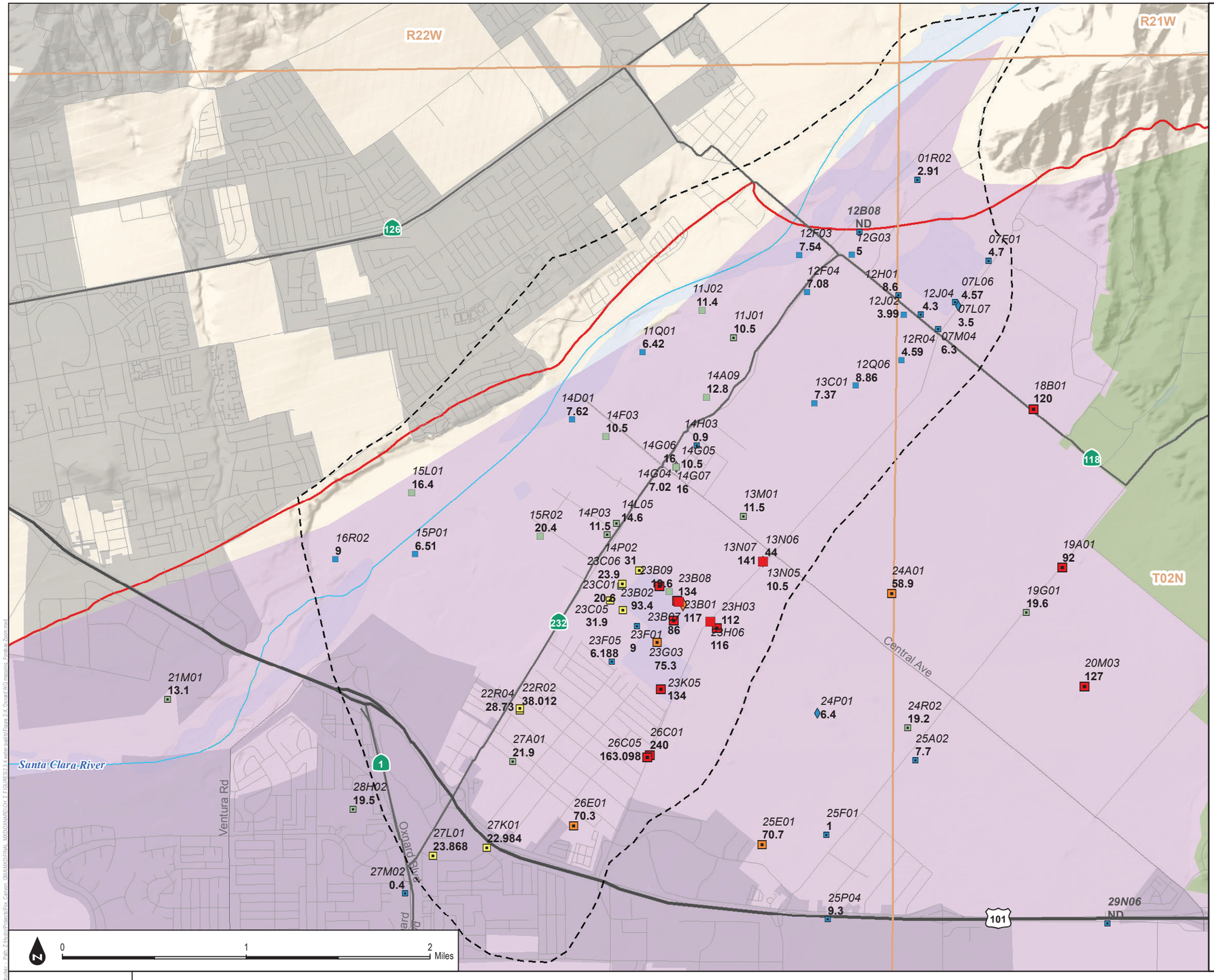
FIGURE 2-41A

Upper Aquifer System - Most Recent Nitrate (mg/L as Nitrate) Measured 2011-2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

Nitrate concentration (mg/L), 2011-2015

- 0 - 10
- >10 - 22.5
- >22.5 - 45
- >45 - 90
- >90 - 528
- Not Measured (NM)

15P01 Abbreviated State Well Number (see notes)

10.5 Concentration (mg/L)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix C.
2) "ND" signifies non-detect. "NM" signifies not measured.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well. A solid gray well symbol has no data between 2011 and 2015.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

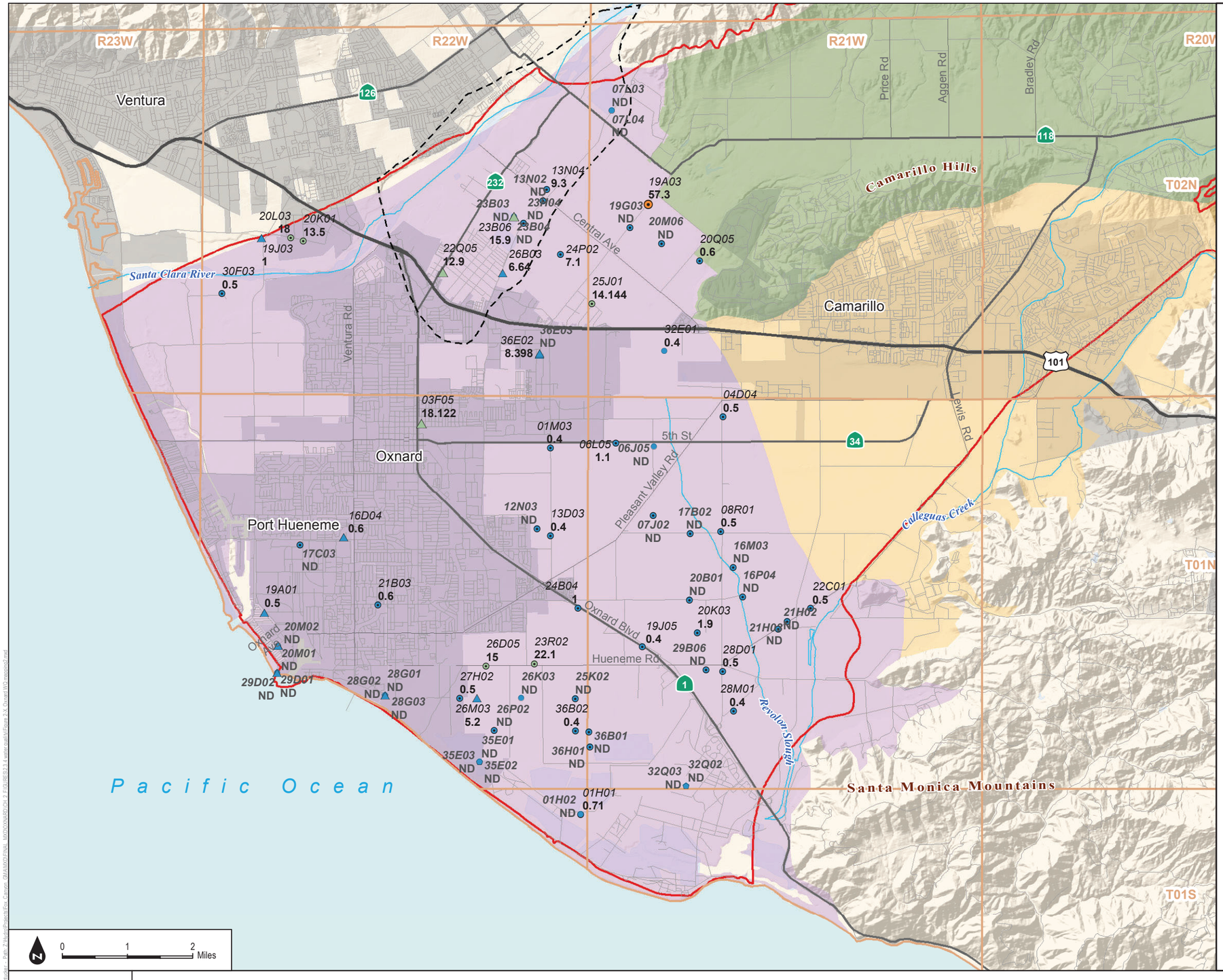
SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-41B

Upper Aquifer System, Forebay Area - Most Recent Nitrate (mg/L as Nitrate) Measured 2011-2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Nitrate concentration (mg/L), 2011-2015

- 0 - 10
- >10 - 22.5
- >22.5 - 45
- >45 - 90
- >90 - 528

Aquifer designation

- △ Well screened in the Hueneme aquifer
- ○ Well screened in the Fox Canyon aquifer
- ⬠ Well screened in the Grimes Canyon aquifer
- ⊙ Wells screened in multiple aquifers in the LAS

15P01 Abbreviated State Well Number (see notes)
10.5 Concentration (mg/L)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

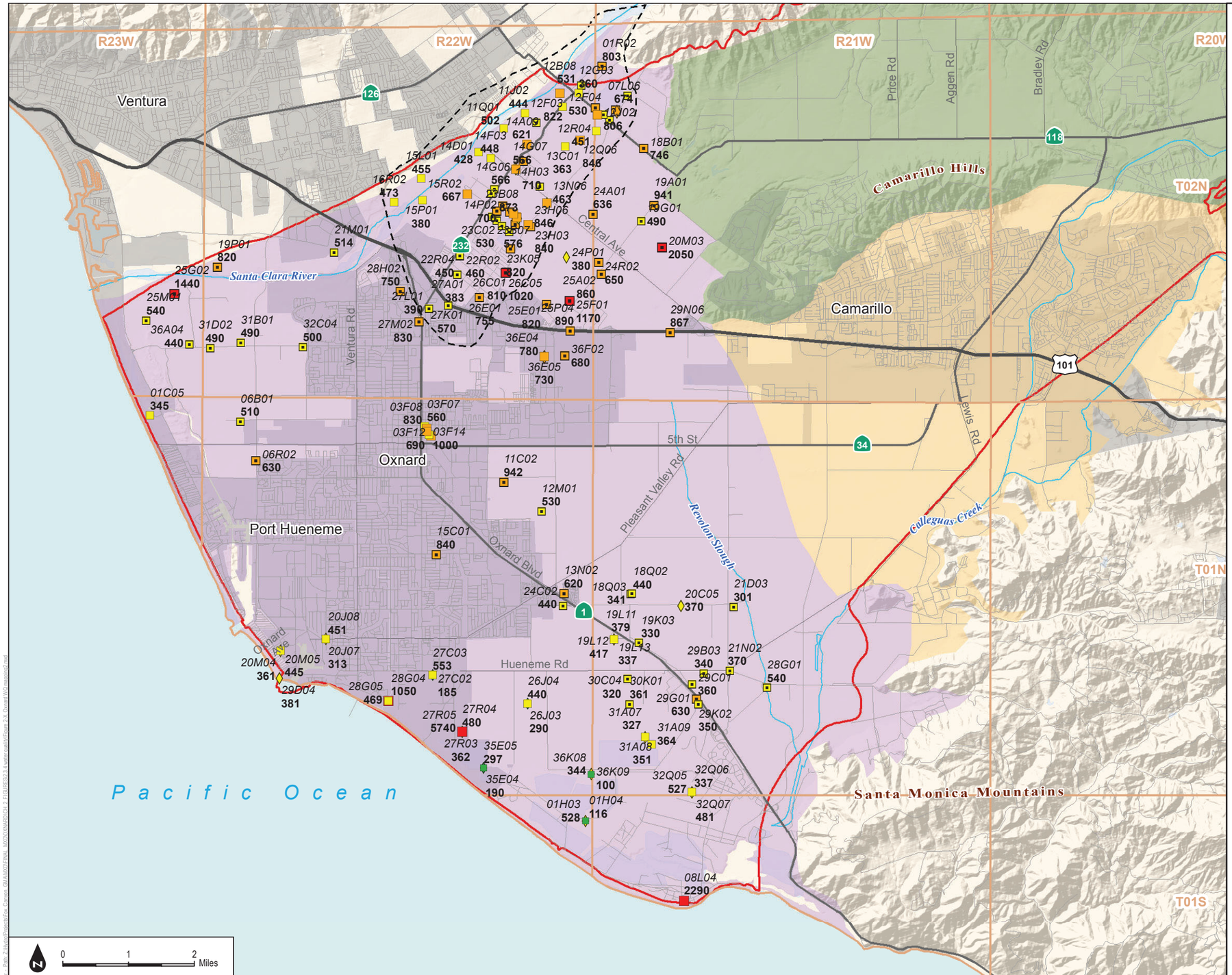
SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-42

Lower Aquifer System - Most Recent Nitrate (mg/L as Nitrate) Measured 2011-2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Sulfate concentration (mg/L), 2011-2015

- 29 - 300
- 301 - 600
- 601 - 1000
- 1001 - 5740

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

15P01 Abbreviated State Well Number (see notes)
10.5 Concentration (mg/L)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

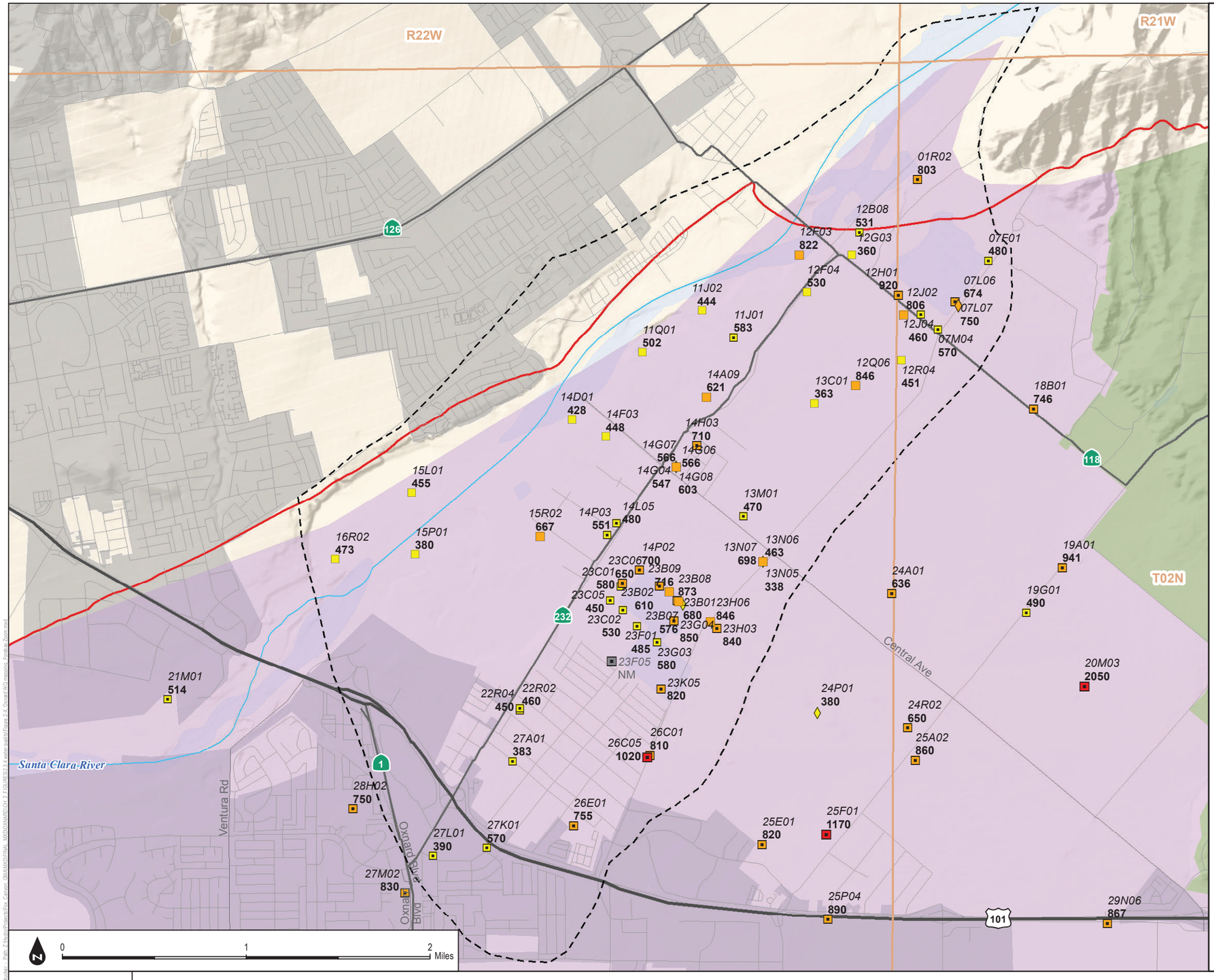
FIGURE 2-43A

Upper Aquifer System - Most Recent Sulfate (mg/L) Measured 2011-2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

Sulfate concentration (mg/L), 2011-2015

- 29 - 300
- 301 - 600
- 601 - 1000
- 1001 - 5740
- Not Measured (NM)
- *15P01* Abbreviated State Well Number (see notes)
- **10.5** Concentration (mg/L)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix C.
2) "ND" signifies non-detect. "NM" signifies not measured.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well. A solid gray well symbol has no data between 2011 and 2015.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

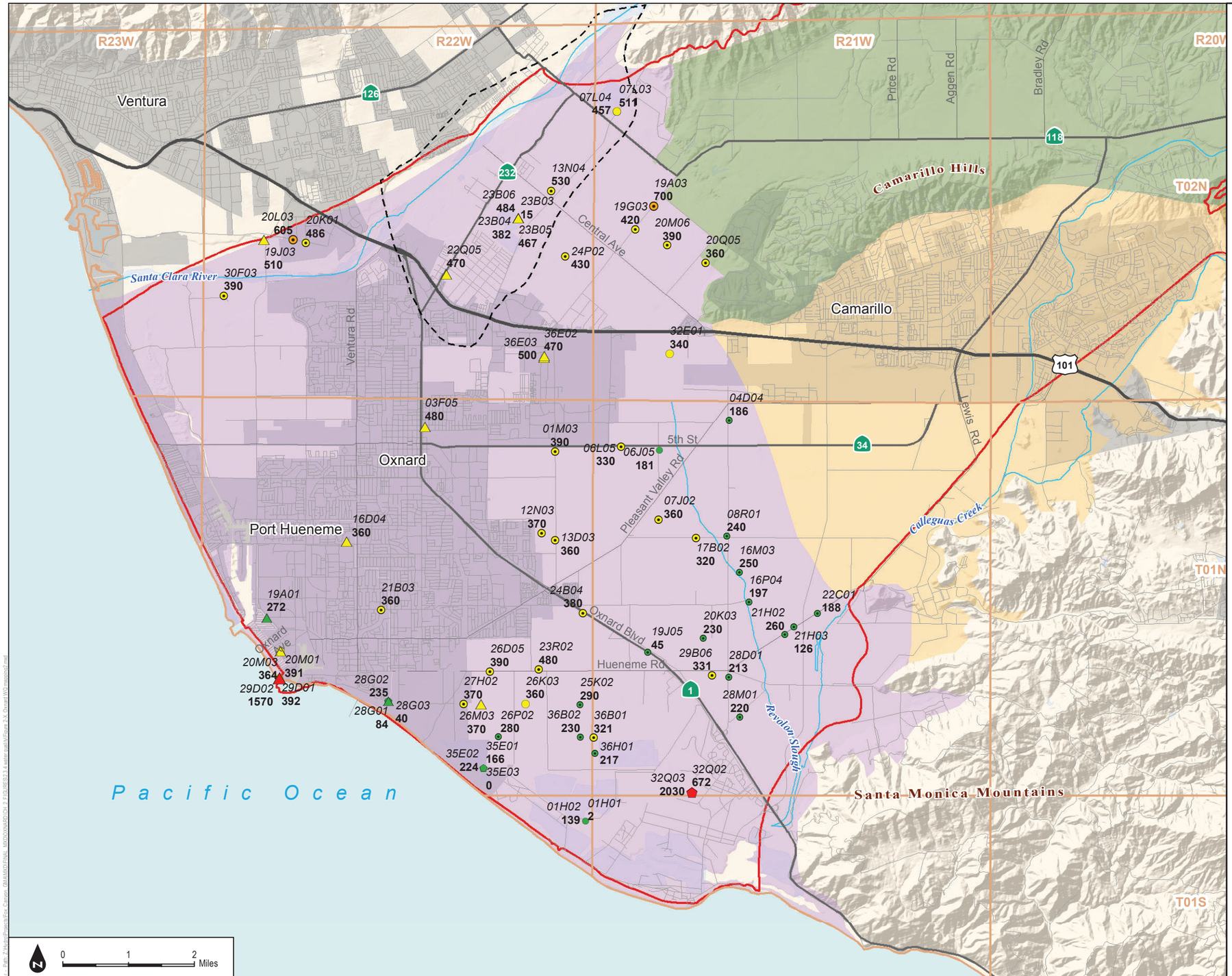
SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-43B

Upper Aquifer System, Forebay Area - Most Recent Sulfate (mg/L) Measured 2011-2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Sulfate concentration (mg/L), 2011-2015

- 29 - 300
- 301 - 600
- 601 - 1000
- 1001 - 5740

Aquifer designation

- Well screened in the Hueneme aquifer
- Well screened in the Fox Canyon aquifer
- Well screened in the Grimes Canyon aquifer
- Wells screened in multiple aquifers in the LAS

15P01 Abbreviated State Well Number (see notes)
10.5 Concentration (mg/L)

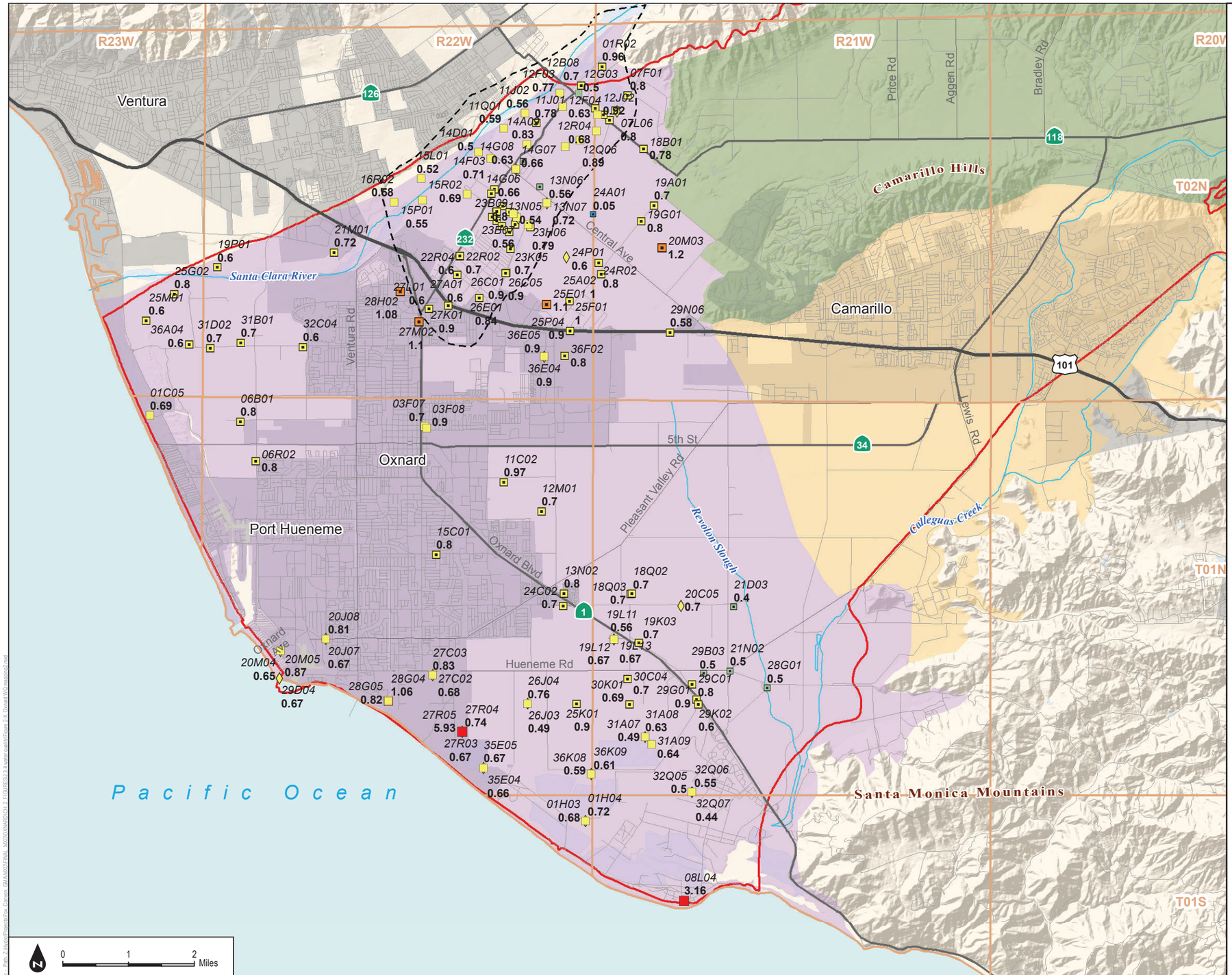
Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-44

Lower Aquifer System - Most Recent Sulfate (mg/L) Measured 2011-2015

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Boron concentration (mg/L), 2011-2015

- 0 - 0.2
- >0.2 - 0.5
- >0.5 - 1.0
- >1.0 - 2.0
- >2.0 - 6.0

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

15P01 Abbreviated State Well Number (see notes)
10.5 Concentration (mg/L)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

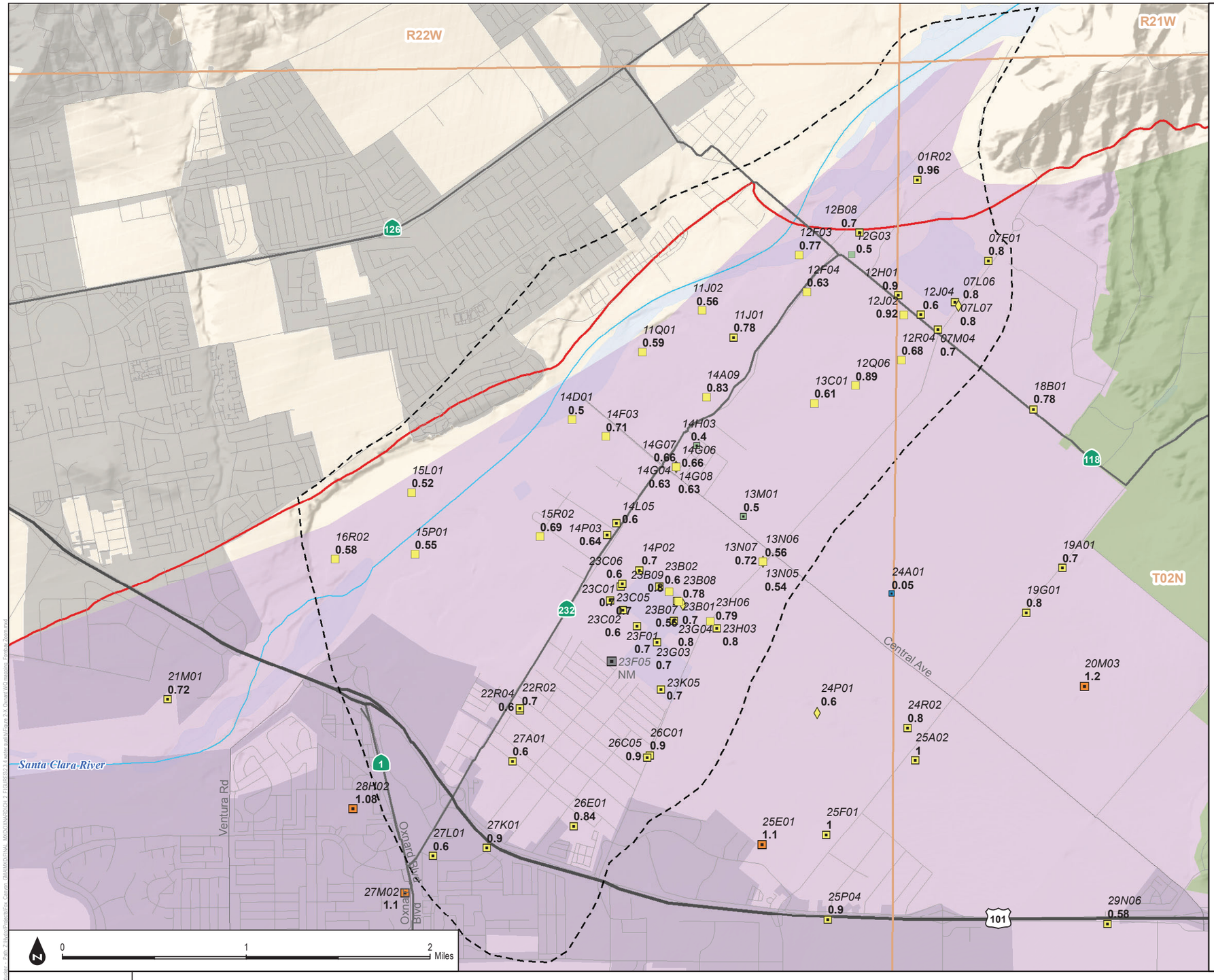
FIGURE 2-45A

Upper Aquifer System - Most Recent Boron (mg/L) Measured 2011-2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Wells screened in multiple aquifers in the UAS

Boron concentration (mg/L), 2011-2015

- 0 - 0.2
- >0.2 - 0.5
- >0.5 - 1.0
- >1.0 - 2.0
- >2.0 - 6.0
- Not Measured (NM)

15P01 Abbreviated State Well Number (see notes)

10.5 Concentration (mg/L)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix C.
2) "ND" signifies non-detect. "NM" signifies not measured.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well. A solid gray well symbol has no data between 2011 and 2015.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

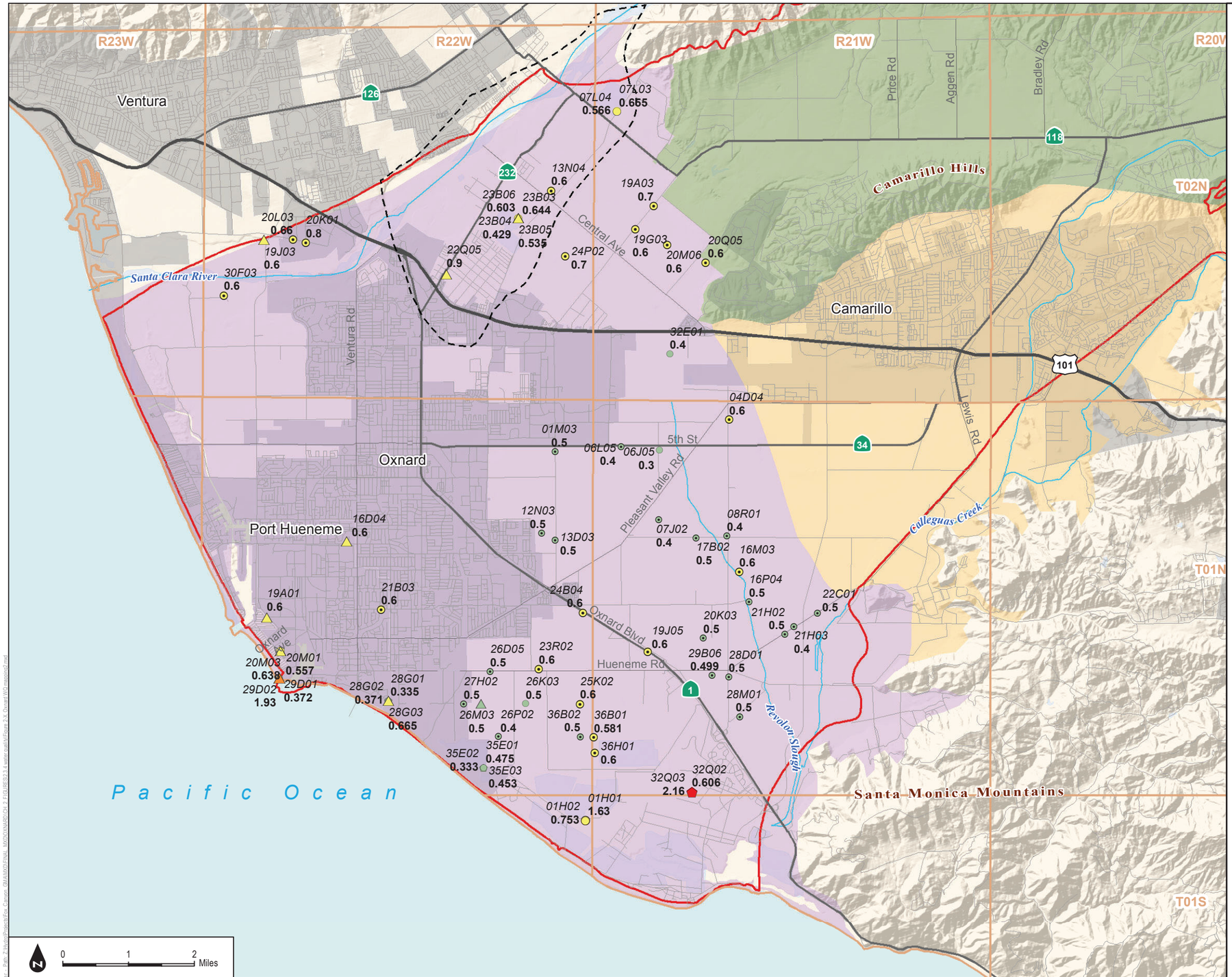
SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-45B

Upper Aquifer System, Forebay Area - Most Recent Boron (mg/L) Measured 2011-2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)
- Oxnard Forebay

Boron concentration (mg/L), 2011-2015

- 0 - 0.2
- >0.2 - 0.5
- >0.5 - 1.0
- >1.0 - 2.0
- >2.0 - 6.0

Aquifer designation

- △ Well screened in the Hueneme aquifer
- ○ Well screened in the Fox Canyon aquifer
- ⬠ Well screened in the Grimes Canyon aquifer
- ⊙ Wells screened in multiple aquifers in the LAS

15P01 Abbreviated State Well Number (see notes)
10.5 Concentration (mg/L)

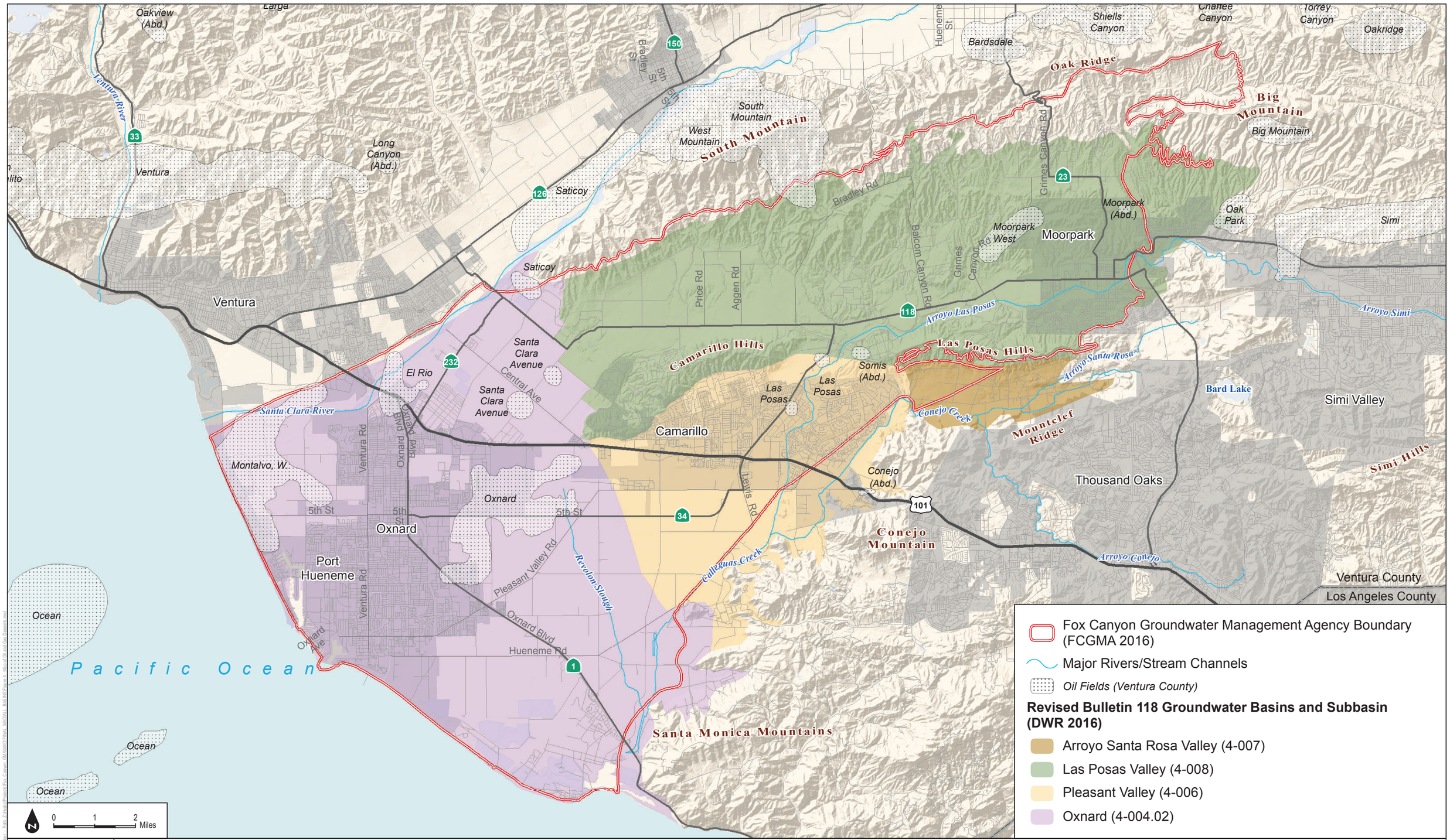
Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a concentration value beneath it.The concentration is the most recent concentration measured in water quality samples collected at that well in the five years from 2011-2015. For a complete water quality record for each well, see Appendix X.
2) "ND" signifies non-detect.
3) SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map,concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
4) The shape of each well symbol correspondsto the aquifer(s) in which it is screened (see above).
5) The color of each well symbol corresponds to the most recent concentration measured in a water quality sample from that well.
6) All concentrations are in mg/L.
7) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

FIGURE 2-46

Lower Aquifer System - Most Recent Boron (mg/L) Measured 2011-2015

INTENTIONALLY LEFT BLANK



- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- *Oil Fields (Ventura County)*

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

SOURCE: DWR; Ventura County

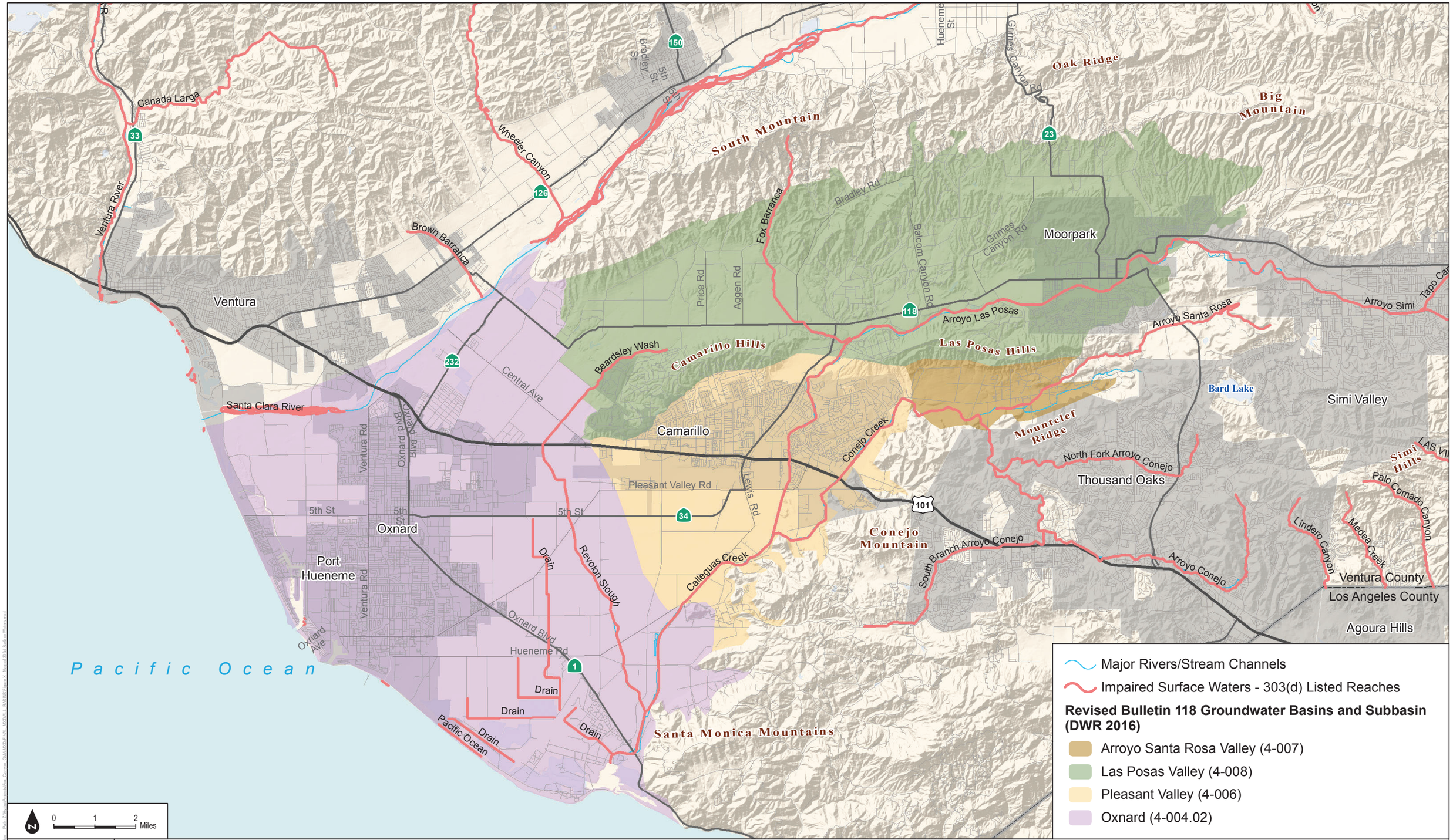
FIGURE 2-47

Oil Fields in the Vicinity of FCGMA Groundwater Basins

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: DWR; Ventura County

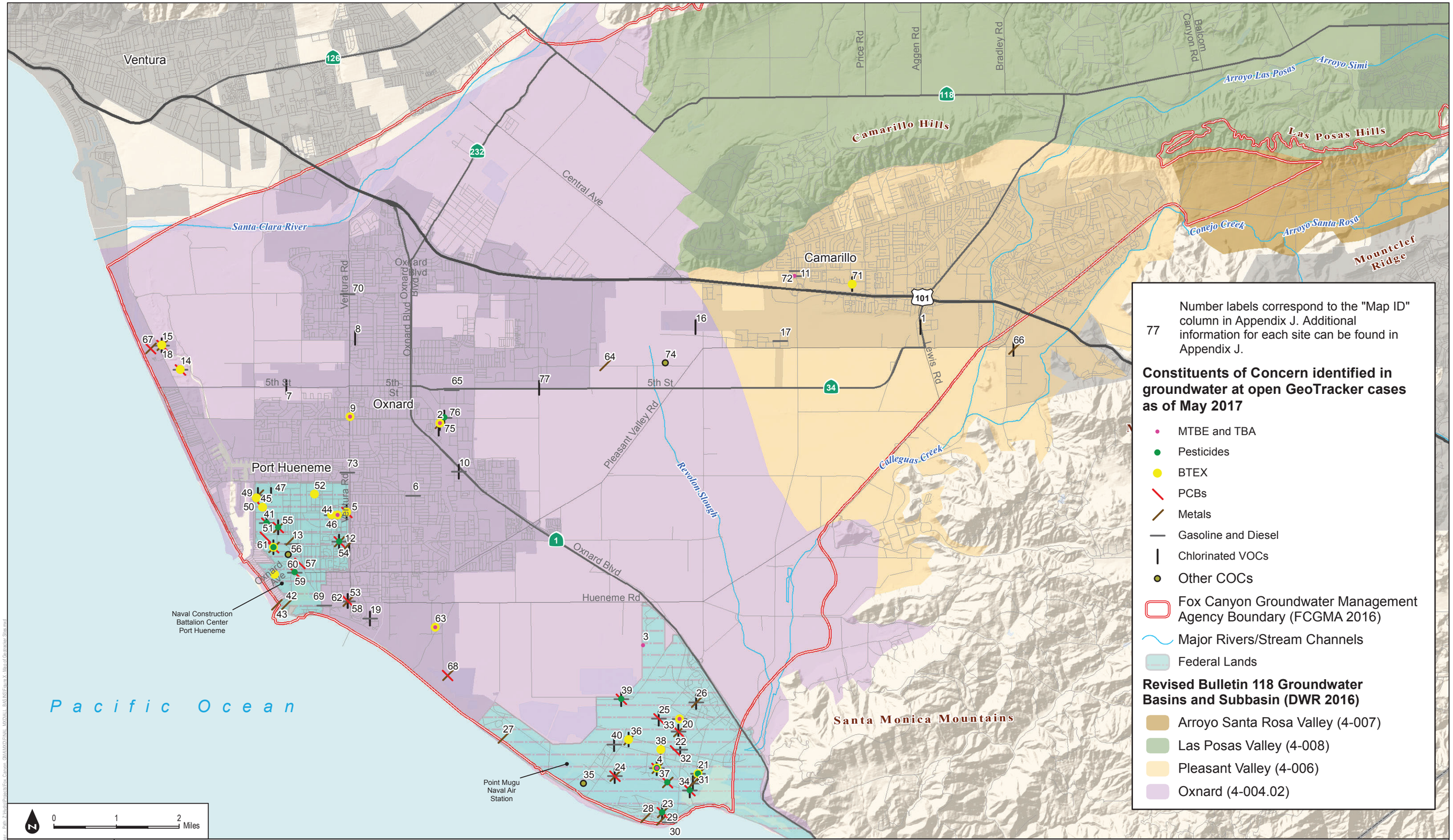
FIGURE 2-48

Impaired Surface Waters in the Vicinity of FCGMA Groundwater Basins

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



77 Number labels correspond to the "Map ID" column in Appendix J. Additional information for each site can be found in Appendix J.

Constituents of Concern identified in groundwater at open GeoTracker cases as of May 2017

- MTBE and TBA
- Pesticides
- BTEX
- PCBs
- Metals
- Gasoline and Diesel
- Chlorinated VOCs
- Other COCs
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Major Rivers/Stream Channels
- Federal Lands

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

SOURCE: DWR; Ventura County; Geotracker

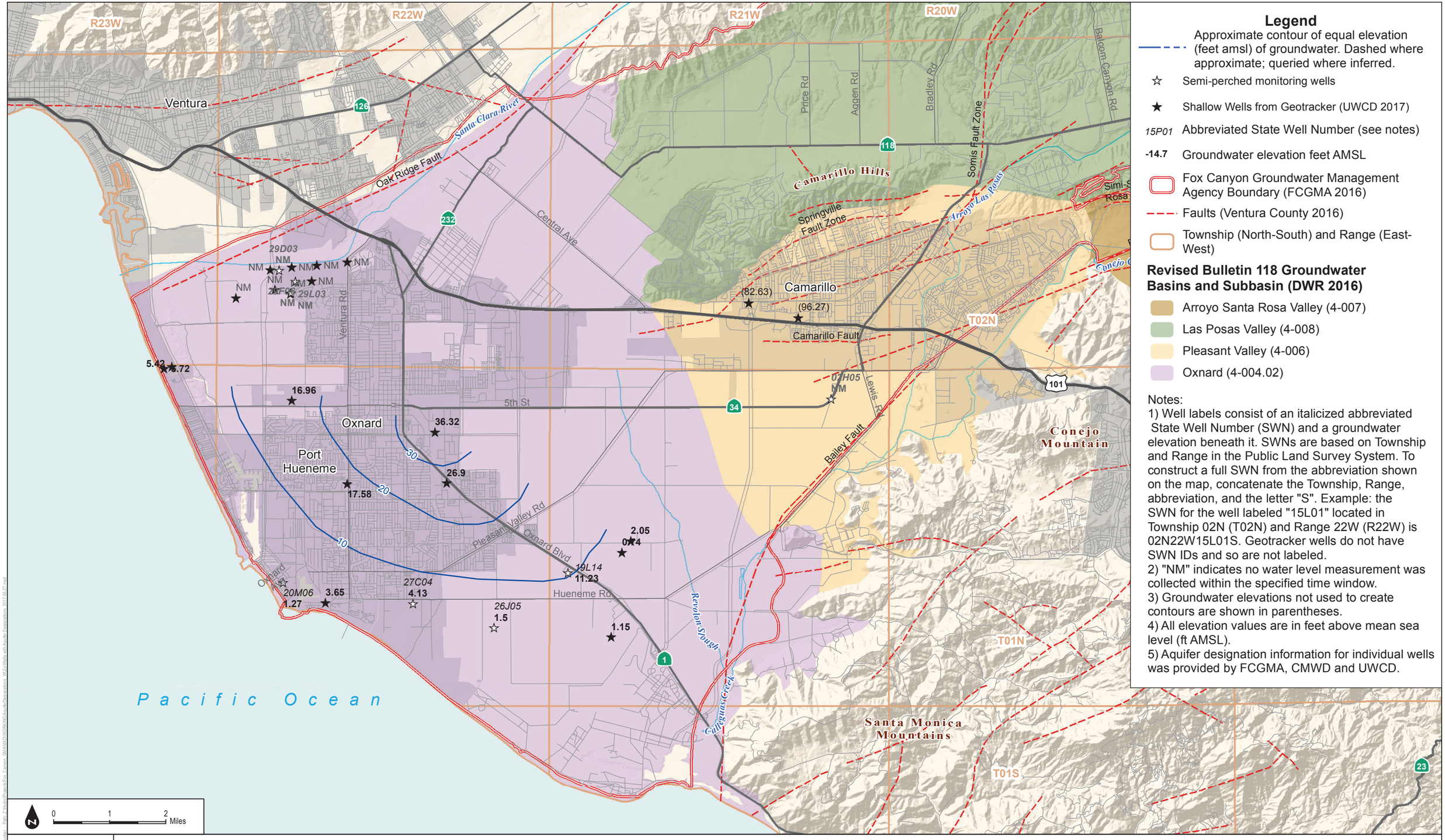
FIGURE 2-49

Constituents of Concern at Open GeoTracker Cases with Impacted Groundwater within FCGMA Groundwater Basin Boundaries

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- ☆ Semi-perched monitoring wells
- ★ Shallow Wells from Geotracker (UWCD 2017)
- *15P01* Abbreviated State Well Number (see notes)
- -14.7 Groundwater elevation feet AMSL
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (Ventura County 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.

2) "NM" indicates no water level measurement was collected within the specified time window.

3) Groundwater elevations not used to create contours are shown in parentheses.

4) All elevation values are in feet above mean sea level (ft AMSL).

5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; Ventura County; UWCD; CMWD

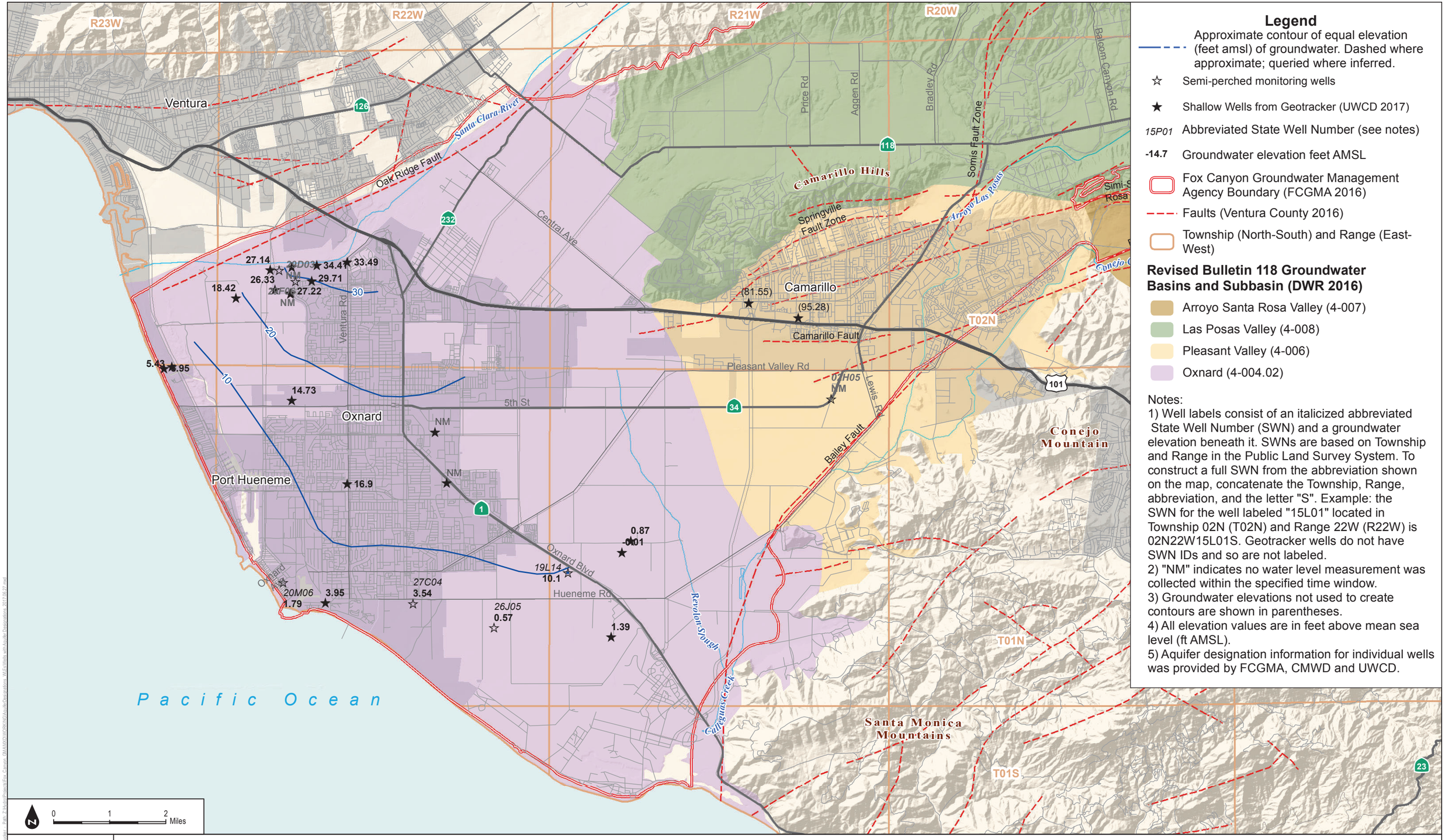
FIGURE 2-50

Groundwater Elevation Contours in the Semi-Perched Aquifer, March 2-29, 2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.

☆ Semi-perched monitoring wells

★ Shallow Wells from Geotracker (UWCD 2017)

15P01 Abbreviated State Well Number (see notes)

-14.7 Groundwater elevation feet AMSL

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (Ventura County 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016)

Arroyo Santa Rosa Valley (4-007)

Las Posas Valley (4-008)

Pleasant Valley (4-006)

Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.

2) "NM" indicates no water level measurement was collected within the specified time window.

3) Groundwater elevations not used to create contours are shown in parentheses.

4) All elevation values are in feet above mean sea level (ft AMSL).

5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; Ventura County; UWCD; CMWD

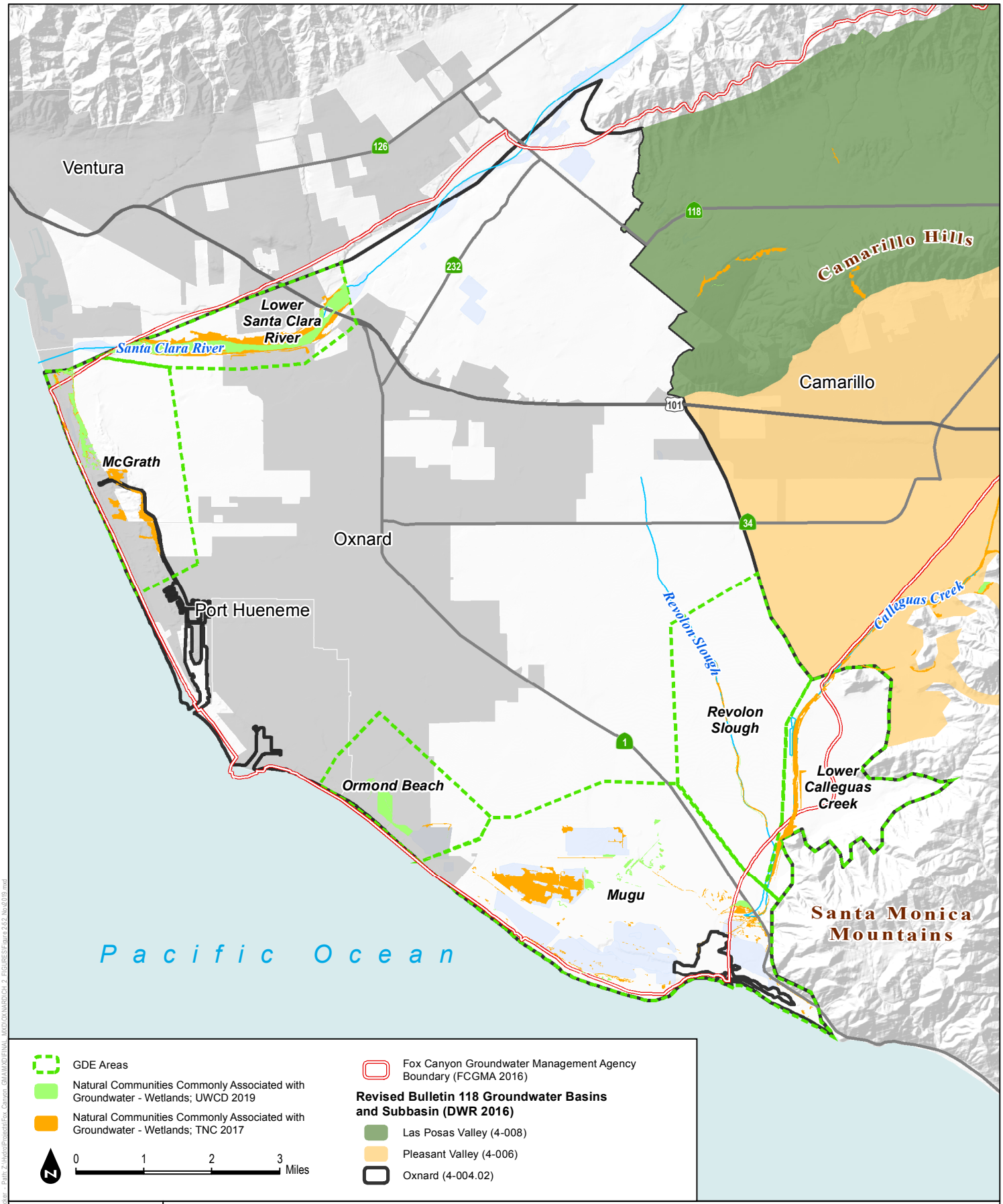
FIGURE 2-51

Groundwater Elevation Contours in the Semi-Perched Aquifer, October 2-29, 2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



DUDEK

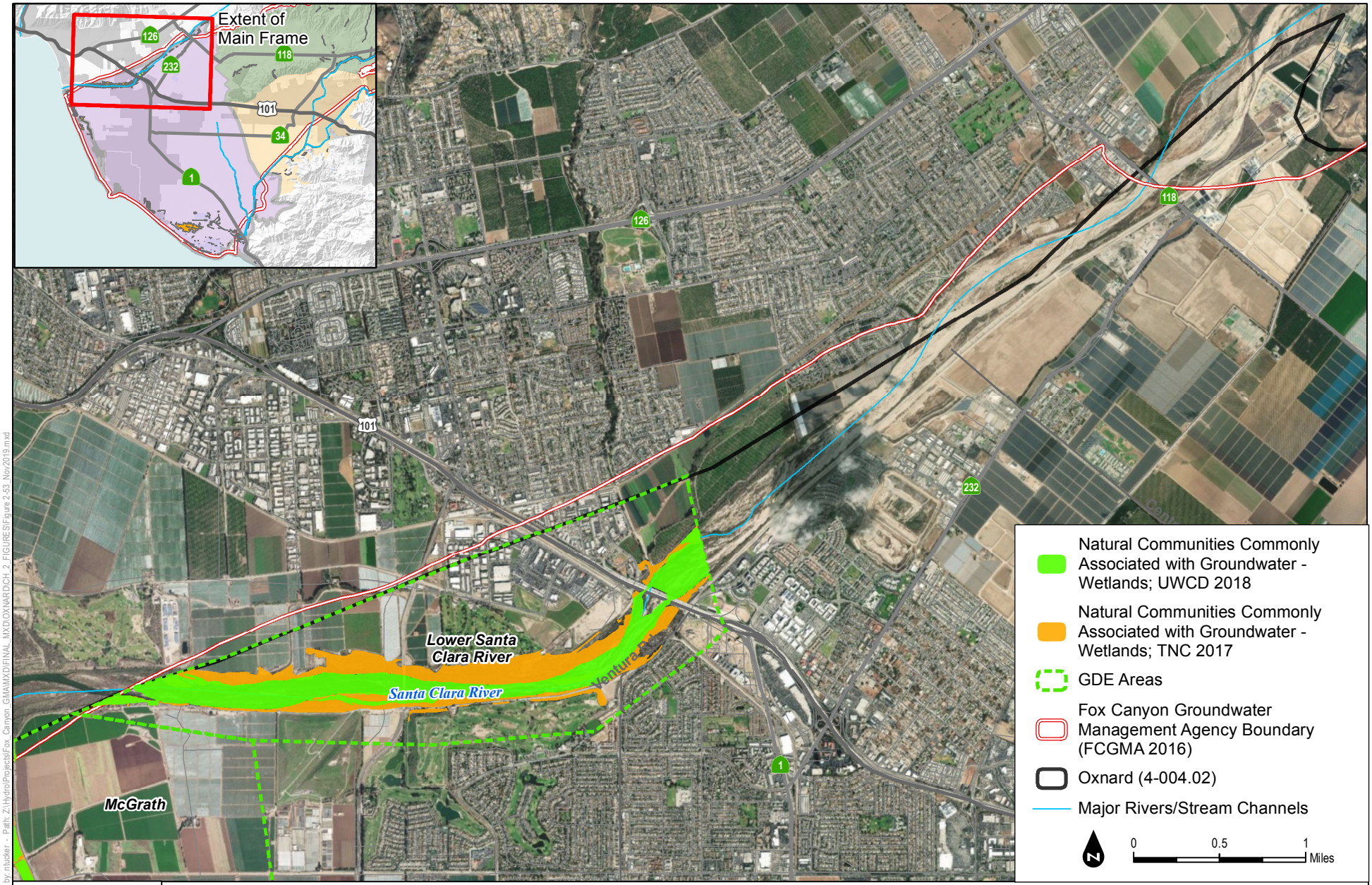
SOURCE: DWR; Santa Barbara County; FCGMA

FIGURE 2-52

Groundwater-Dependent Ecosystems for the Oxnard Subbasin

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: DWR; Santa Barbara County; FCGMA; Esri

FIGURE 2-53

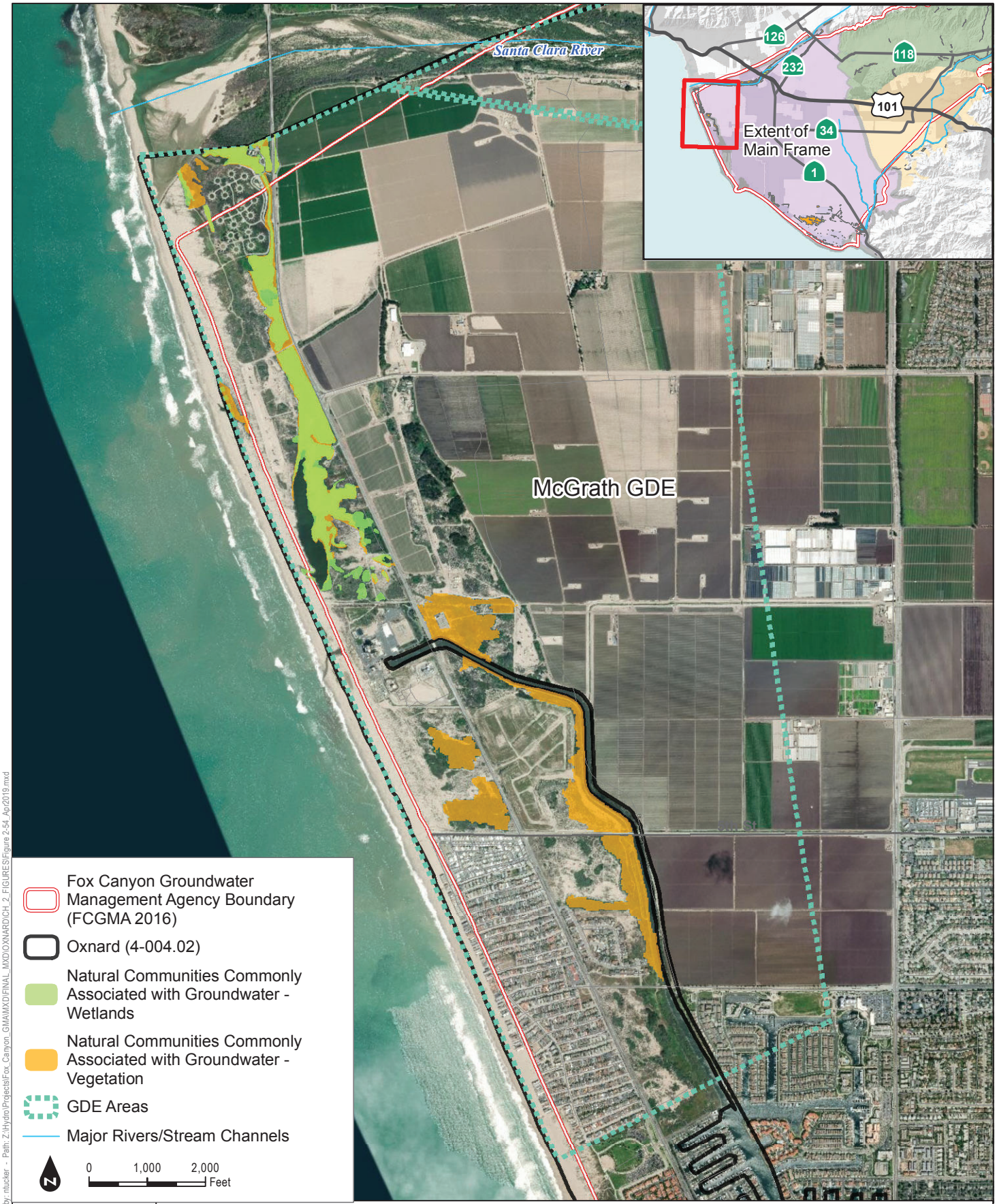
Lower Santa Clara River Groundwater-Dependent Ecosystems

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

Date: 11/11/2019 Last saved by: mtudor Path: Z:\HydroProjects\Fox_Canyon_GMA\MXD\FINAL_MXD\OXNARD\CH_2_FIGURES\Figure 2-53_Nov2019.mxd

INTENTIONALLY LEFT BLANK



Date: 4/10/2019 - Last saved by: rtucker - Path: Z:\Hydro\Projects\Fox_Canyon_GMA\MXD\FINAL_MXD\OXNARD\CH_2_FIGURES\Figure 2-54_Apr2019.mxd

DUDEK

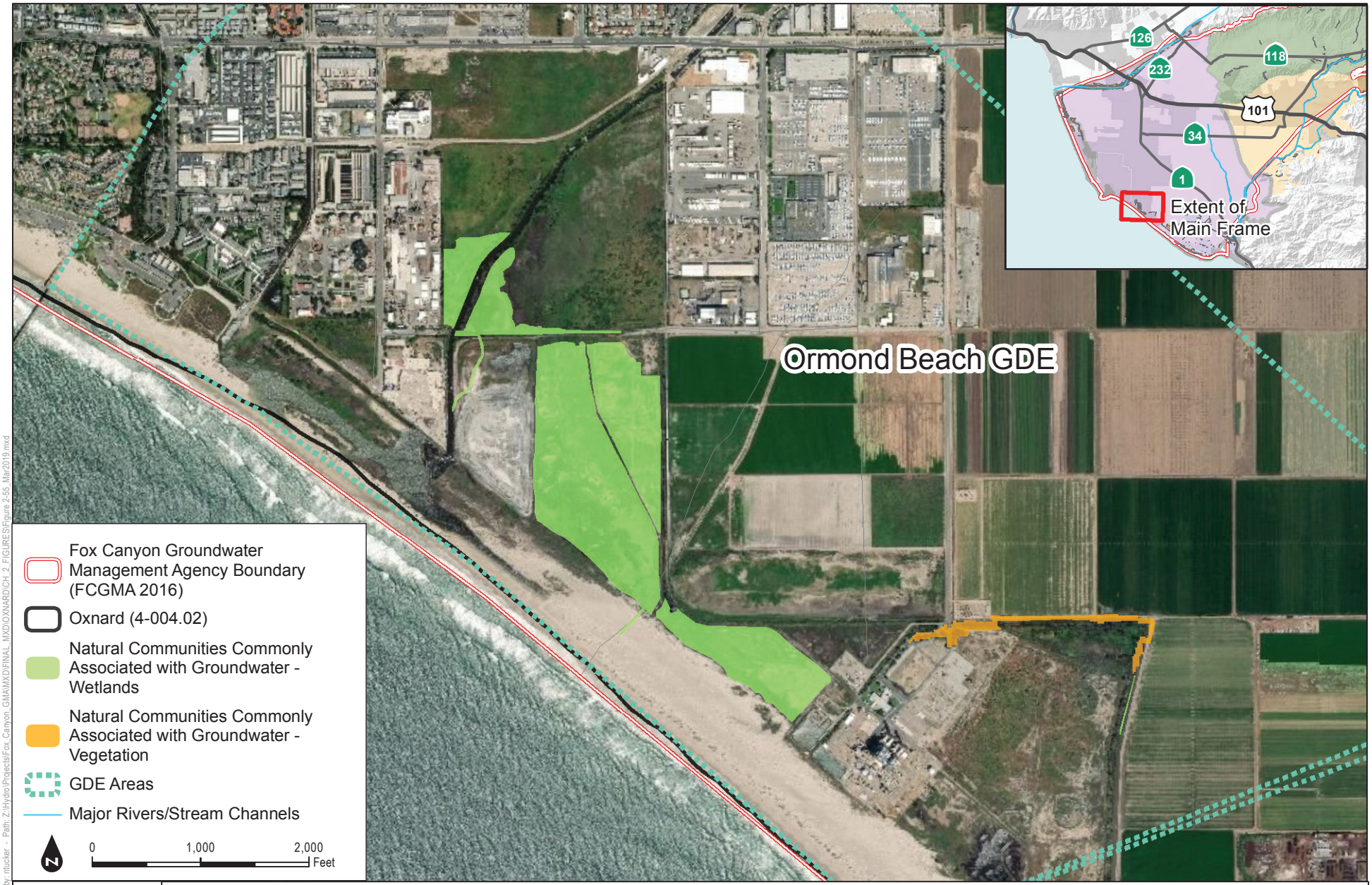
SOURCE: DWR; Santa Barbara County; FCGMA; Esri

FIGURE 2-54

McGrath Lake Groundwater Dependent Ecosystems

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: DWR; Santa Barbara County; FCGMA; Esri

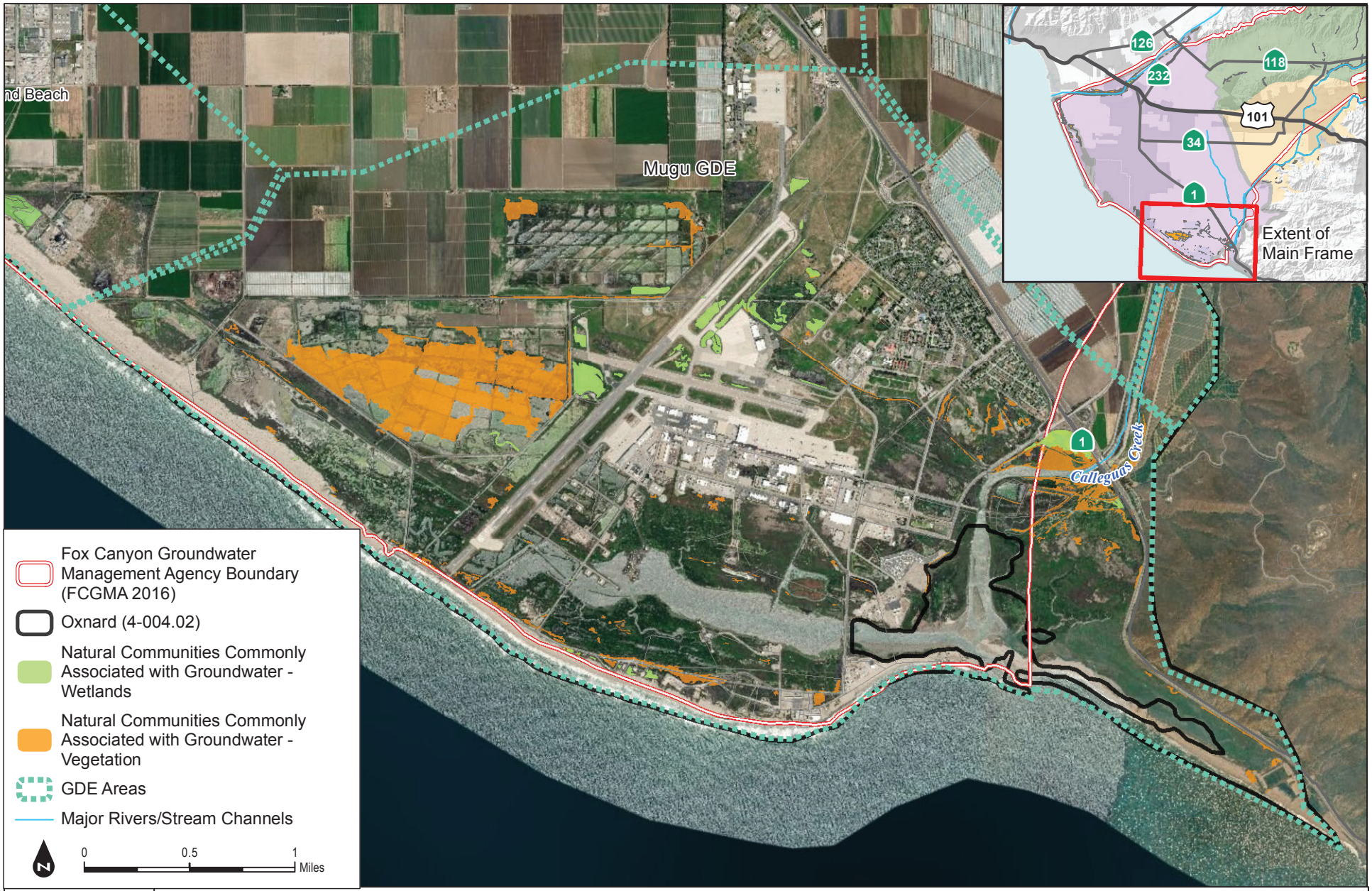
FIGURE 2-55

Ormond Beach Groundwater Dependent Ecosystems

Groundwater Sustainability Plan for the Oxnard Subbasin

Date: 4/10/2019 - Last saved by: rtucker - Path: Z:\Hydro\Projects\Fox_Canyon_GMA\MXD\FINAL_MXD\OXNARD\CH_2_FIGURES\Figure 2-55_Mar2019.mxd

INTENTIONALLY LEFT BLANK



DUDEK

SOURCE: DWR; Santa Barbara County; FCGMA; Esri

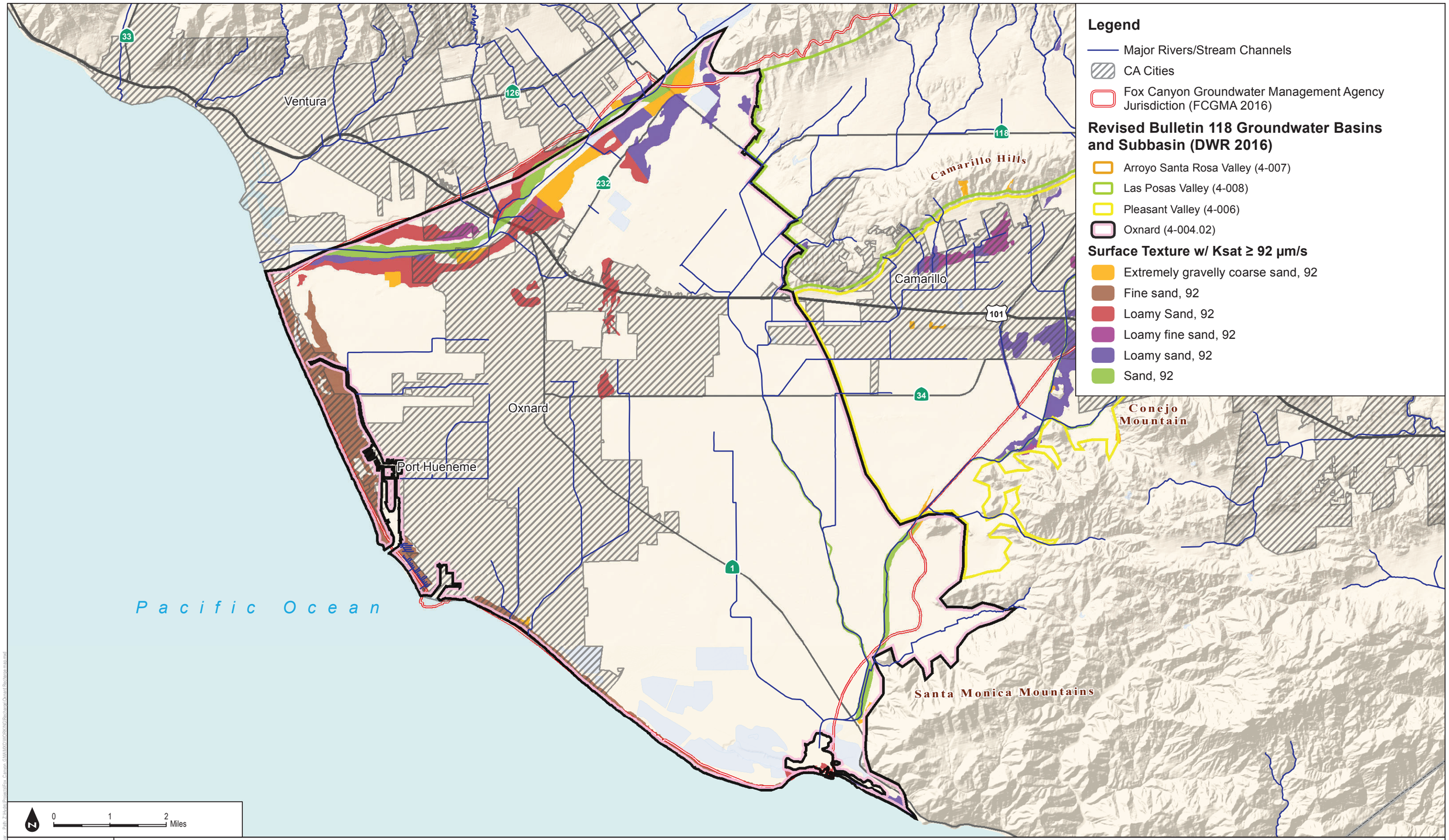
FIGURE 2-56

Mugu Lagoon Groundwater Dependent Ecosystems

Groundwater Sustainability Plan for the Oxnard Subbasin

File String

INTENTIONALLY LEFT BLANK



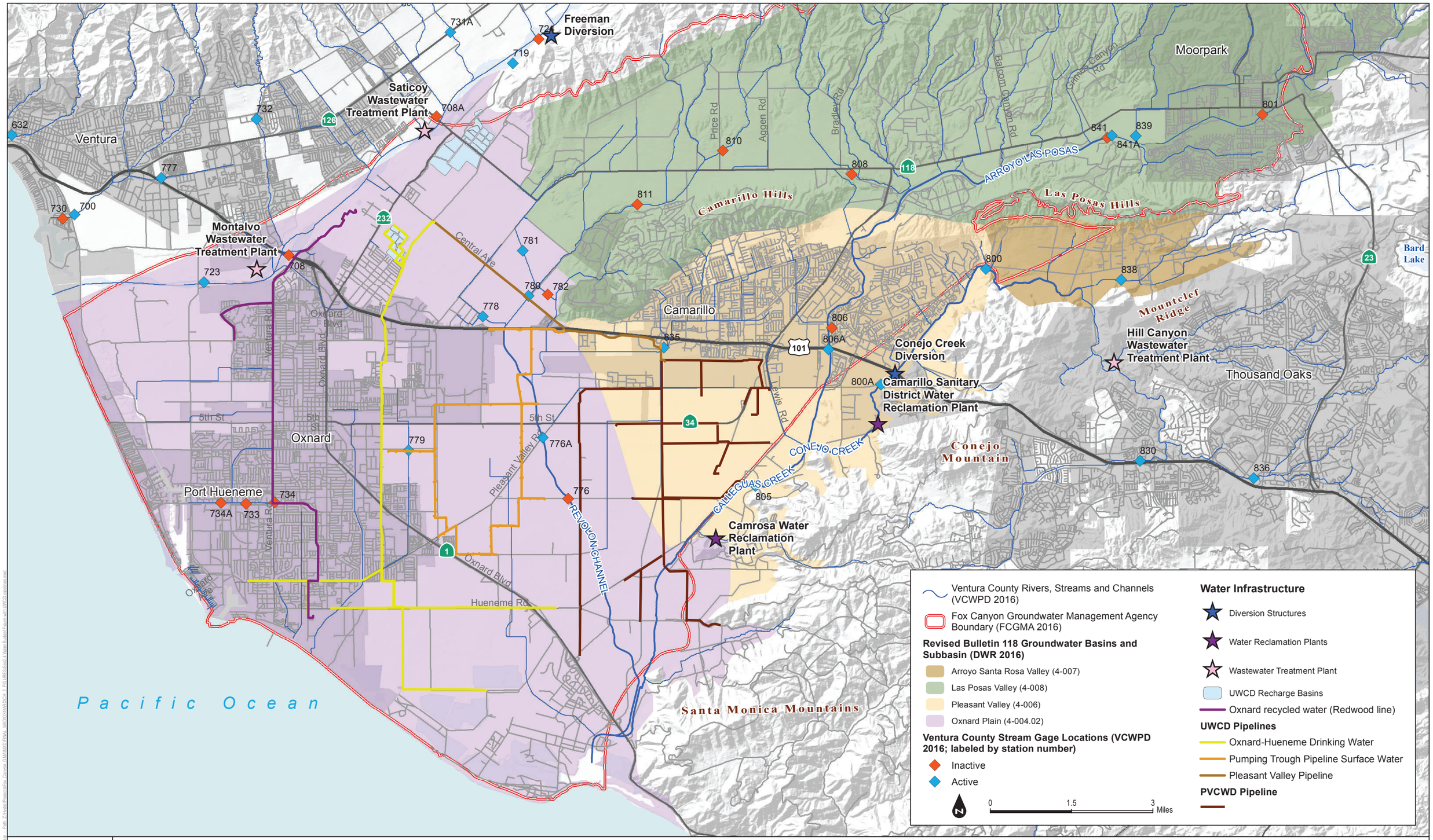
SOURCE: DWR, USGS, NRCS

DUDEK

FIGURE 2-57
Oxnard Potential Recharge Areas

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



DUDEK

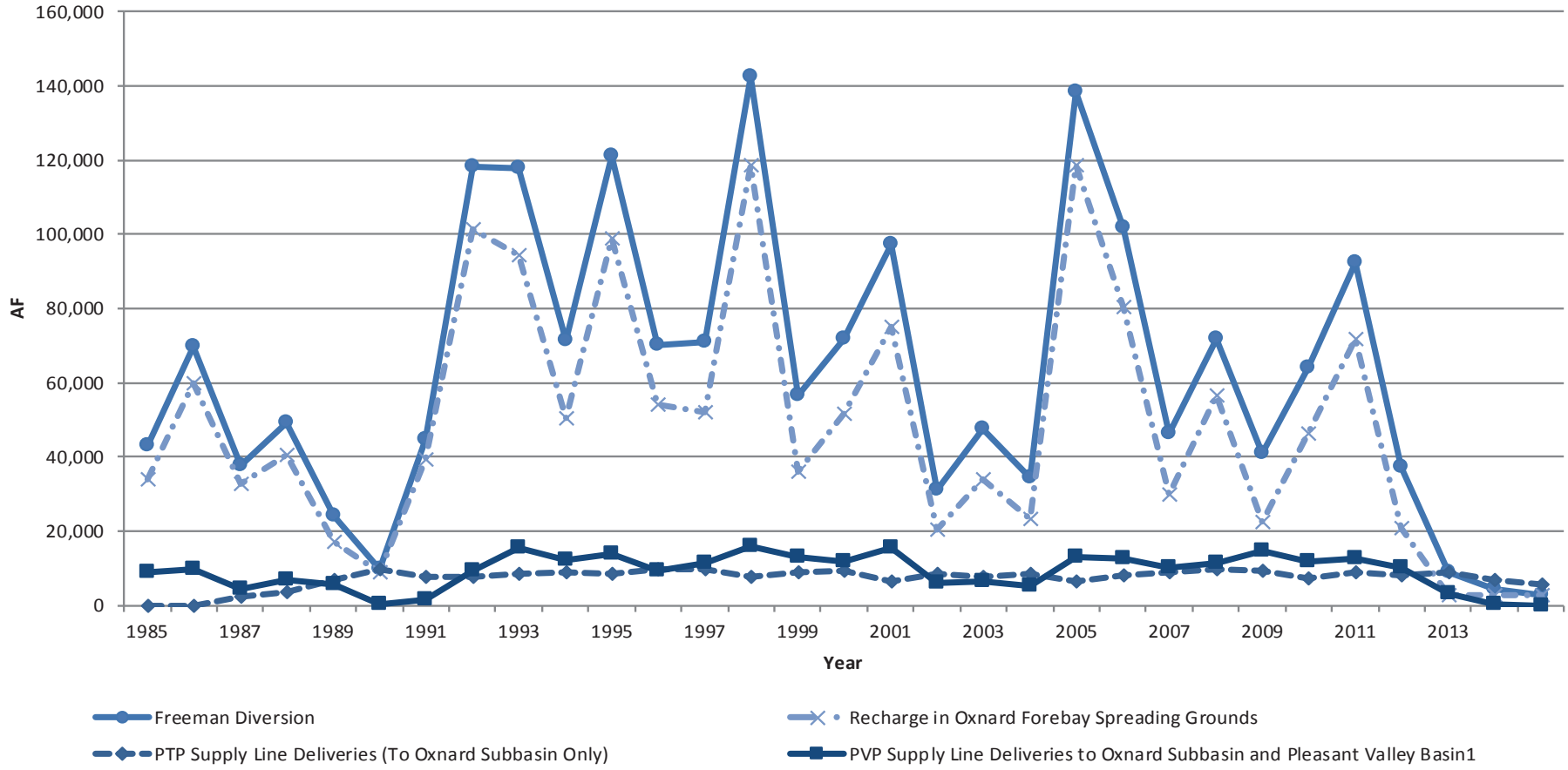
SOURCE: DWR; Ventura County; VCWPD

FIGURE 2-58

Oxnard Subbasin Stream Gauges and Water Infrastructure

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

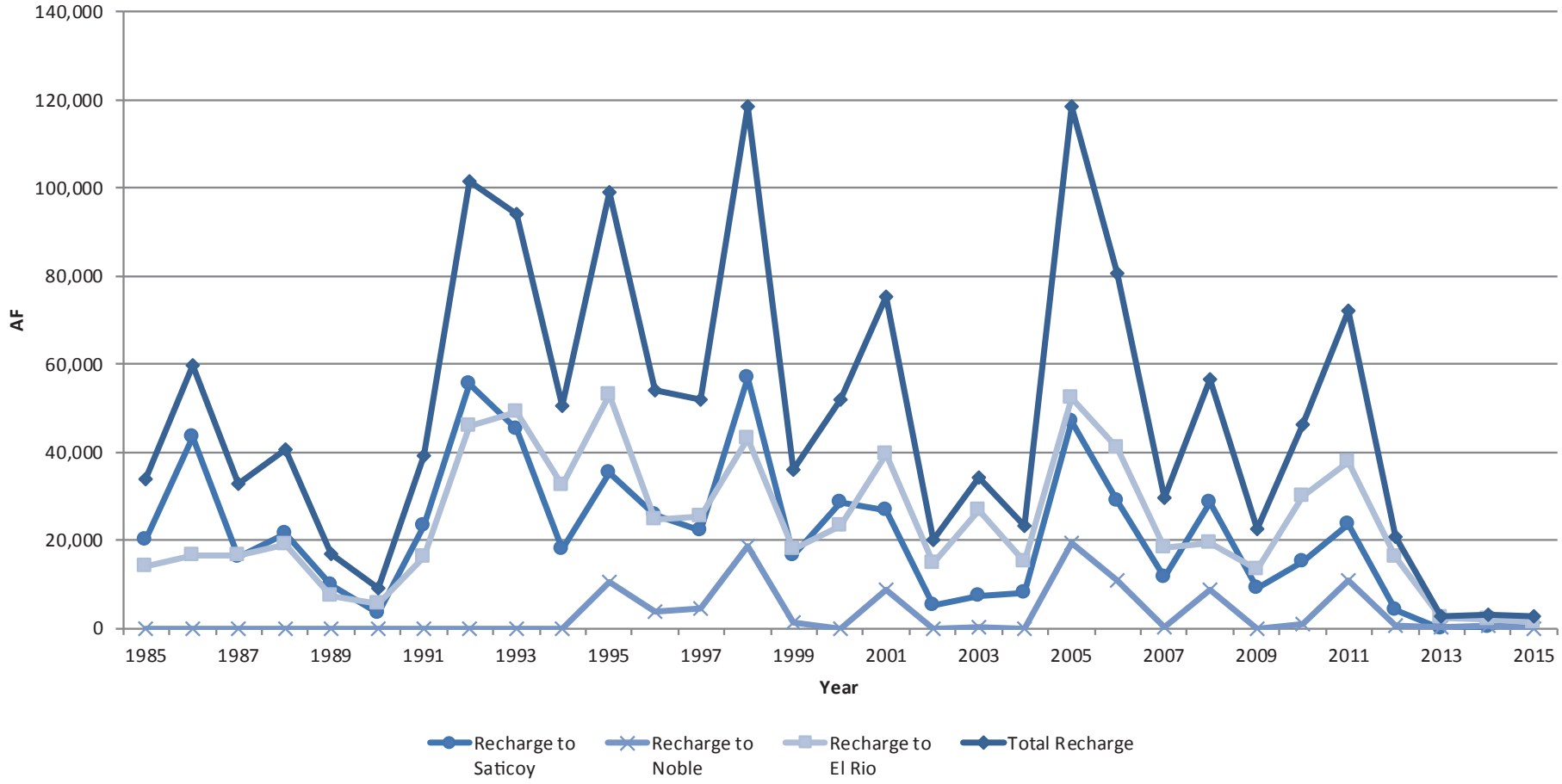


DUDEK

FIGURE 2-59

Freeman Diversion and Uses in the Oxnard Subbasin

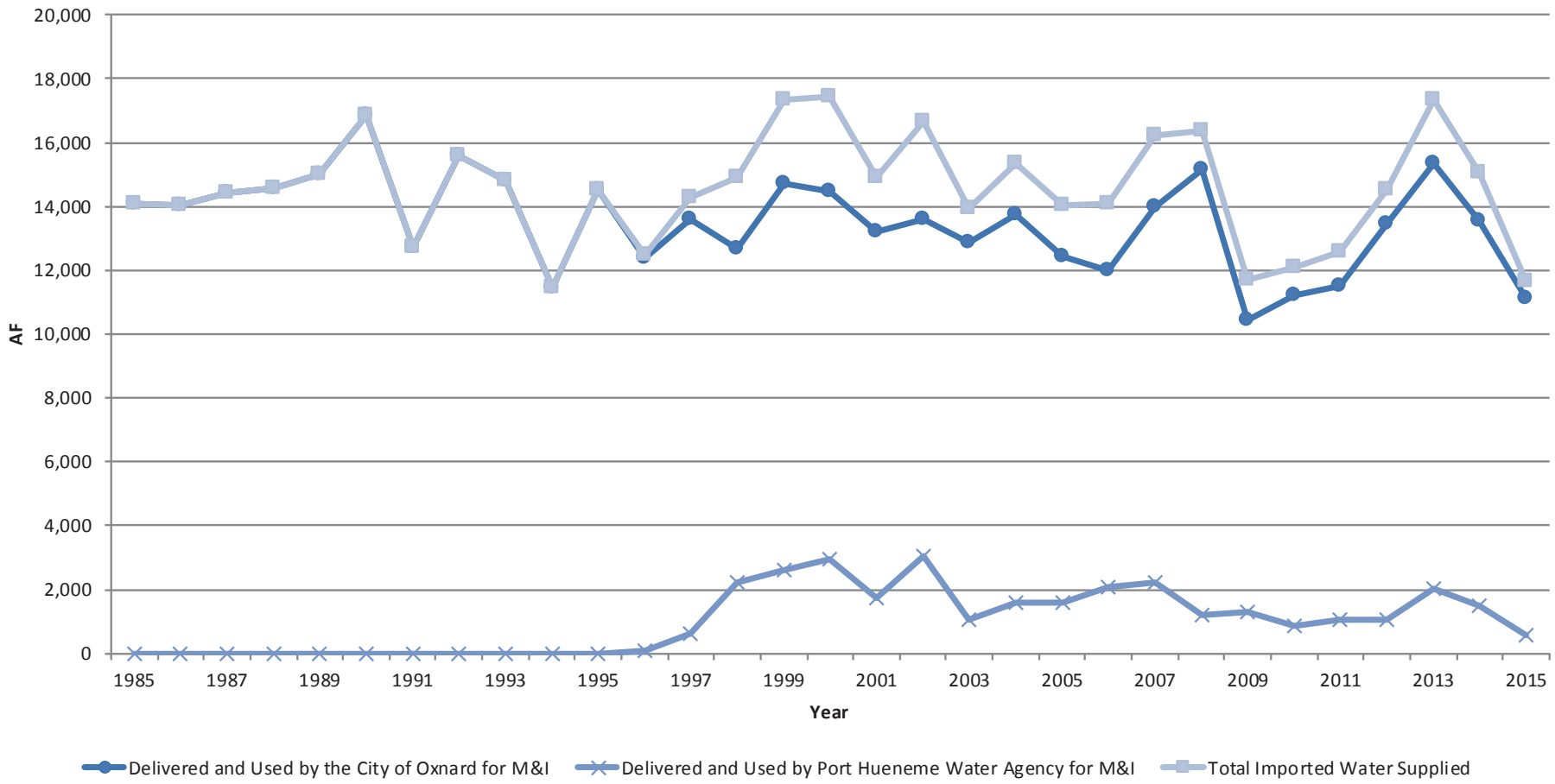
INTENTIONALLY LEFT BLANK



DUDEK

FIGURE 2-60
UWCD Groundwater Recharge

INTENTIONALLY LEFT BLANK

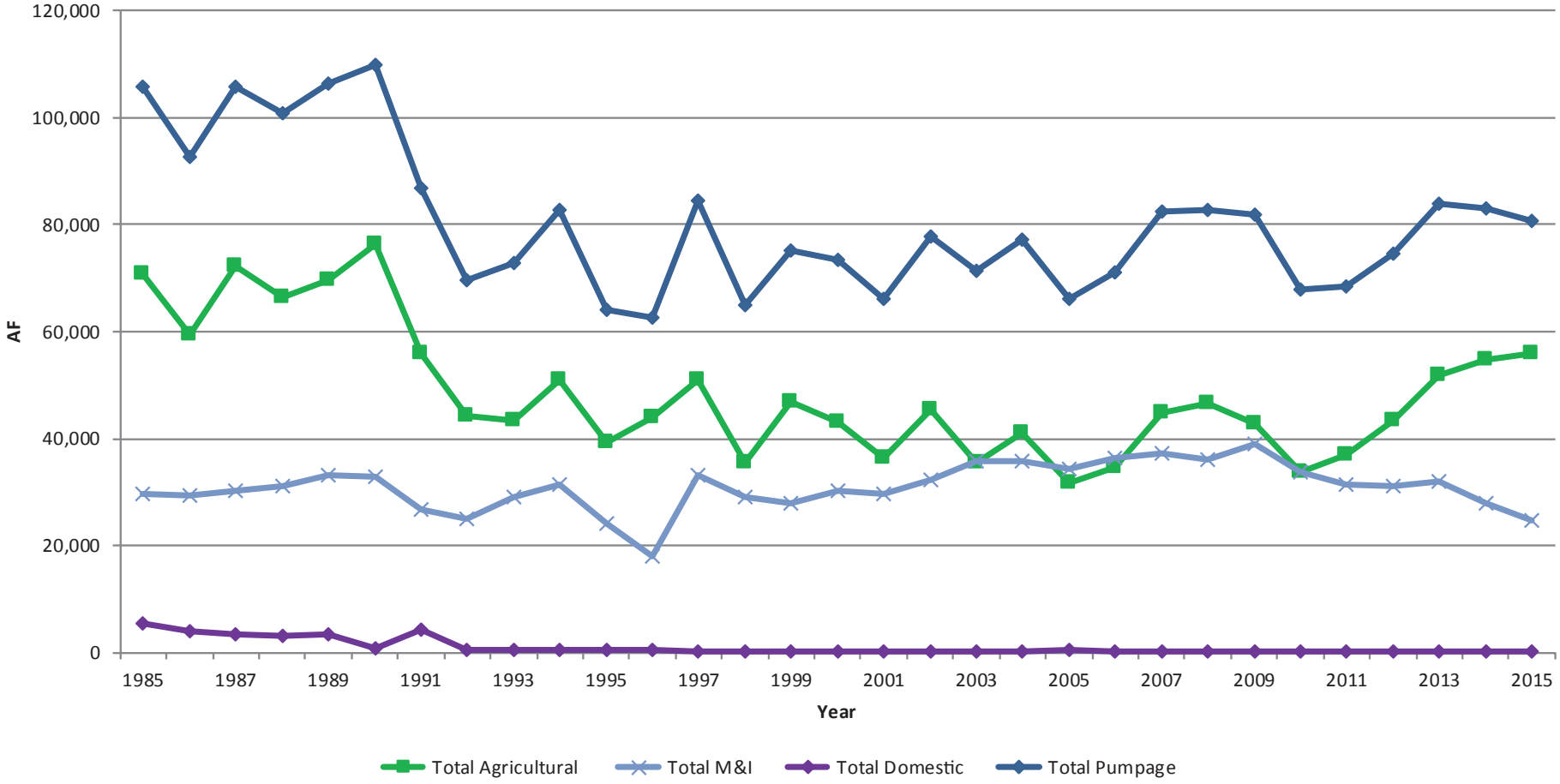


DUDEK

FIGURE 2-61
Water Deliveries to the PVCWD and UWCD

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

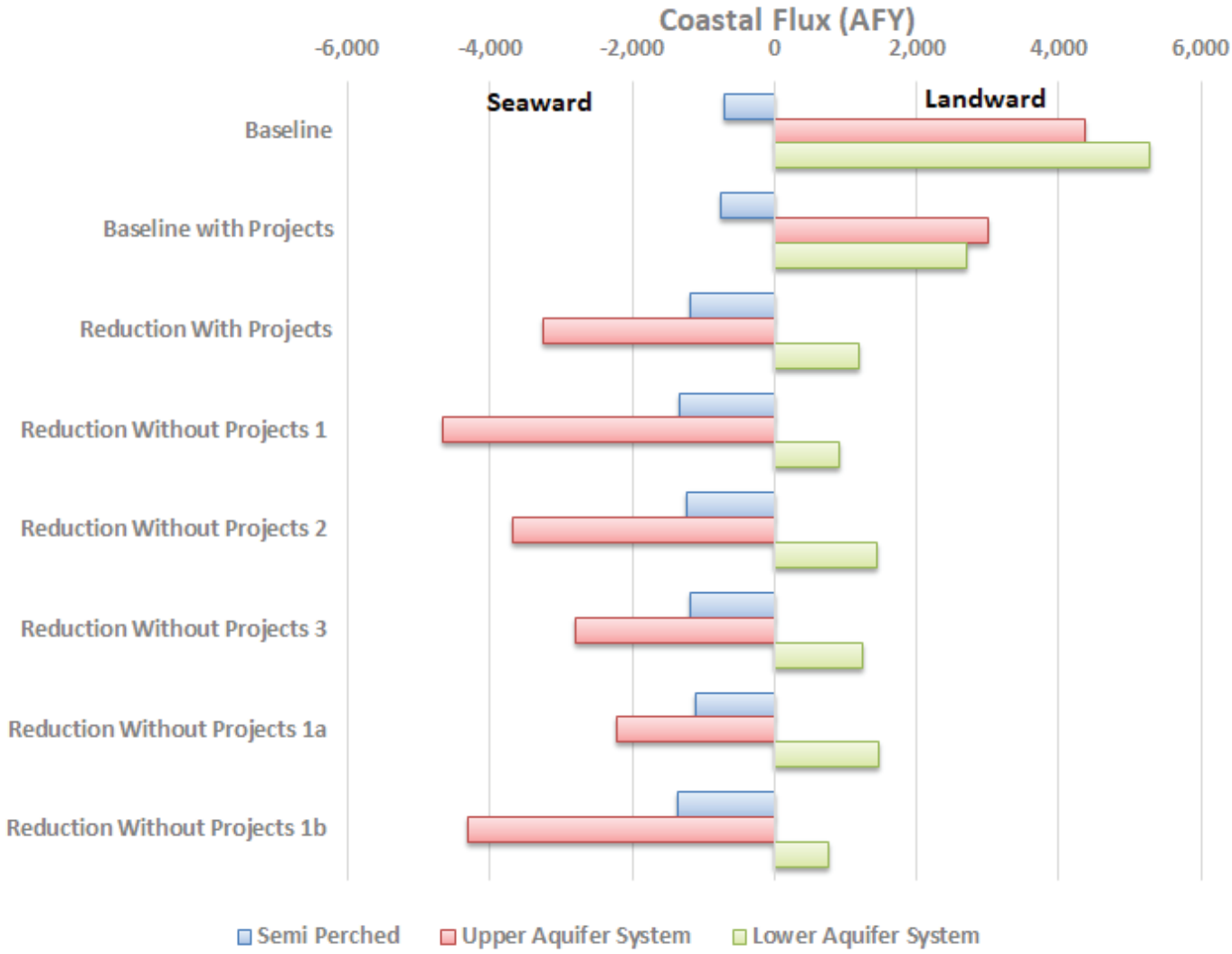


DUDEK

FIGURE 2-62
Groundwater Pumping

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

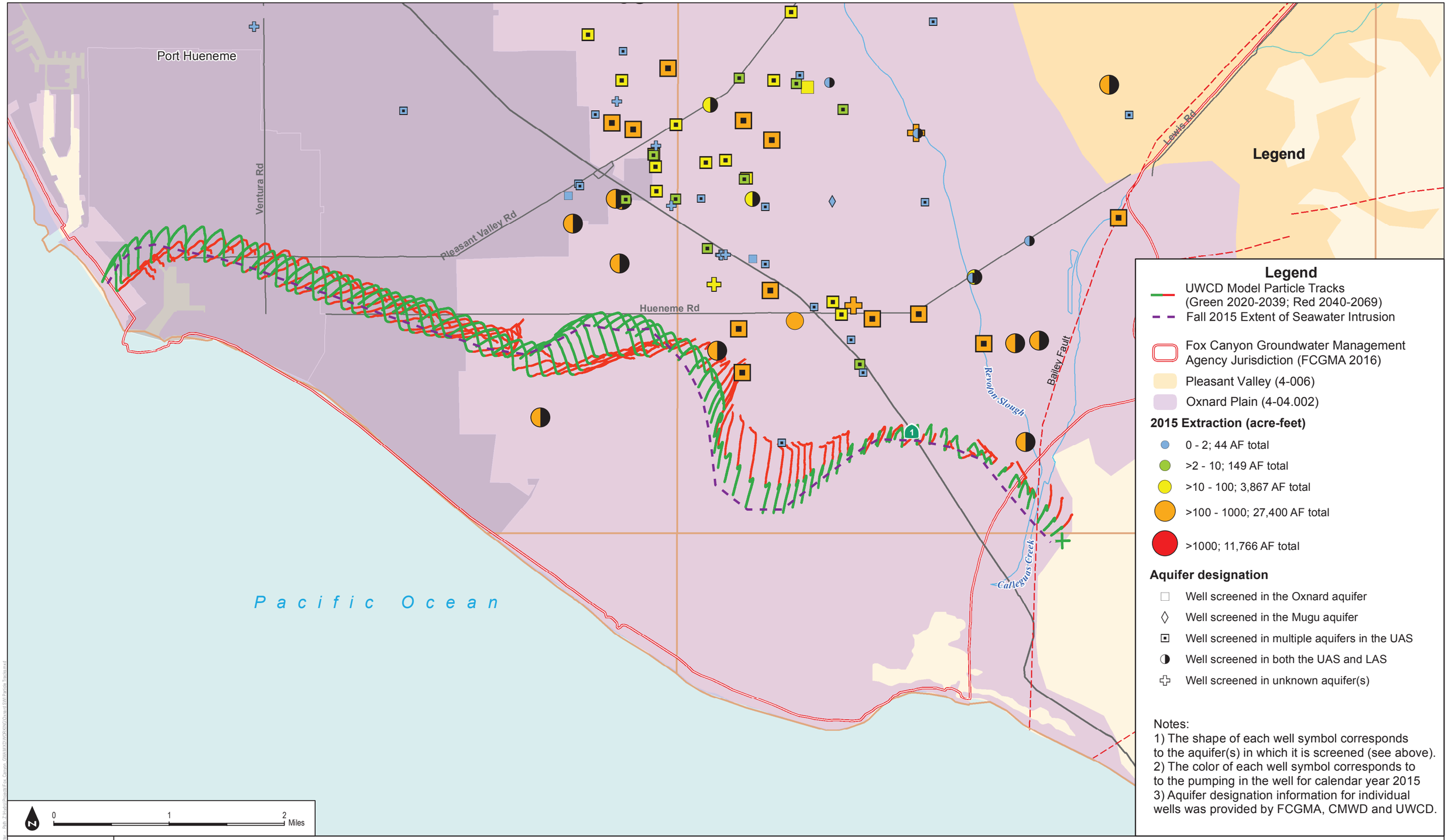


DUDEK

FIGURE 2-63

Coastal Flux From the UWCD Model Scenarios

INTENTIONALLY LEFT BLANK



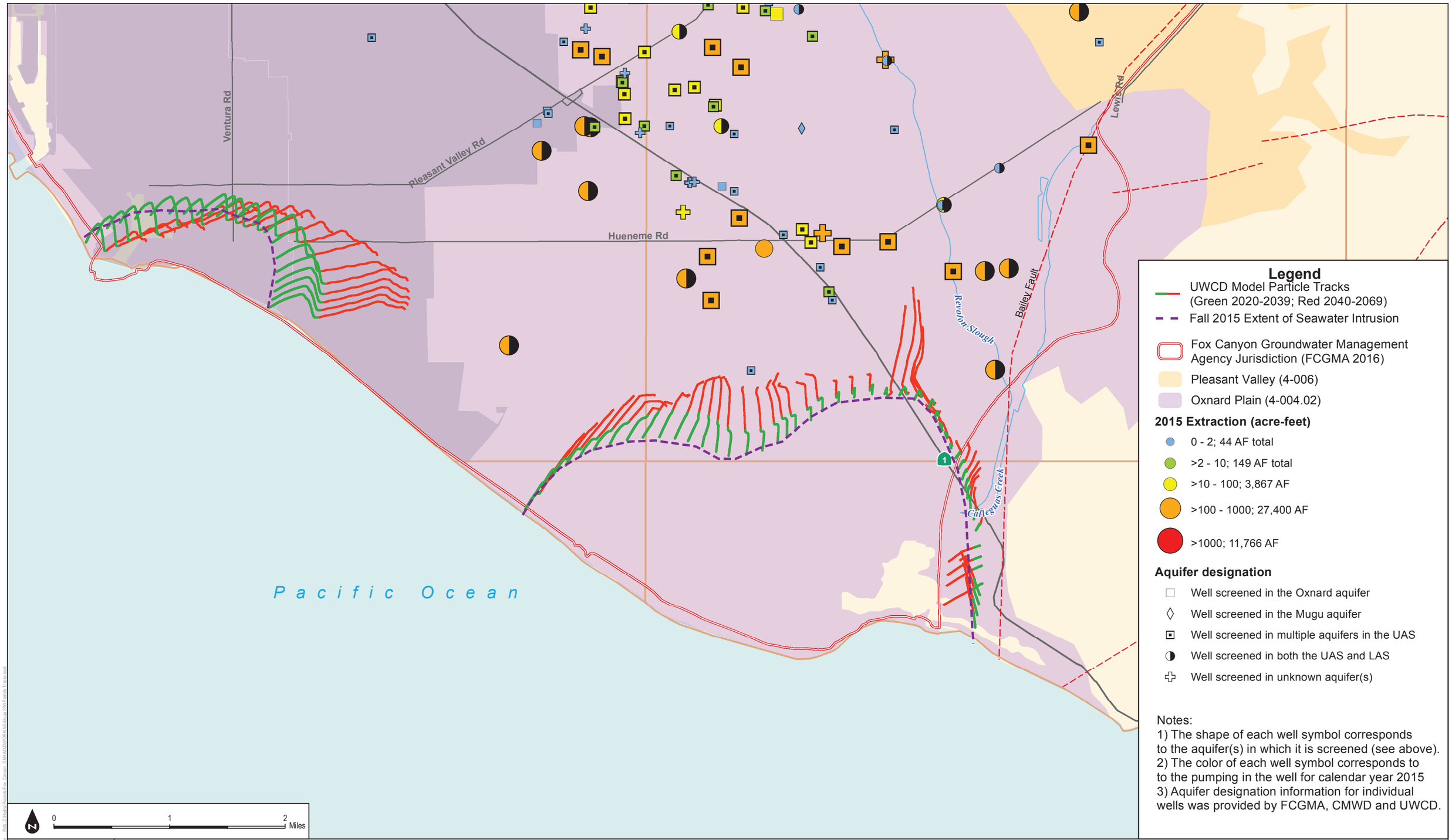
SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Figure 2-64a
UWCD Model Particle Tracks, Oxnard Aquifer, Future Baseline

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



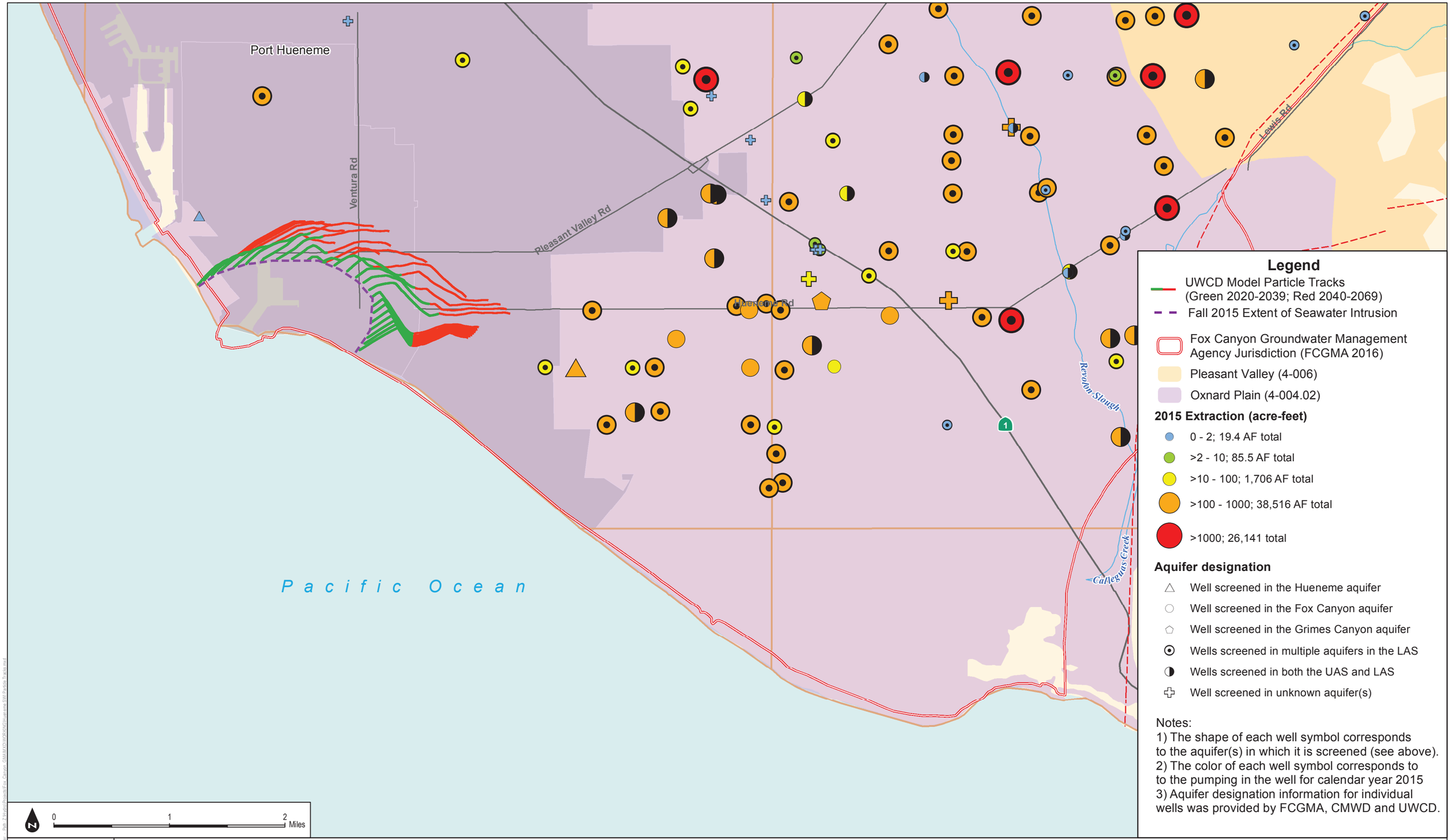
SOURCE: DWR; Ventura County; UWCD; CMWD
Climate Period 1930-1979; Climate Change Factor 2070

DUDEK

Figure 2-64b
UWCD Model Particle Tracks, Mugu Aquifer, Future Baseline

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

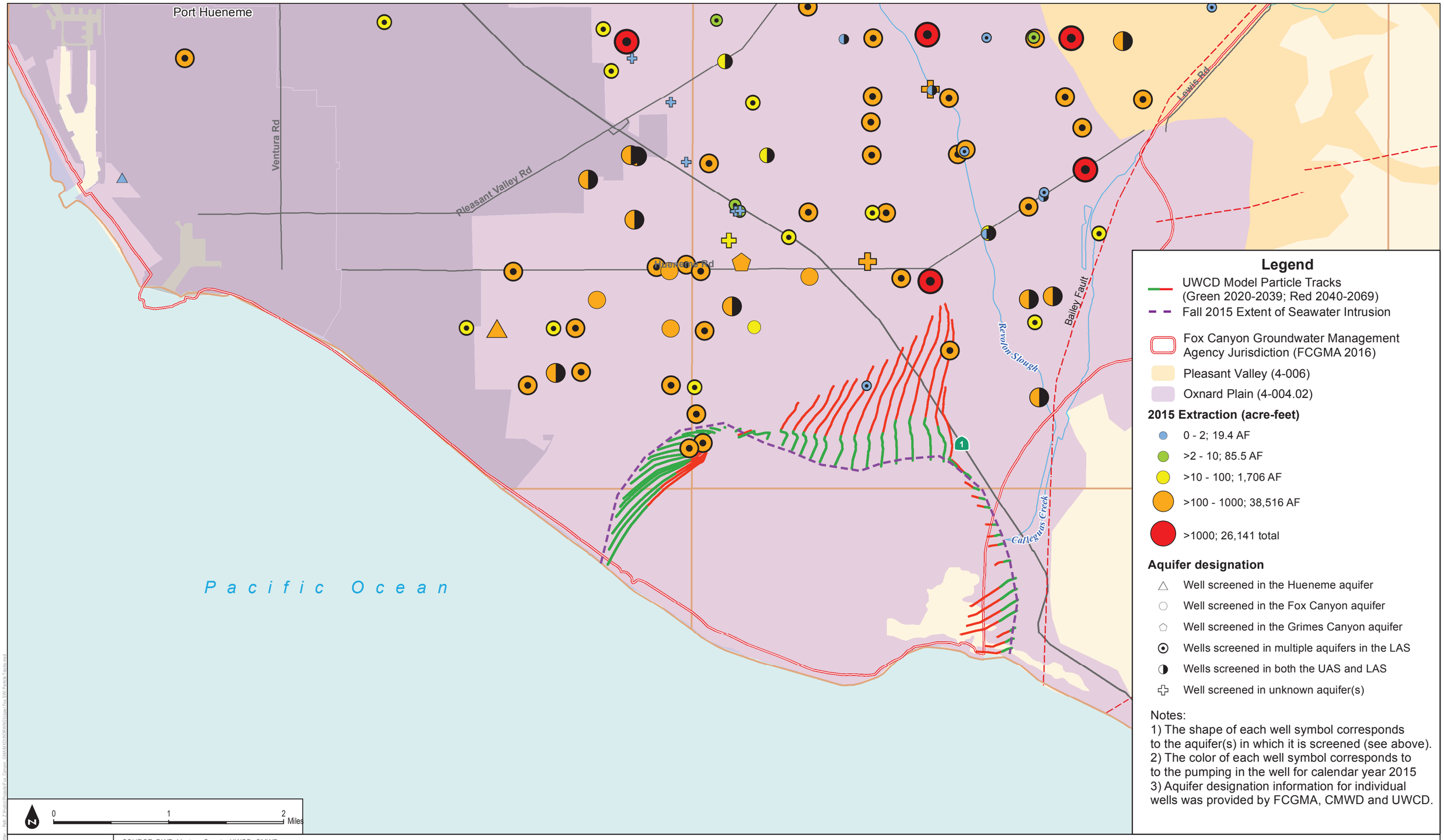


SOURCE: DWR; Ventura County; UWCD; CMWD
Climate Period 1930-1979; Climate Change Factor 2070

DUDEK

Figure 2-64c
UWCD Model Particle Tracks, Hueneme Aquifer, Future Baseline

INTENTIONALLY LEFT BLANK



SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

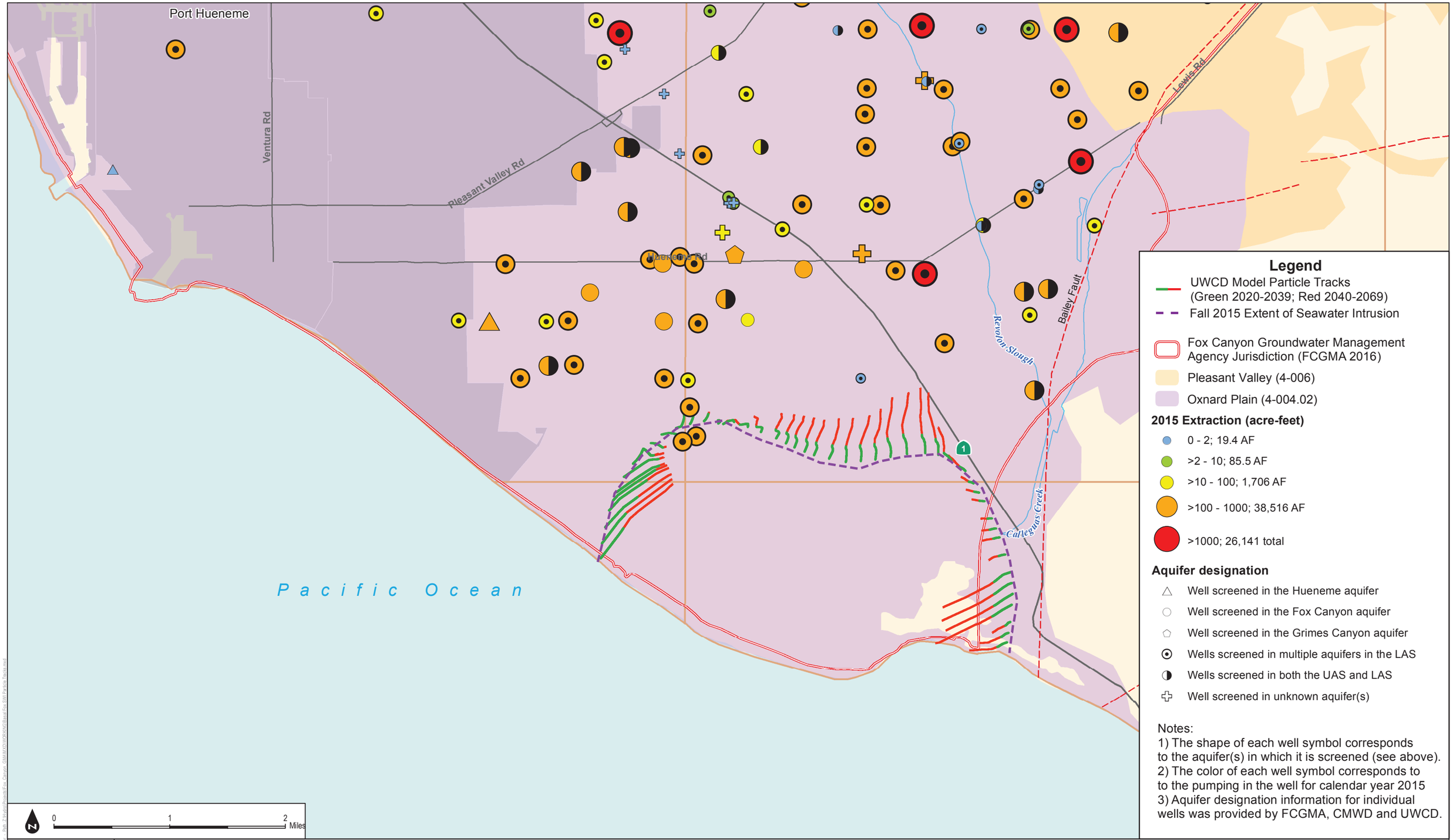
DRAFT

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

Figure 2-64d
UWCD Model Particle Tracks, Upper Fox Canyon Aquifer, Future Baseline

INTENTIONALLY LEFT BLANK

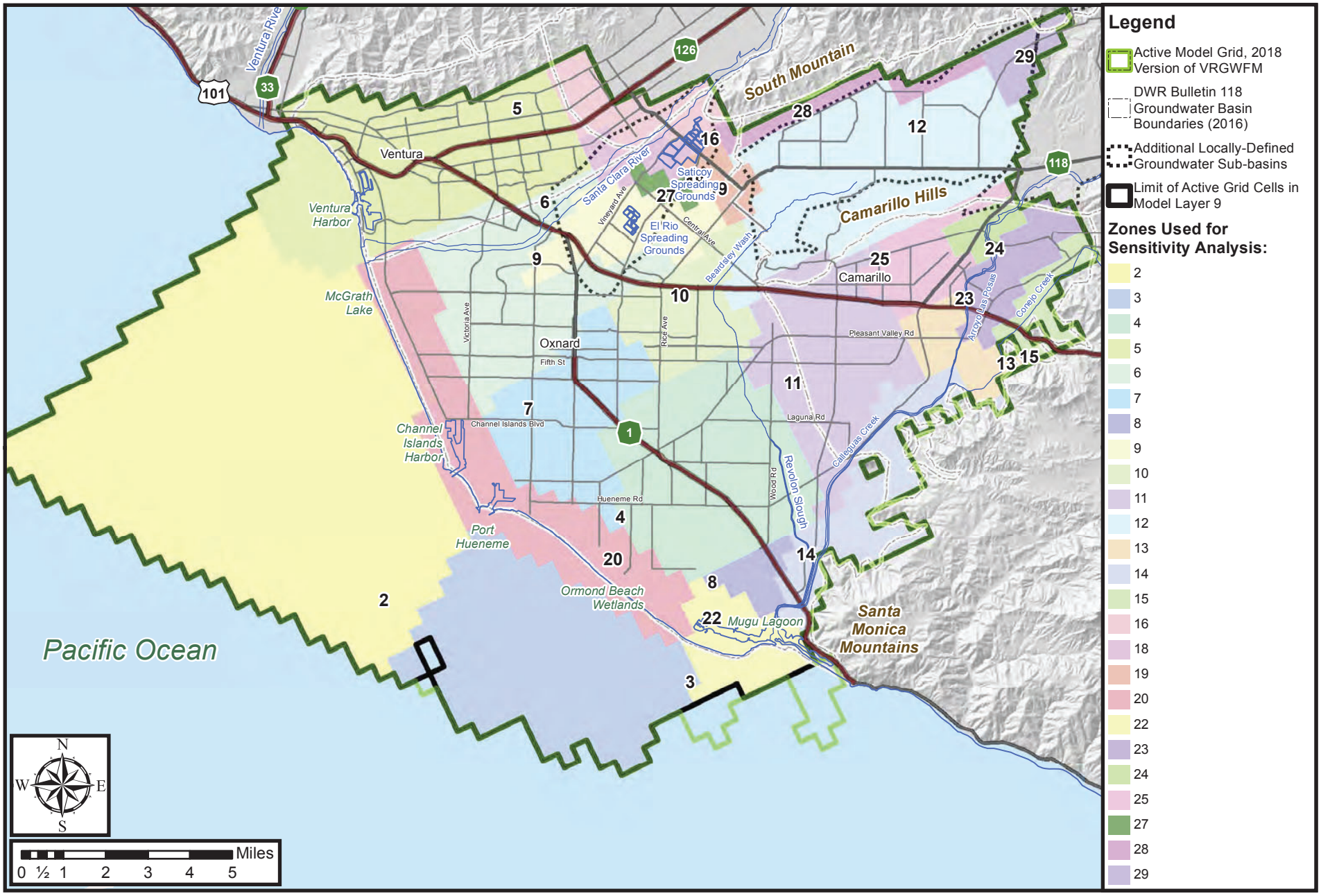


SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Figure 2-64e
UWCD Model Particle Tracks, Basal Fox Canyon Aquifer, Future Baseline

INTENTIONALLY LEFT BLANK



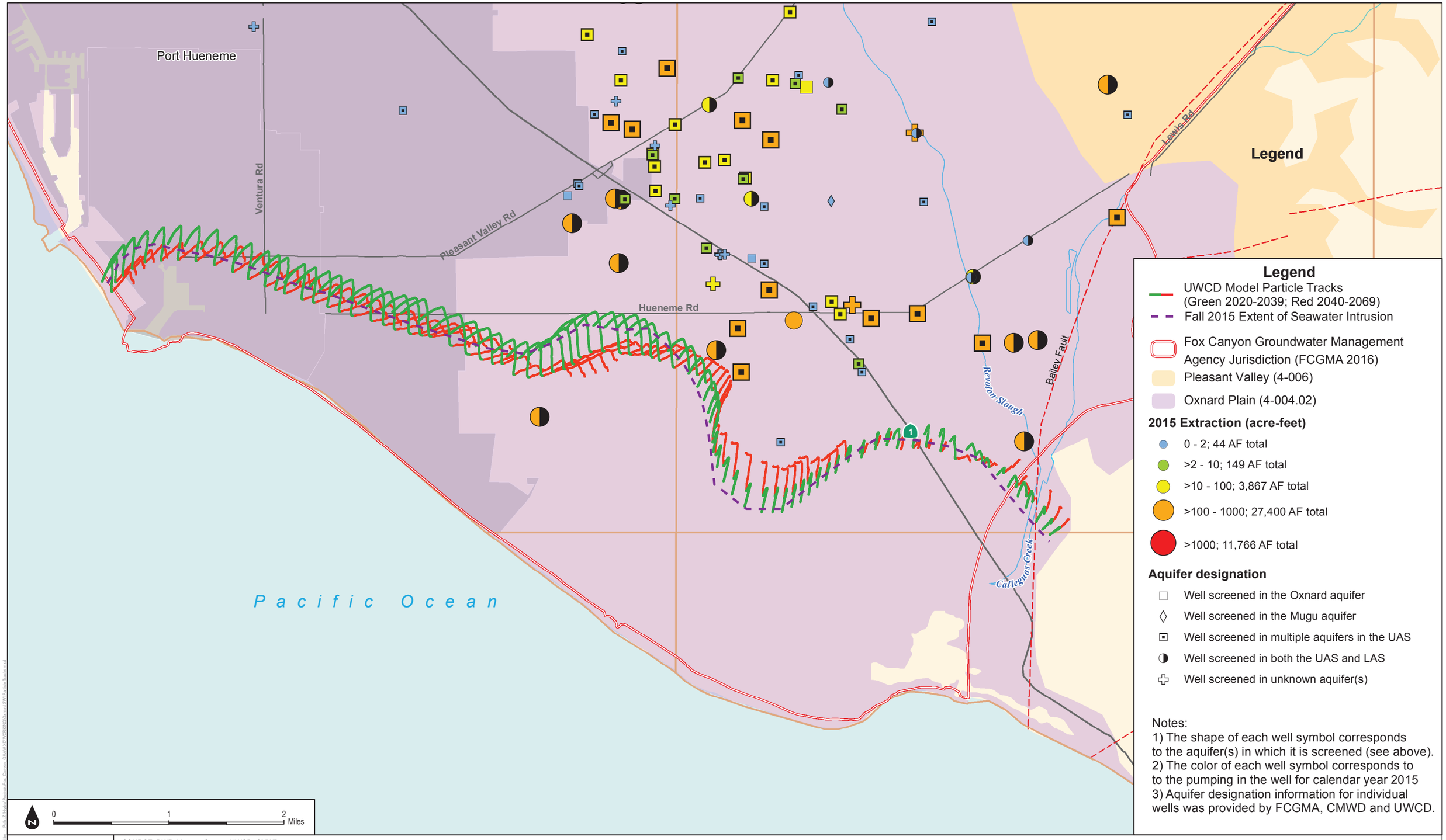
SOURCE: Figure 4-53; UWCD, 2018

DUDEK

FIGURE 2-65

UWCD Model Zones

INTENTIONALLY LEFT BLANK



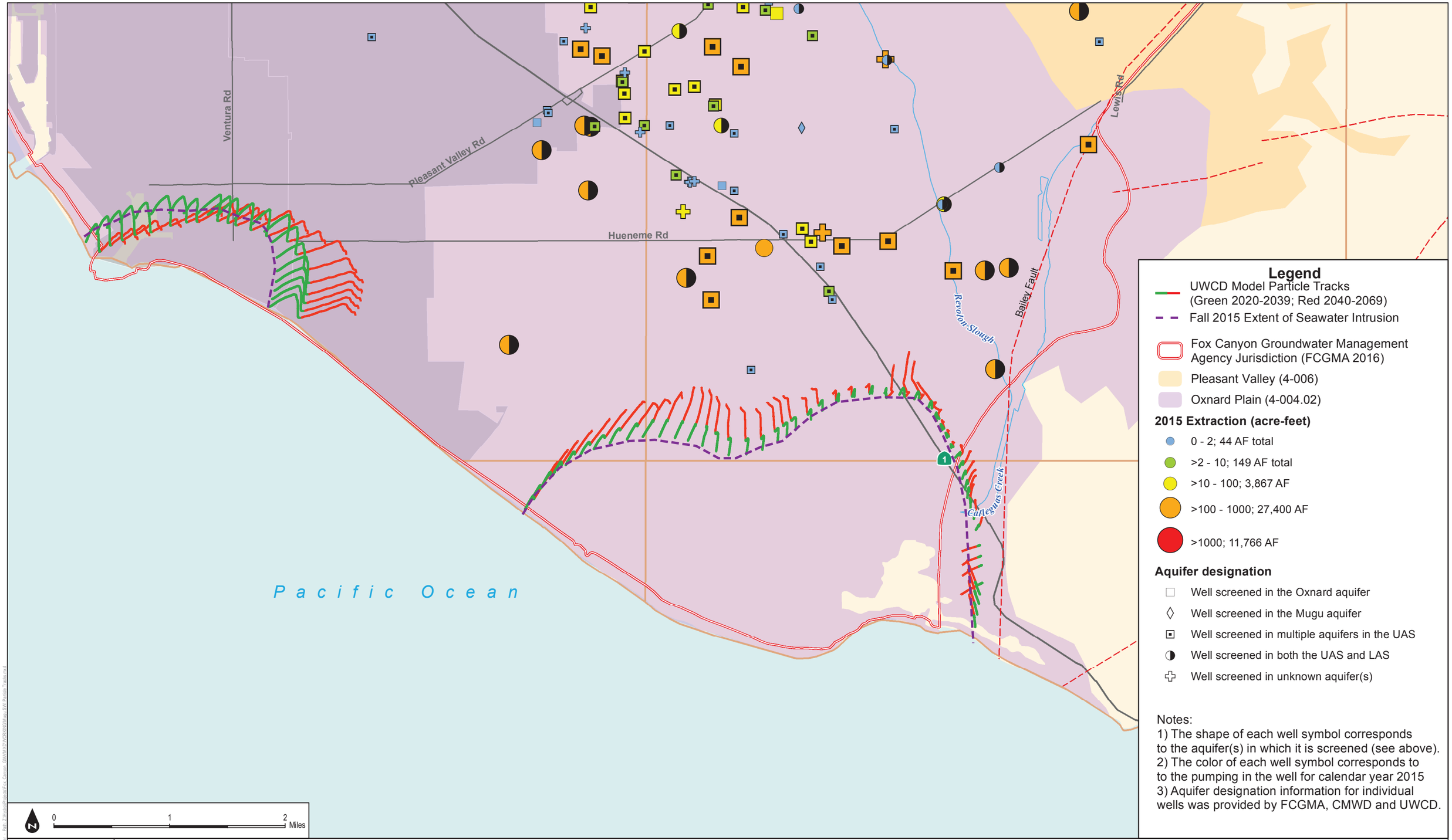
SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

Figure 2-66a
UWCD Model Particle Tracks, Oxnard Aquifer, Future Baseline With Projects

INTENTIONALLY LEFT BLANK



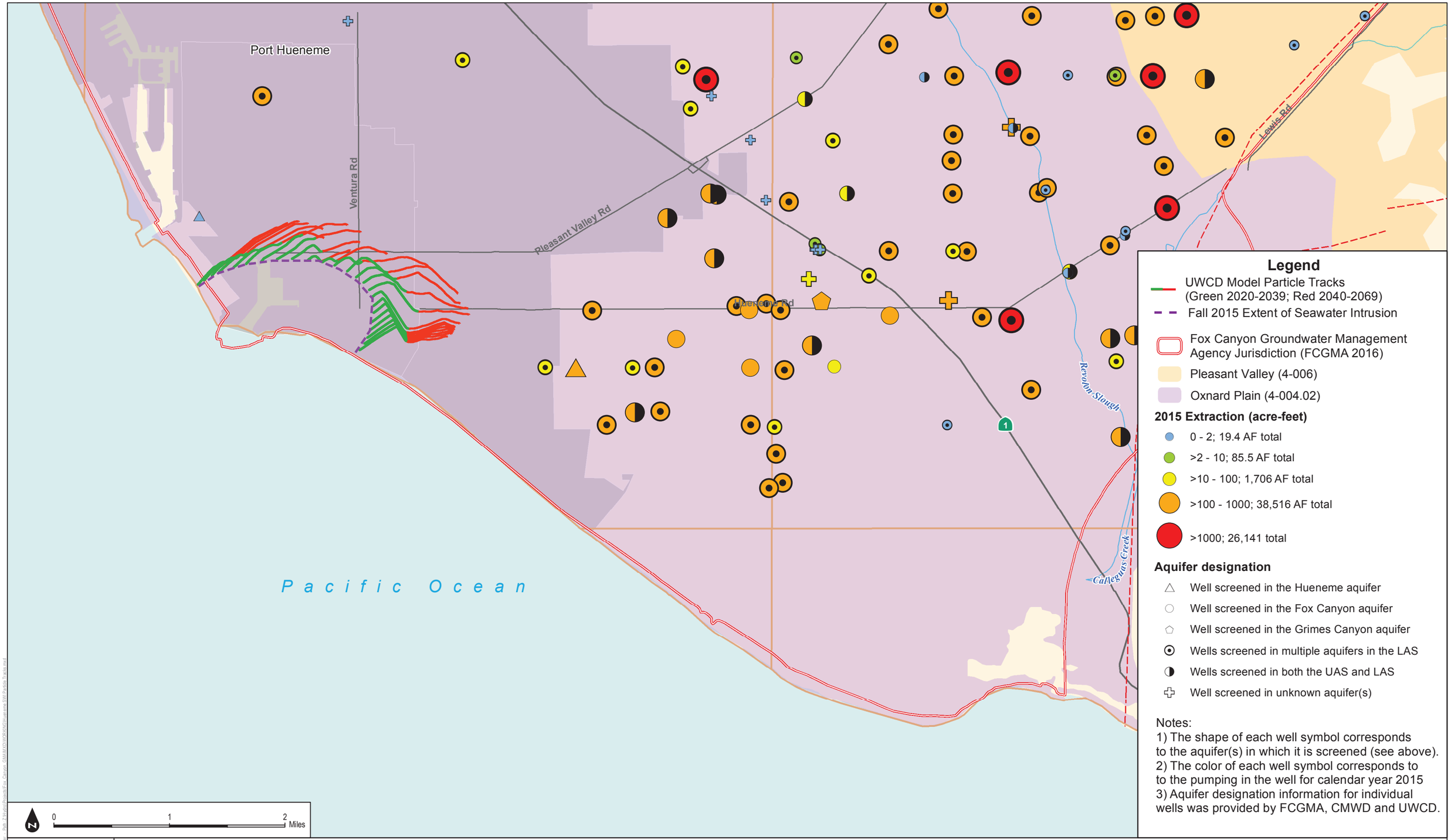
SOURCE: DWR; Ventura County; UWCD; CMWD
Climate Period 1930-1979; Climate Change Factor 2070

DUDEK

Figure 2-66b
UWCD Model Particle Tracks, Mugu Aquifer, Future Baseline With Projects

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

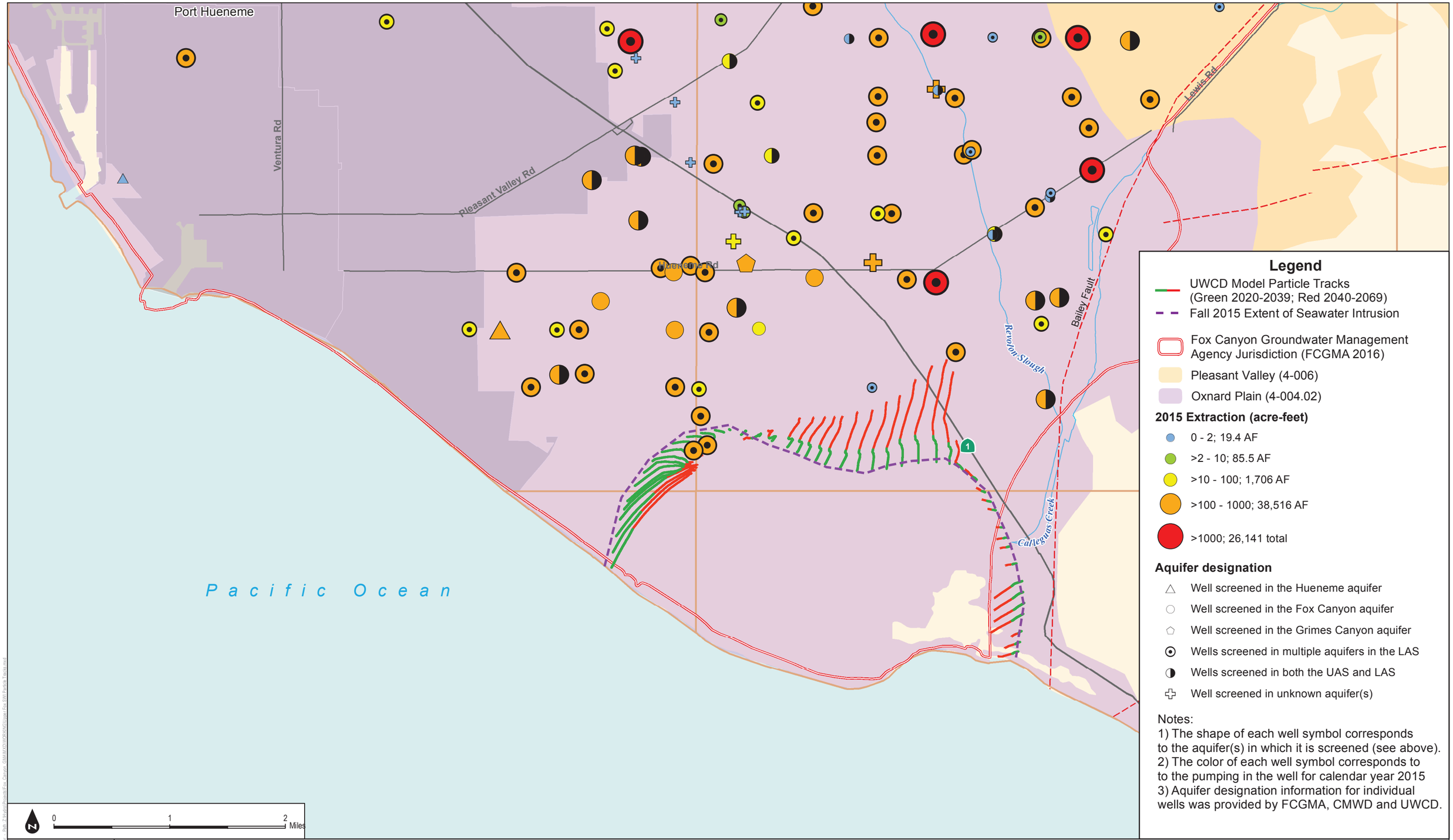


SOURCE: DWR; Ventura County; UWCD; CMWD
Climate Period 1930-1979; Climate Change Factor 2070

DUDEK

Figure 2-66c
UWCD Model Particle Tracks, Hueneme Aquifer, Future Baseline With Projects

INTENTIONALLY LEFT BLANK



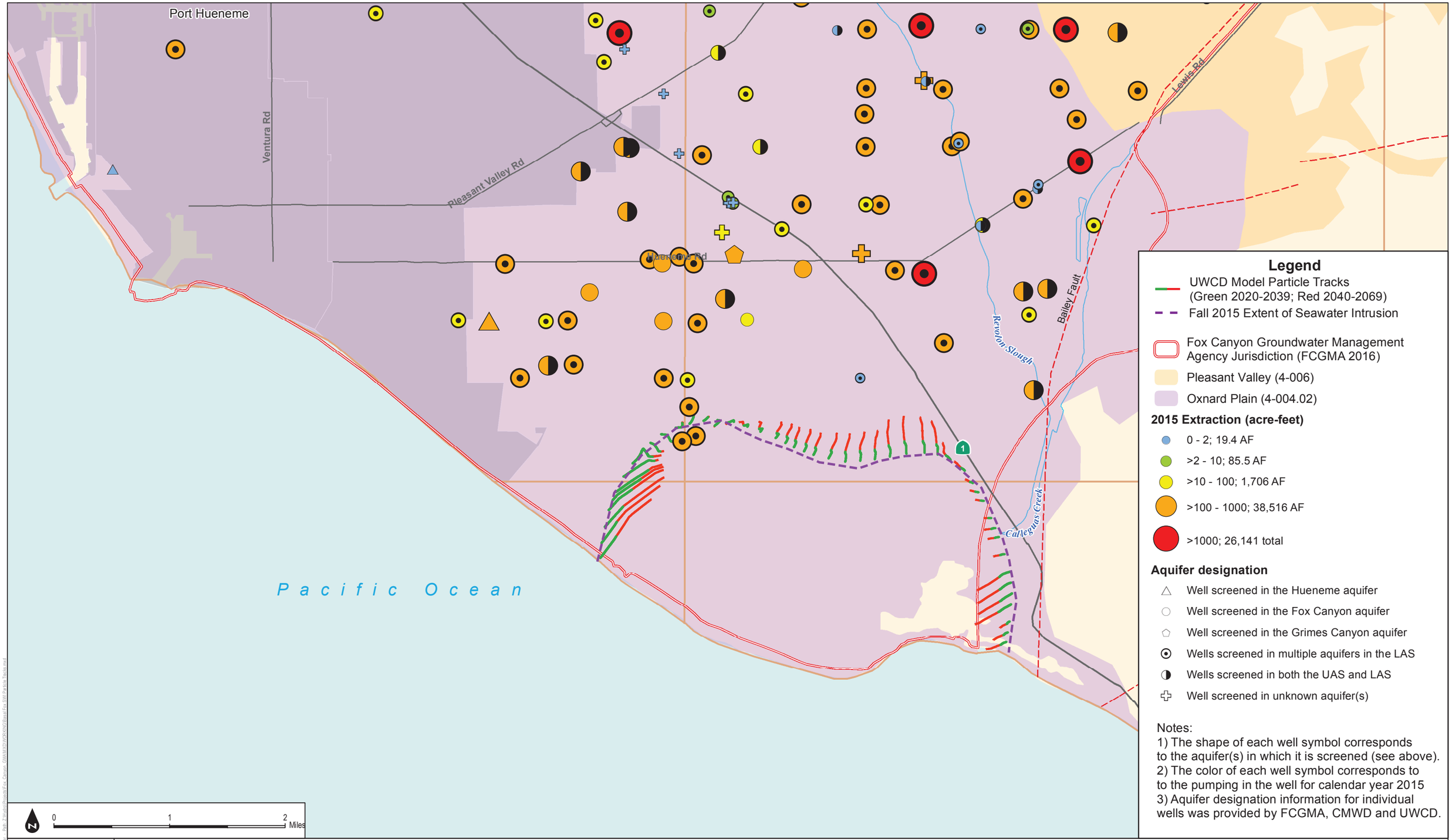
SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

D R A F T

DUDEK

FIGURE 2-66d
UWCD Model Particle Tracks, Upper Fox Canyon Aquifer, Future Baseline with Projects

INTENTIONALLY LEFT BLANK

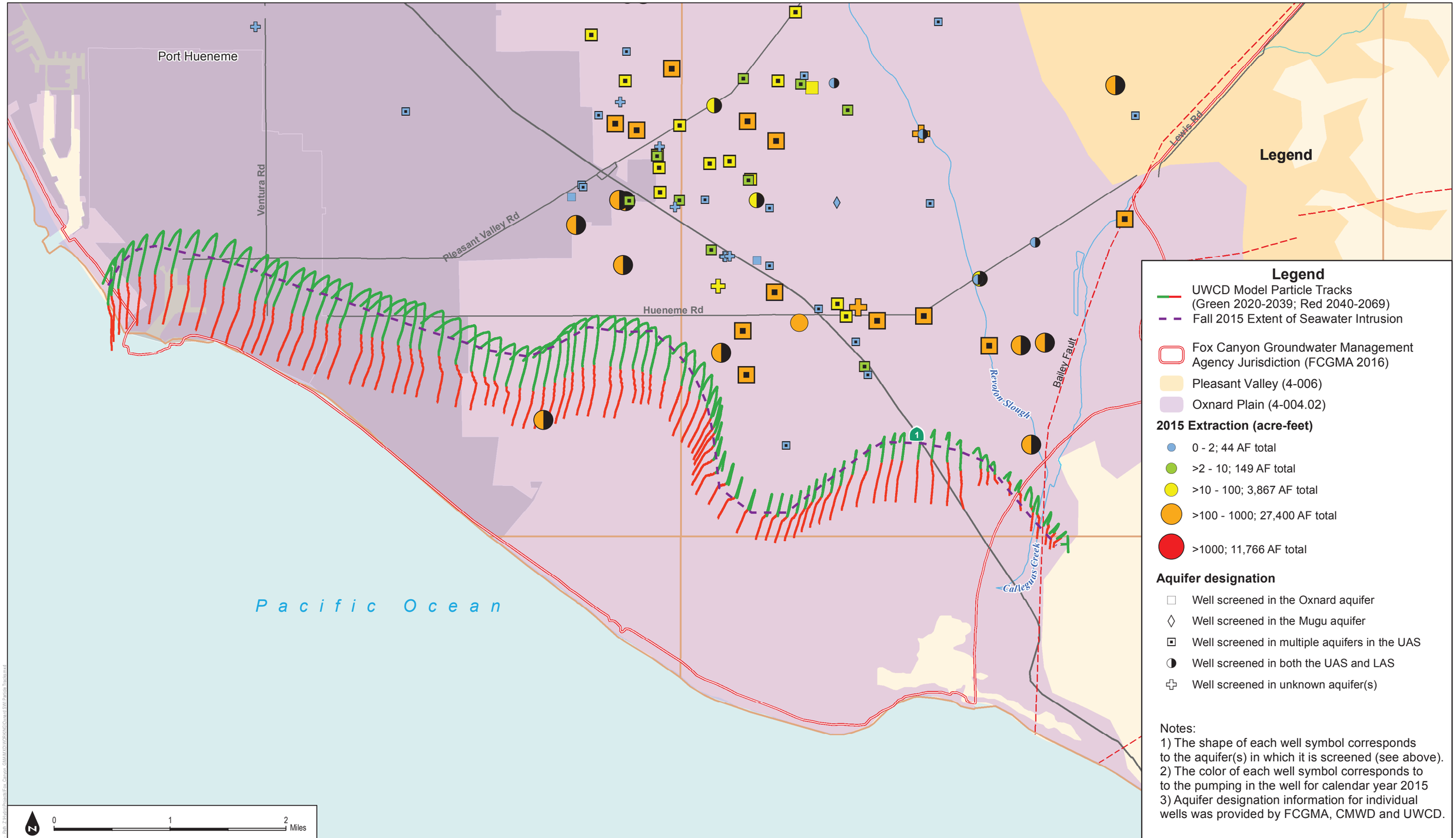


SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Figure 2-66e
UWCD Model Particle Tracks, Basal Fox Canyon Aquifer, Future Baseline with Projects

INTENTIONALLY LEFT BLANK

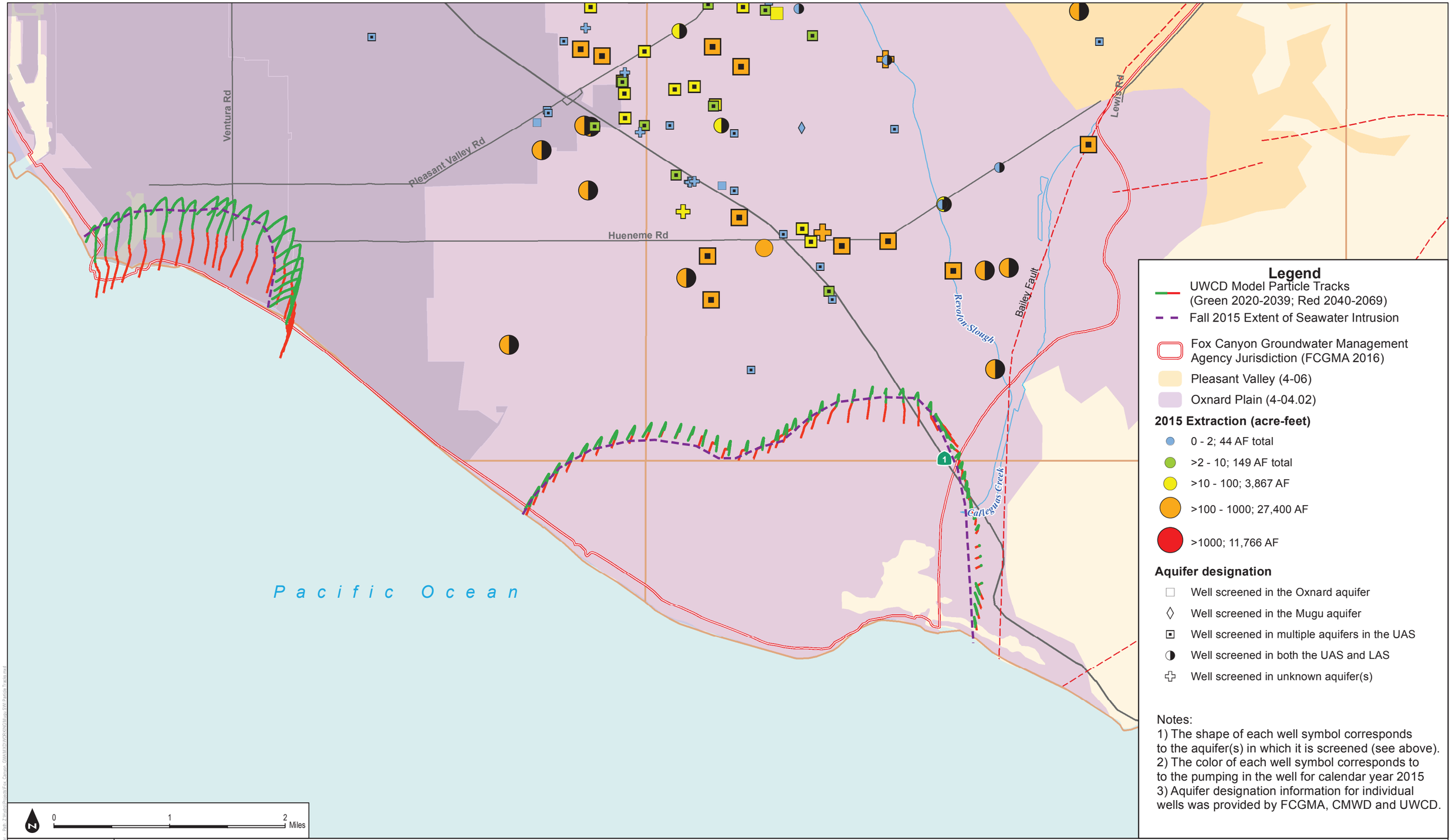


SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Figure 2-67a
UWCD Model Particle Tracks, Oxnard Aquifer, Reduction with Projects Simulation - 26,500 AFY Groundwater Production in the UAS

INTENTIONALLY LEFT BLANK



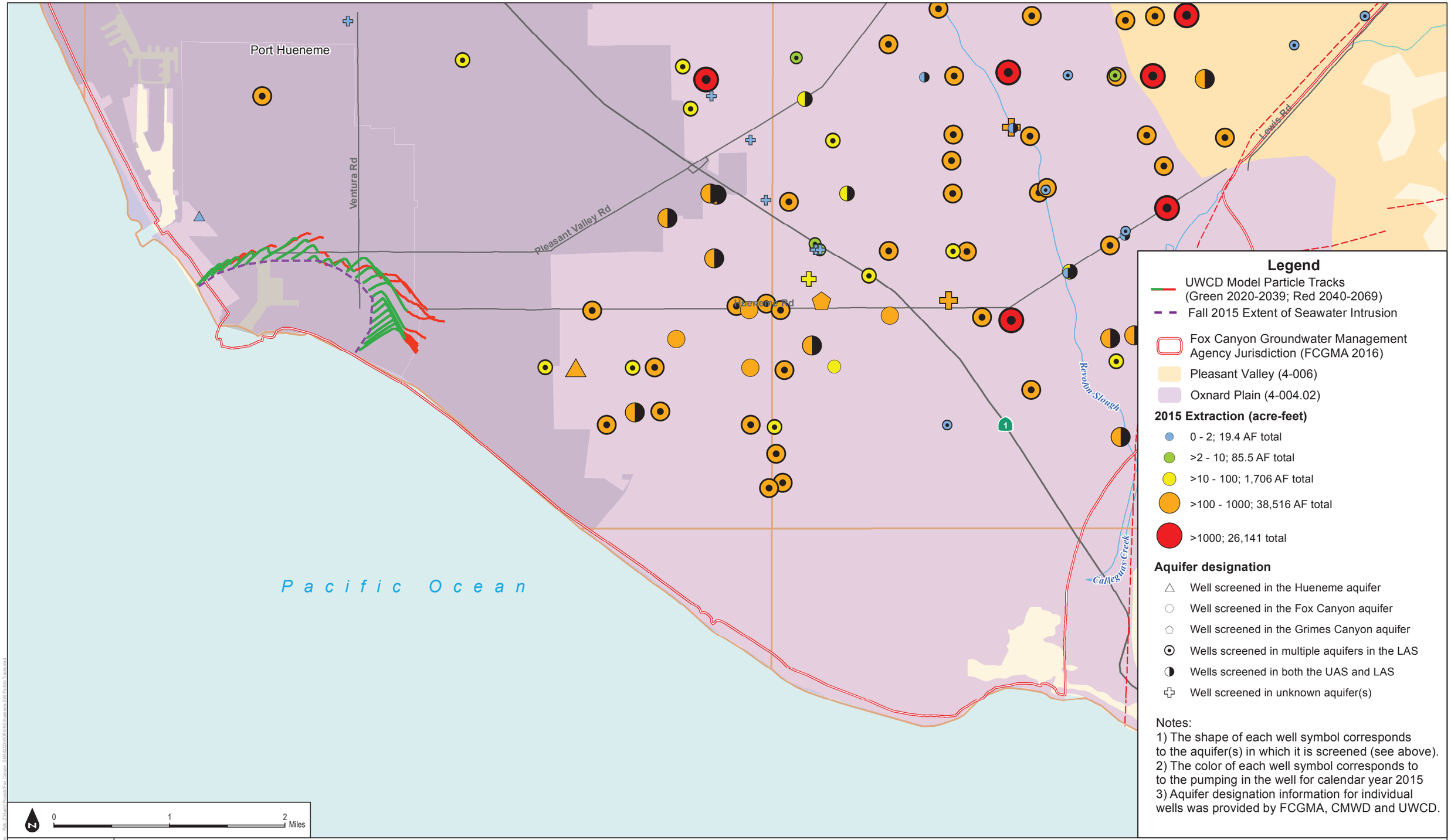
SOURCE: DWR; Ventura County; UWCD; CMWD
Climate Period 1930-1979; Climate Change Factor 2070

DUDEK

Figure 2-67b
UWCD Model Particle Tracks, Mugu Aquifer, Reduction with Projects Simulation - 26,500 AFY Groundwater Production in the UAS

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

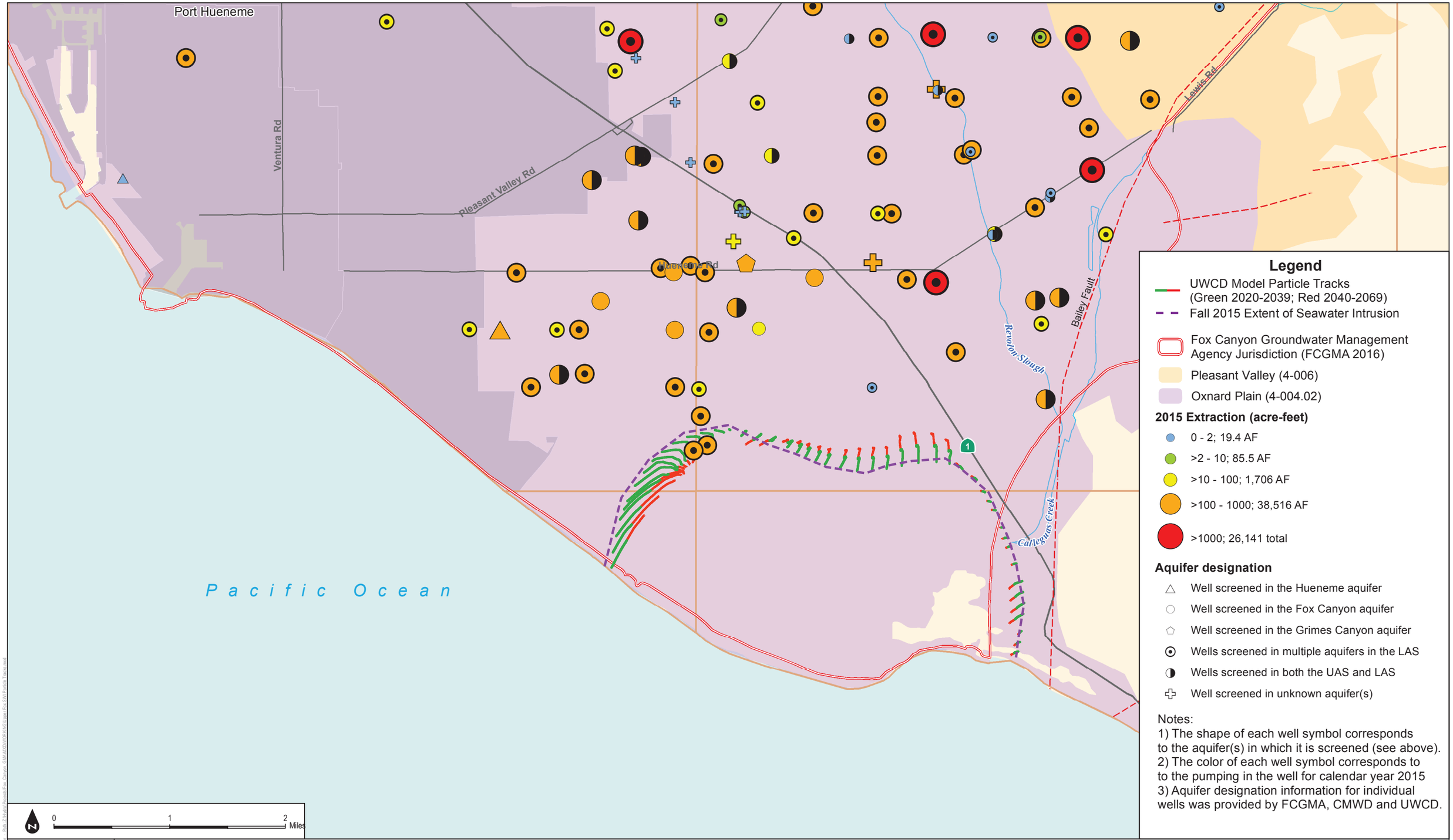


SOURCE: DWR; Ventura County; UWCD; CMWD
Climate Period 1930-1979; Climate Change Factor 2070

DUDEK

Figure 2-67c
UWCD Model Particle Tracks, Hueneme Aquifer, Reduction with Projects Simulation - 12,800 AFY Groundwater Production in the LAS

INTENTIONALLY LEFT BLANK



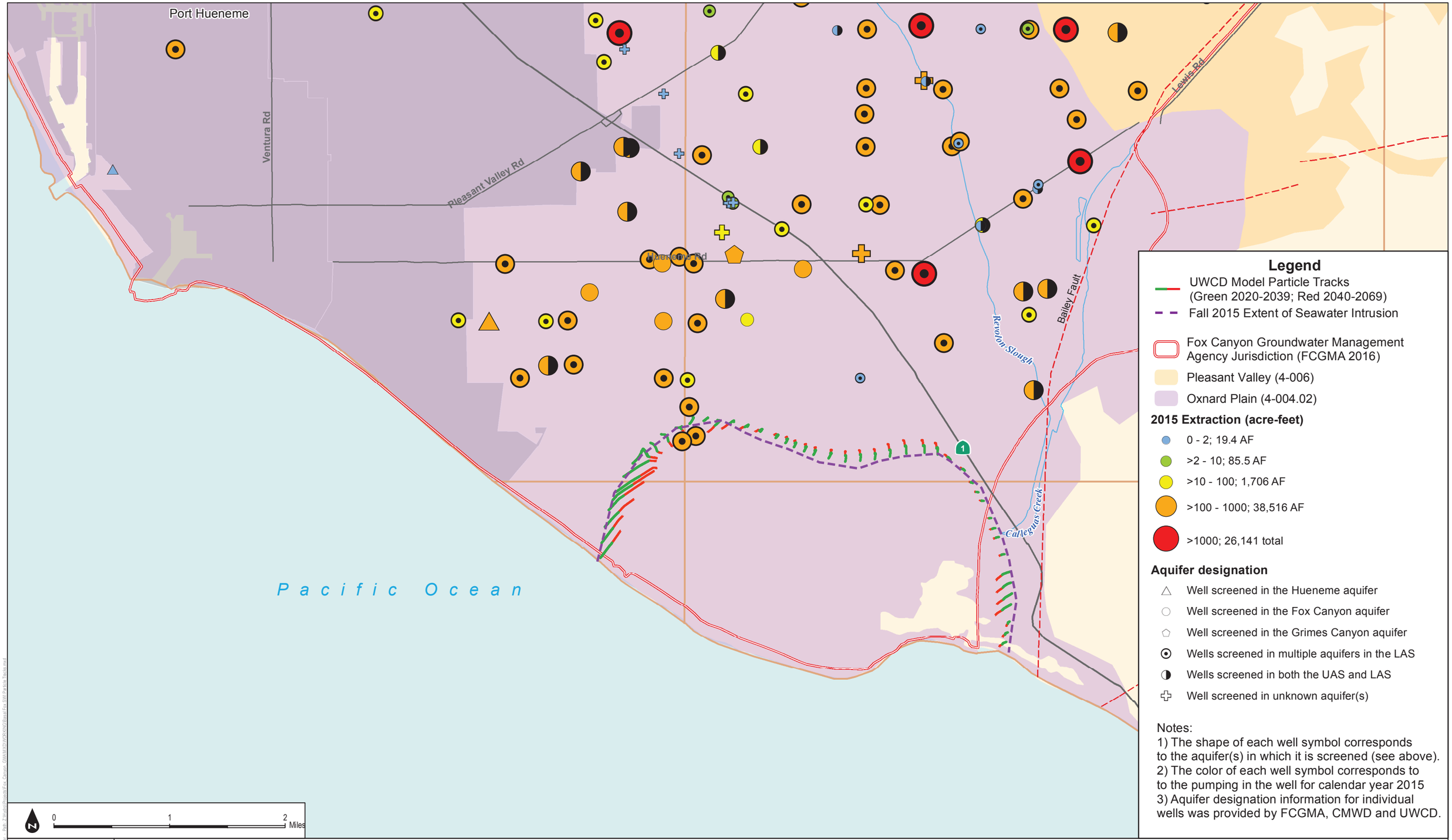
SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Figure 2-67d
UWCD Model Particle Tracks, Upper Fox Canyon Aquifer, Reduction with Projects Simulation - 12,800 AFY Groundwater Production in the LAS

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Figure 2-67e
UWCD Model Particle Tracks, Basal Fox Canyon Aquifer, Reduction with Projects Simulation - 12,800 AFY Groundwater Production in the LAS

INTENTIONALLY LEFT BLANK

Port Hueneme
Ventura Rd
Pleasant Valley Rd
Hueneme Rd
Lewis Rd
Revolon Slough
Bailey Fault
Calleguas Creek
Pacific Ocean
1

Legend

Legend

UWCD Model Particle Tracks
(Green 2020-2039; Red 2040-2069)
Fall 2015 Extent of Seawater Intrusion

Fox Canyon Groundwater Management Agency Jurisdiction (FCGMA 2016)
Pleasant Valley (4-006)
Oxnard Plain (4-004.02)

2015 Extraction (acre-feet)

0 - 2; 44 AF total
>2 - 10; 149 AF total
>10 - 100; 3,867 AF total
>100 - 1000; 27,400 AF total
>1000; 11,766 AF total

Aquifer designation

Well screened in the Oxnard aquifer
Well screened in the Mugu aquifer
Well screened in multiple aquifers in the UAS
Well screened in both the UAS and LAS
Well screened in unknown aquifer(s)

Notes:
1) The shape of each well symbol corresponds to the aquifer(s) in which it is screened (see above).
2) The color of each well symbol corresponds to to the pumping in the well for calendar year 2015
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

N
0 1 2 Miles

SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Figure 2-68a
UWCD Model Particle Tracks, Oxnard Aquifer, Reduction Without Projects Simulation 1 - 27,200 AFY Groundwater Production in the UAS

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

Ventura Rd
Pleasant Valley Rd
Hueneme Rd
Lewis Rd
Revolon Slough
Bailey Fault
Calleguas Creek
1
Pacific Ocean

Legend

UWCD Model Particle Tracks
(Green 2020-2039; Red 2040-2069)

Fall 2015 Extent of Seawater Intrusion

Fox Canyon Groundwater Management Agency Jurisdiction (FCGMA 2016)

Pleasant Valley (4-06)

Oxnard Plain (4-04.02)

2015 Extraction (acre-feet)

- 0 - 2; 44 AF total
- >2 - 10; 149 AF total
- >10 - 100; 3,867 AF
- >100 - 1000; 27,400 AF
- >1000; 11,766 AF

Aquifer designation

- Well screened in the Oxnard aquifer
- Well screened in the Mugu aquifer
- Well screened in multiple aquifers in the UAS
- Well screened in both the UAS and LAS
- Well screened in unknown aquifer(s)

Notes:
1) The shape of each well symbol corresponds to the aquifer(s) in which it is screened (see above).
2) The color of each well symbol corresponds to to the pumping in the well for calendar year 2015
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

N
0 1 2 Miles

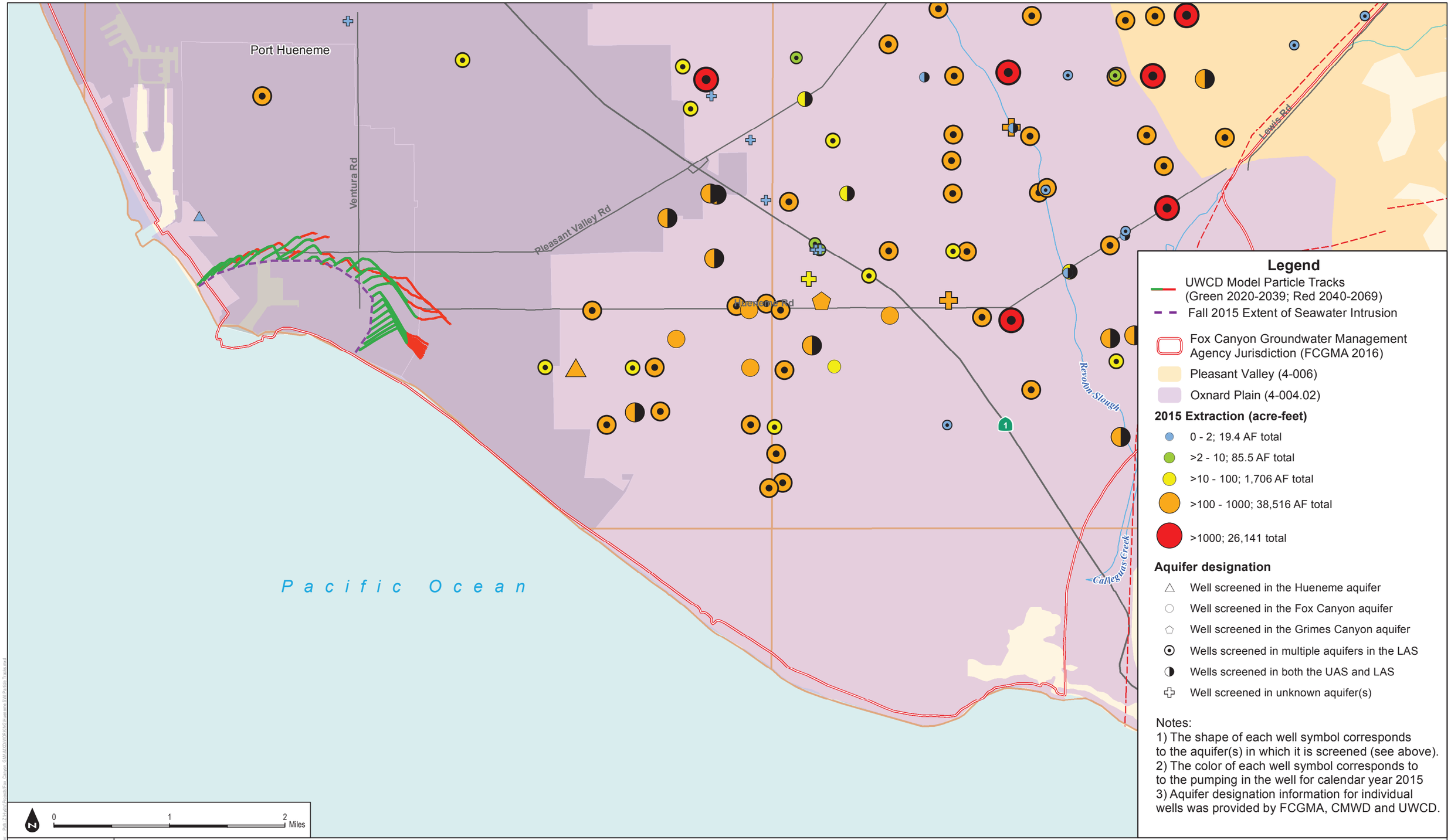
SOURCE: DWR; Ventura County; UWCD; CMWD
Climate Period 1930-1979; Climate Change Factor 2070

DUDEK

Figure 2-68b
UWCD Model Particle Tracks, Mugu Aquifer, Reduction Without Projects Simulation 1 - 27,200 AFY Groundwater Production in the UAS

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



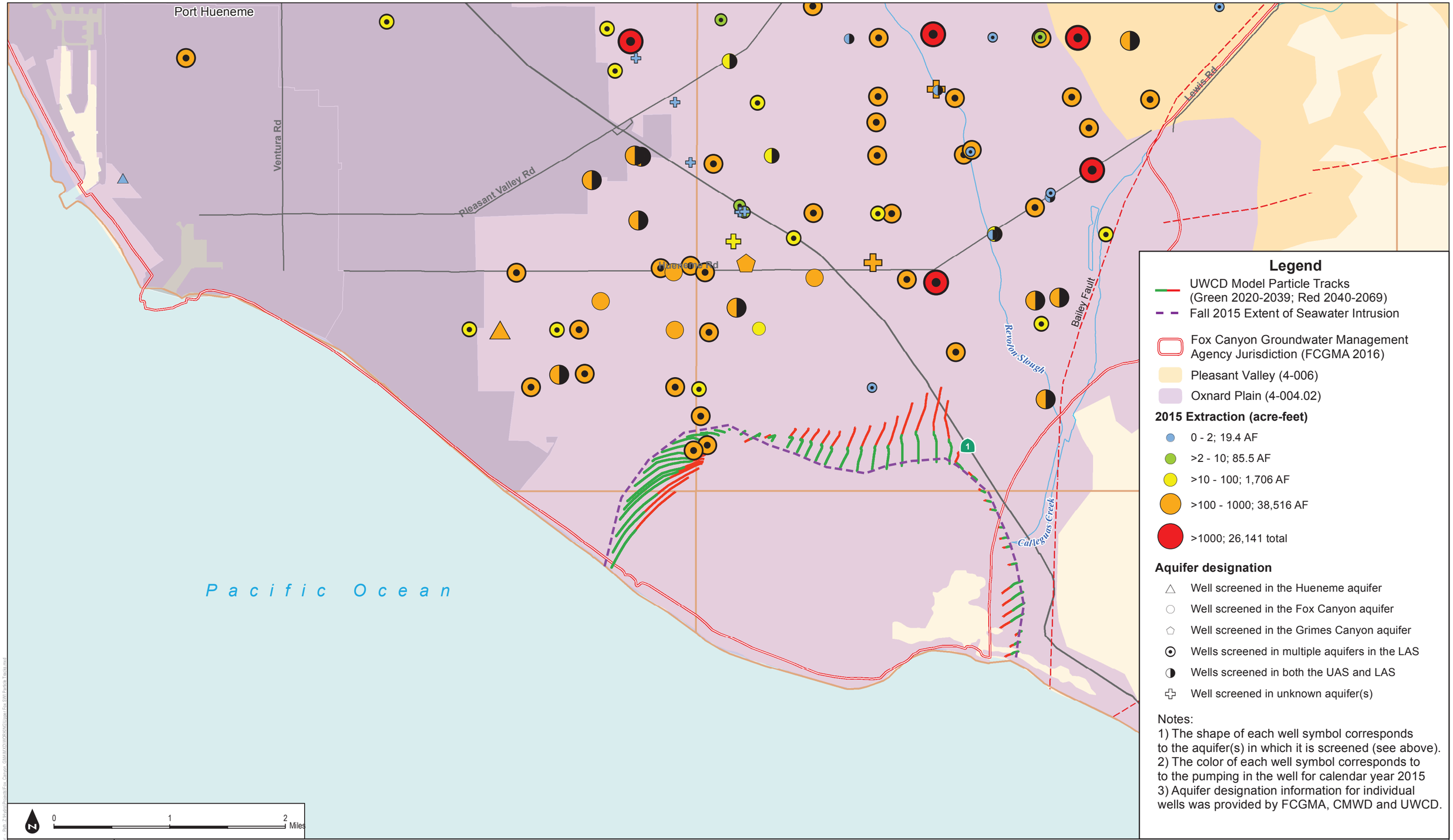
SOURCE: DWR; Ventura County; UWCD; CMWD
Climate Period 1930-1979; Climate Change Factor 2070

DUDEK

Figure 2-68c
UWCD Model Particle Tracks, Hueneme Aquifer, Reduction Without Projects Simulation 1 - 11,600 AFY Groundwater Production in the LAS

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



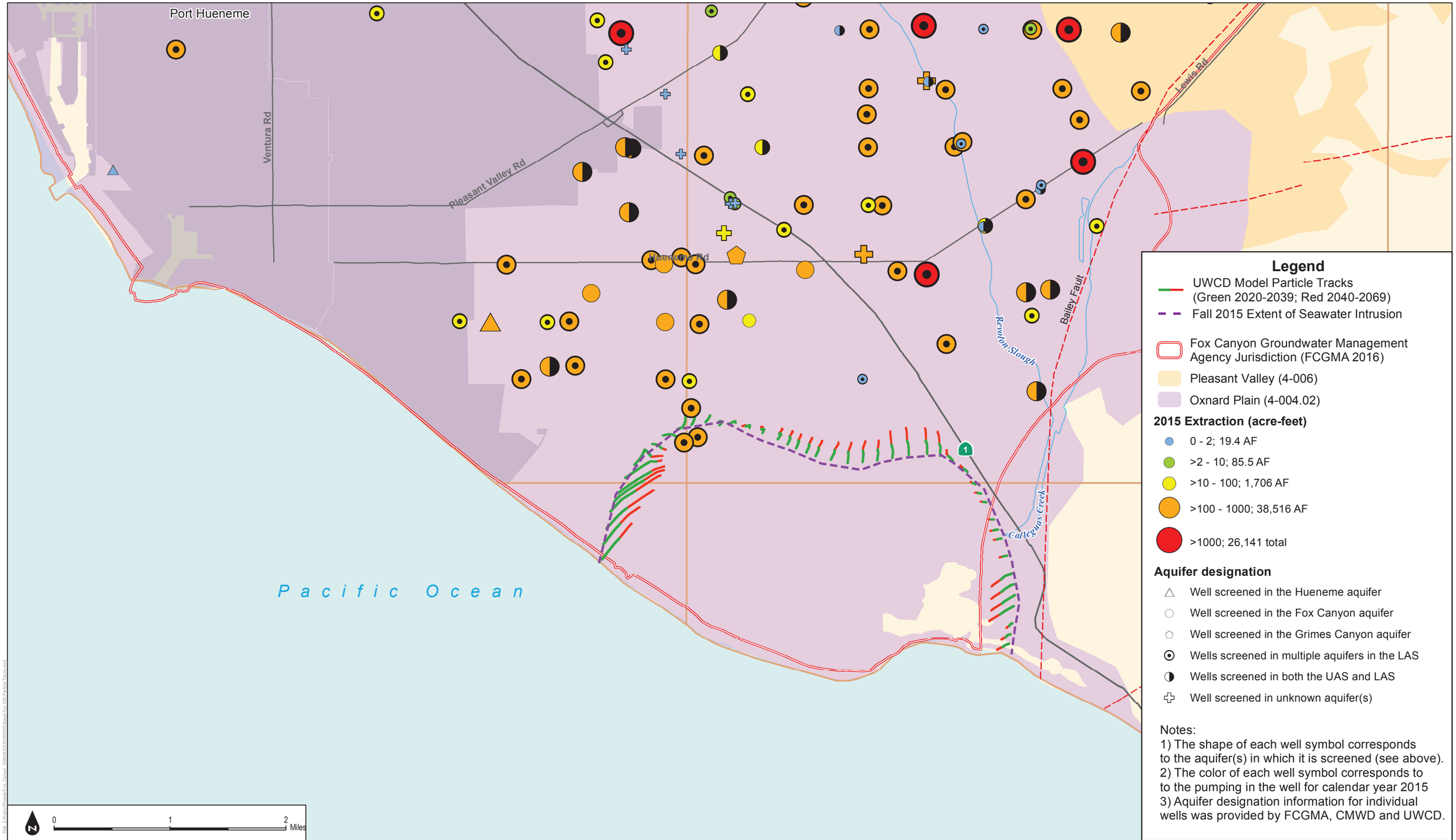
SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Figure 2-68d
UWCD Model Particle Tracks, Upper Fox Canyon Aquifer, Reduction Without Projects Simulation 1 - 11,600 AFY Groundwater Production in the LAS

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

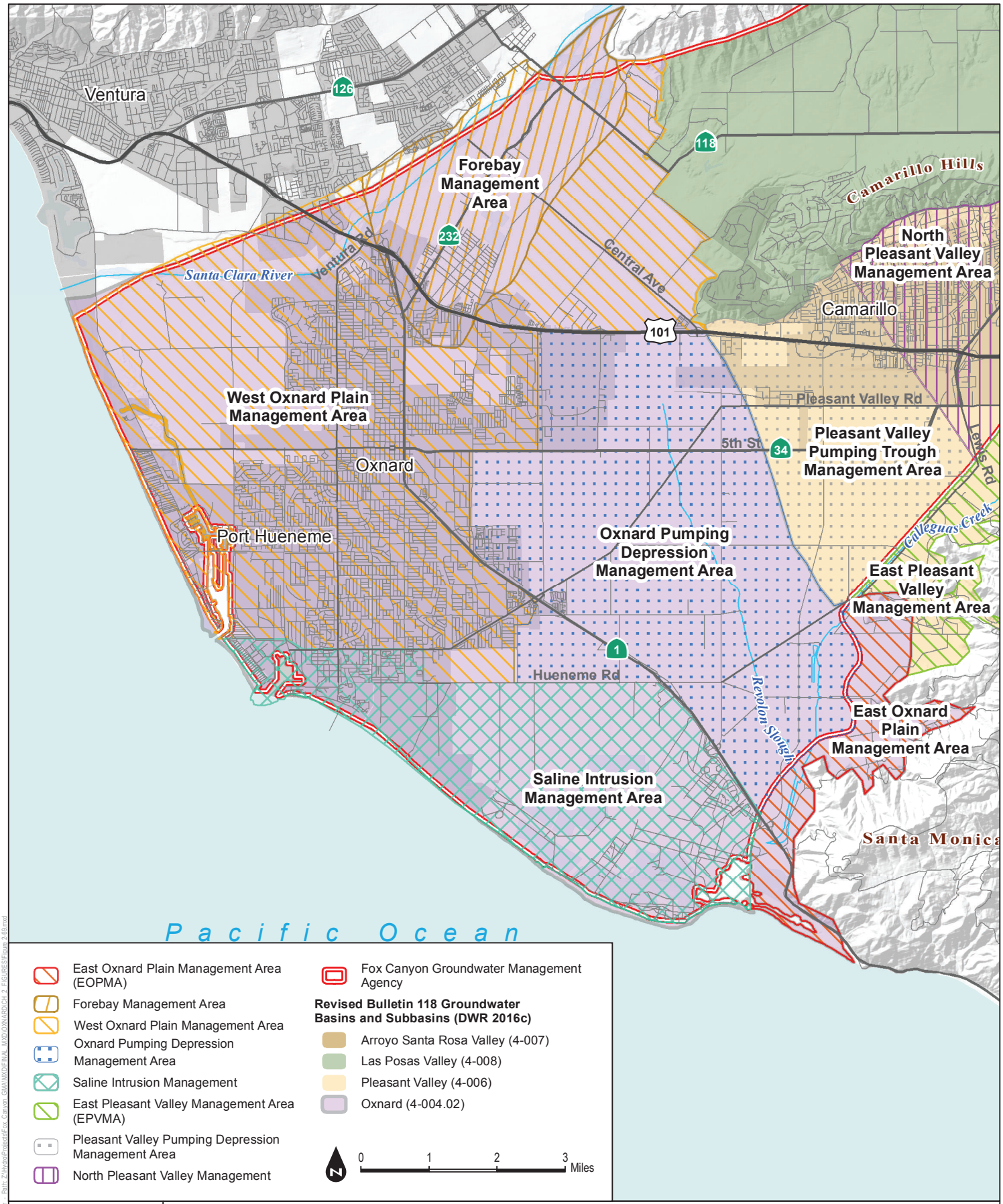


SOURCE: DWR; Ventura County; UWCD; CMWD
1930-1979 Climate Period; 2070 Climate Change Factor

DUDEK

Figure 2-68e
UWCD Model Particle Tracks, Basal Fox Canyon Aquifer, Reduction Without Projects Simulation 1 - 11,600 AFY Groundwater Production in the LAS

INTENTIONALLY LEFT BLANK



SOURCE: DWR; County of Ventura; FCGMA

FIGURE 2-69

Oxnard Subbasin Management Areas

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

CHAPTER 3
SUSTAINABLE MANAGEMENT CRITERIA

3.1 INTRODUCTION TO SUSTAINABLE MANAGEMENT CRITERIA

In the Oxnard Subbasin, significant and unreasonable seawater intrusion is the primary undesirable result that occurs when groundwater production exceeds the sustainable yield. This undesirable result can occur even if groundwater production from the Subbasin as a whole is less than the freshwater recharge to the Subbasin, as seawater intrusion is closely related to groundwater production from coastal wells. Infrastructure projects and management actions undertaken in the Oxnard Subbasin have at times limited and even reversed the progress of seawater intrusion (see Section 2.3.3, Seawater Intrusion). However, groundwater elevations declined in all aquifers in the Subbasin in response to the statewide drought that began in 2011. These groundwater elevation declines exacerbated the impacts of seawater intrusion in the Subbasin.

On October 28, 2015, after several consecutive years of drought, the Fox Canyon Groundwater Management Agency (FCGMA) Board of Directors (Board) adopted planning goals for the Oxnard Subbasin, as well as the other basins within its jurisdiction. These goals are as follows:

- Control saline water impact front at its current position.
- Do not allow groundwater quality to further degrade without mitigation.
- No net subsidence due to groundwater withdrawal.
- Promote water levels that mitigate or minimize undesirable results (including pumping trough depressions, surface water connectivity, and chronic lowering of water levels).

These goals guide the definition of undesirable results, minimum thresholds, and measurable objectives in the subsequent sections.

Groundwater elevations are the primary metrics by which progress toward meeting the sustainability goal in the Oxnard Subbasin will be measured. Sustainable management of the Oxnard Subbasin does not necessarily mean, however, that springtime high groundwater levels in the Subbasin remain the same year after year. Rather, sustainability can be achieved over cycles of drought and recovery, so long as the impacts to the Subbasin that may occur during periods of drawdown are not significant or unreasonable. Thus, year over year, groundwater levels may decline during a drought, but sustainable management will result in groundwater levels—and, by extension, chloride concentrations and land surface elevations—returning to pre-drought levels in the wet years after a drought.

3.2 SUSTAINABILITY GOAL

The primary sustainability goal in the Oxnard Subbasin is to increase groundwater elevations inland of the Pacific coast in the aquifers that compose the Upper Aquifer System (UAS) and the Lower Aquifer System (LAS) to elevations that will prevent the long-term, or climatic cycle net (net), landward migration of the 2015 saline water impact front (see Section 3.3.3); prevent net seawater intrusion in the UAS; and prevent net seawater intrusion in the LAS.

The use of net landward migration, and net seawater intrusion in the sustainability goal reflects that climatic cycles influence groundwater elevations over multi-year periods and requires that assessment of seawater impacts to the Subbasin be tied to a time period over which net impacts are measured. This Groundwater Sustainability Plan (GSP) assesses net impacts to the Oxnard Subbasin over both a 50-year period beginning in 2020, and a 30-year period beginning in 2040. Undesirable results may occur in the Subbasin between 2020 and 2039, as progress is made toward sustainable management. By 2040, however, management of the Subbasin should achieve the sustainability goal. The 30-year period from 2040 through 2069 is referred to as the sustaining period in this GSP, as it is the period on which the evaluation of sustainability is based.

In order to achieve the sustainability goal, groundwater production will need to be reduced relative to historical groundwater production rates. At the same time, groundwater production inland from the coast may be allowed to increase as infrastructure is developed to convey inland production to agricultural users on the coast. During the first 5 years following GSP adoption, it is anticipated that the combined groundwater production from both the UAS and the LAS will begin to be reduced toward the estimated sustainable yield, accounting for the uncertainty assessed in the model water budget and sustainable yield predictions (Section 2.4, Water Budget).

Proposed reductions in groundwater production must take into account the potential economic disruption to the agricultural industry in the Subbasin, the interference with municipal water supply planning and rate setting, and the uncertainty in the estimated sustainable yield of the Subbasin. The estimated sustainable yield of the Subbasin is 42,000 acre-feet per year (AFY) with an uncertainty estimate of ±9,000 AFY (see Section 2.4.4, General Uncertainties in the Water Budget). The average 2015 groundwater production rate was 69,000 AFY. The difference between the upper estimate of the sustainable yield, 51,000 AFY, and the 2015 production rate is 18,000 AFY. If production is reduced linearly between 2020 and 2040, the estimated groundwater production reduction necessary throughout the geographic extent of the Oxnard Subbasin is approximately 900 AFY. However, the sustainability goal allows for operational flexibility, as groundwater production patterns are anticipated to change during the 20-year GSP implementation period from 2020 through 2039. Progress toward the sustainability goal will be evaluated throughout the 20-year implementation period.

The following sections describe the undesirable results that have occurred and may occur within the Subbasin, the minimum thresholds developed to avoid undesirable results, and the measurable objectives that account for the need to continue groundwater production during drought cycles and the associated interim milestones to help gauge progress toward sustainability over the next 20 years.

3.3 UNDESIRABLE RESULTS

Under the Sustainable Groundwater Management Act (SGMA), undesirable results occur when the effects caused by groundwater conditions occurring throughout the Subbasin cause significant and unreasonable impacts to any of the six sustainability indicators. These sustainability indicators are as follows:

- Chronic lowering of groundwater levels
- Reduction of groundwater storage
- Seawater intrusion
- Degraded water quality
- Land subsidence
- Depletions of interconnected surface water

The definition of what constitutes a significant and unreasonable impact for each sustainability indicator is determined by the Groundwater Sustainability Agency, which is FCGMA in the Oxnard Subbasin, using the processes and criteria set forth in the GSP. Each of the sustainability indicators is discussed in this section in the context of undesirable results.

3.3.1 Chronic Lowering of Groundwater Levels

Chronic lowering of groundwater levels resulting in a significant and unreasonable depletion of supply is an undesirable result applicable to the Oxnard Subbasin. Seawater intrusion occurs in the Subbasin as groundwater levels fall below threshold elevations that maintain sufficient hydrostatic pressure to keep seawater from moving landward. The threshold groundwater elevations differ between the aquifers of the UAS and the LAS, as well as with geographic location in the Subbasin. Groundwater elevation declines can also induce release of connate water brines, reduce the quantity of freshwater in storage, and cause land subsidence in the Subbasin.

The primary cause of groundwater conditions in the Subbasin that would lead to chronic lowering of groundwater levels is groundwater production in excess of natural and artificial recharge. Groundwater production from the Subbasin may result in significant and unreasonable lowering of groundwater levels if the groundwater levels were lowered to an elevation at which they allow net seawater intrusion in the UAS and LAS over climate cycles of drought and recovery. Historically, this condition has occurred within the Oxnard Subbasin.

In the past, groundwater levels in the UAS have declined during periods of drought and recovered during wet periods (Section 2.3.1, Groundwater Elevation Data). In fact, flowing artesian conditions were observed in UAS wells after multiple-year periods of above-average precipitation (UWCD 2016; Appendix C, UWCD Model Report, to this GSP). Groundwater levels in the LAS have also declined during drought and risen during wet periods, although the water levels in many wells in the LAS have remained below sea level since the 1980s (Section 2.3.1). One factor that contributed to the recovery of water levels following periods of drought was the amount of surface water that was diverted from the Santa Clara River and infiltrated through spreading basins to recharge the aquifers. Surface-water flows are available during wetter-than-average precipitation periods. These surface-water diversions and spreading are controlled by the United Water Conservation District (UWCD), which anticipates maintaining the historical volume of water diverted from the Santa Clara River over the next 50 years (UWCD 2018).

In addition to surface-water spreading, seawater intrusion into the aquifers of the Oxnard Subbasin has also sustained groundwater levels. Unlike surface-water spreading, seawater intrusion sustains groundwater levels at the expense of freshwater storage in the Subbasin (Section 2.3.3). Water levels in the aquifers of the LAS have remained below sea level even during drought recovery periods, thereby continuing to allow migration of seawater into the Subbasin near the Mugu and Hueneme Submarine Canyons (Section 2.3, Groundwater Conditions). Continued seawater intrusion has reduced the amount of freshwater in storage in the Subbasin.

Based on the sustainability goals for the Oxnard Subbasin, the criterion used to define undesirable results for chronic lowering of groundwater levels is landward migration of the 2015 saline water impact front during the sustaining period from 2040 through 2069. It is expected that there will be some landward migration of this front between 2020 and 2040 as the FCGMA Board and stakeholders in the Subbasin undertake the necessary projects and management actions toward achieving sustainability in 2040. The minimum thresholds metric against which chronic lowering of groundwater levels will be measured is groundwater levels that were selected to prevent net landward migration of the 2015 saline water impact front, and net seawater intrusion over the 30-year sustaining period from 2040 through 2069. These groundwater elevations are higher than previous historical low water levels, many of which were measured in the fall of 2015 (Table 3-1; Figures 3-1 through 3-5, Minimum Thresholds and Groundwater Elevation Contours).

In order to effectively manage the groundwater resources of the Oxnard Subbasin, the Subbasin has been divided into five management areas (see Section 2.5, Management Areas; Figure 2-69, Oxnard Subbasin Management Areas). These areas are defined by differences in their hydrogeologic properties, groundwater quality, or historical groundwater elevations. Groundwater elevations within each management area will be used to determine whether significant and unreasonable chronic lowering of groundwater levels is occurring. All of the management areas except the East Oxnard Plain Management Area (EOPMA) have wells in which water levels can be monitored by aquifer.

Until a monitoring well is installed in the EOPMA, the water level thresholds set for the wells closest to the EOPMA are presumed to be protective for the EOPMA, which has considerably less groundwater production than the adjoining management areas. This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

Chronic lowering of groundwater levels in the Oxnard Subbasin has the potential to impact the beneficial uses and users of groundwater in the Subbasin by (1) exacerbating seawater intrusion in the Subbasin, (2) reducing the volume of freshwater in storage, (3) potentially causing land subsidence, (4) impacting areas of interconnected surface water and groundwater, and (5) causing groundwater levels to drop below current well screens.

3.3.2 Reduction of Groundwater Storage

Significant and unreasonable reduction of groundwater storage is an undesirable result that applies to the Oxnard Subbasin. Seawater intrusion occurs in the Subbasin as groundwater levels fall below threshold levels that maintain sufficient hydrostatic pressure to keep seawater from moving landward. The threshold groundwater levels differ between the UAS and the LAS, and differ with geographic location in the Subbasin.

The primary cause of groundwater conditions in the Subbasin that would lead to reduction in groundwater storage is groundwater production in excess of recharge over a cycle of drought and recovery. Groundwater production from the Subbasin may result in a significant and unreasonable reduction of groundwater in storage if the volume of water produced from the Subbasin exceeds the volume of freshwater recharging the Subbasin over cycles of drought and recovery. Changes in groundwater in storage can be tracked using groundwater elevations and would become significant and unreasonable if groundwater levels were lowered to an elevation below which they allow landward migration of the 2015 saline water impact front over cycles of drought and recovery, which would cause a long-term decline in groundwater storage.

Numerical groundwater model simulations indicate that there has been approximately 101,000 acre-feet (AF) of storage loss in the Oxnard Subbasin over the 31 years from 1985 to 2015 (Section 2.3.2, Estimated Change in Storage; Appendix C). The model results also indicate that between 1985 and 2015, approximately 380,000 AF of seawater intruded into the UAS and LAS under the Oxnard Subbasin. The replacement of freshwater with seawater is a reduction in freshwater storage and is an undesirable result that has already occurred within the Subbasin.

Based on the sustainability goals for the Oxnard Subbasin, the criterion used to define undesirable results for reduction in groundwater storage is landward migration of the 2015 saline water impact front after 2040. The minimum thresholds metric against which reduction of groundwater storage will be measured is water levels that were selected to prevent net landward migration of the 2015 saline water impact front, and net seawater intrusion after 2040. These groundwater elevations are higher than previous historical low water levels (Table 3-1).

Groundwater elevations within each management area of the Oxnard Subbasin will be used to determine whether significant and unreasonable reduction of groundwater in storage is occurring. All of the management areas except the EOPMA have wells in which water levels can be monitored by aquifer. Until a monitoring well is installed in the EOPMA, the water level thresholds set for the wells closest to the EOPMA are presumed to be protective for the EOPMA, which has considerably less groundwater production than the adjoining management areas. This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

Reduction of groundwater storage in the Oxnard Subbasin has the potential to impact the beneficial uses and users of groundwater in the Subbasin by limiting the volume of groundwater available for agricultural, municipal, industrial, domestic, and environmental. These impacts will affect all users of groundwater in the Subbasin.

3.3.3 Seawater Intrusion

Significant and unreasonable seawater intrusion is an undesirable result that is present or likely to occur in the Oxnard Subbasin. Seawater intrusion is the primary sustainability indicator in the Oxnard Subbasin. Seawater intrusion occurs in the Subbasin as groundwater levels fall below threshold levels that maintain sufficient hydrostatic pressure to keep seawater from moving landward. The threshold groundwater levels differ between the UAS and the LAS, and differ with geographic location in the Subbasin.

The primary cause of groundwater conditions in the Subbasin that would lead to seawater intrusion is groundwater production. Currently, the area of the Subbasin impacted by concentrations of chloride greater than 500 milligrams per liter (mg/L) is generally west of Highway 1 and south of Hueneme Road. Sources of water high in chloride in the Oxnard Subbasin include modern seawater as well as non-marine brines and connate water in fine-grained sediments (see Section 2.3.3). Therefore, this area is referred to as the "saline water impact area," rather than the "seawater intrusion impact area," to reflect all the potential sources of chloride to the aquifers in this area. The saline water impact area was already impacted before 2015, when SGMA was implemented. As a result, the goal of this GSP is not to reverse historical impacts, but rather to limit seawater intrusion to the area that has already been impacted. Therefore, significant and unreasonable seawater intrusion is defined as seawater intrusion that results in a net landward migration of the 2015 saline water impact front beyond the already impacted area west of Highway 1 and south of Hueneme Road from 2040 through 2069.

Chloride concentrations in the Oxnard Subbasin indicate that seawater intrusion has occurred historically, and is currently occurring, in the vicinity of Point Hueneme and Point Mugu. However, seawater is not the only source of chloride to the groundwater of the Oxnard Subbasin (Section 2.3.3, Groundwater Conditions, and Section 2.3.4, Groundwater Quality). Chloride

concentrations exceeding 500 mg/L have been measured in the southeastern part of the Subbasin, where there is no direct connection between the inland freshwater aquifer and the Pacific Ocean. Stable isotope studies of the groundwater in these wells have shown that the chloride concentrations are likely not a result of seawater intrusion, but rather originated from release of connate water in the fine-grained lagoonal deposits in the Oxnard and Mugu Aquifers (Izbicki 1996). The connate water is released as groundwater head in the aquifer declines and the fine-grained deposits compress. Additionally, chloride concentrations in the UAS are also impacted by downward migration of brackish water from the semi-perched aquifer via improperly abandoned wells (Izbicki 1996). In the LAS, chloride concentrations above 500 mg/L result from seawater intrusion, as well as from upward migration of brines from the geologic formations that underlie and surround the Subbasin (Izbicki 1991).

The minimum thresholds metric against which seawater intrusion will be measured is water levels that were selected to prevent lateral seawater intrusion. These groundwater elevations are equal to, or higher than, previous historical low water levels (Table 3-1). Some of the minimum threshold groundwater elevations in the LAS are below sea level. These elevations were selected based on model results that indicate groundwater elevations could be this low and still limit seawater intrusion. They were also selected in concert with groundwater elevations in adjacent management areas, and are not expected to negatively impact the ability of the adjacent management areas to meet their sustainability goals.

The groundwater elevations selected in each of the management areas of the Oxnard Subbasin will be used to determine whether seawater intrusion is occurring in the Saline Intrusion Management Area and the West Oxnard Plain Management Area (WOPMA) of the Subbasin (Figure 2-69). Until a monitoring well is installed in the EOPMA, the water level thresholds set for the wells closest to the EOPMA in the WOPMA and the Oxnard Pumping Depression Management Area are presumed to be protective for the EOPMA, which has considerably less groundwater production than the adjoining management areas. This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

Seawater intrusion in the Oxnard Subbasin has the potential to impact the beneficial uses and users of groundwater in the Subbasin by limiting the volume of non-brackish groundwater available for agricultural, municipal, industrial, and domestic use. These impacts will affect all users of groundwater in the Subbasin and continued seawater intrusion could result in changing land use as agricultural land is fallowed due to reduced groundwater supplies.

3.3.4 Degraded Water Quality

3.3.4.1 Chloride and TDS

Significant and unreasonable degraded water quality related to groundwater production is an undesirable result that has the potential to occur in the Oxnard Subbasin. Increases in chloride and total dissolved solids (TDS) have been observed in coastal areas of the Oxnard Subbasin including parts of the WOPMA and the Saline Intrusion Management Area. These increases are associated with seawater intrusion as well as connate water in fine-grained lenses, downward migration of brines from improperly abandoned wells, and upward migration of brines from deeper geologic formations (Izbicki 1991, 1996; UWCD 2016).

Degradation of groundwater quality from increased concentrations of chloride and TDS has the potential to impact the beneficial uses and users of groundwater in the Subbasin by (1) limiting the volume of groundwater available for agricultural, municipal, industrial, and domestic use or (2) requiring construction of treatment facilities to remove the constituents of concern.

The primary cause of groundwater conditions in the Subbasin that would lead to degradation of water quality from increased concentrations of TDS and chloride is groundwater production. If groundwater production from the Subbasin results in expansion of areas of the Subbasin impacted by chloride and TDS concentrations that limit agricultural and potable use, significant and unreasonable degradation of water quality may occur.

Based on the sustainability goals for the Oxnard Subbasin, the criterion used to define undesirable results for degraded water quality is the migration of the 2015 saline water impact front during the sustaining period from 2040 through 2069. The minimum thresholds metric against which degradation of water quality will be measured is groundwater levels that were selected to prevent net landward migration of the 2015 saline water impact front. The minimum thresholds metric against which seawater intrusion will be measured is groundwater levels that were selected to prevent net landward seawater migration. These groundwater elevations are equal to, or higher than, previous historical low water levels (Table 3-1).

Water quality will continue to be monitored at monitoring well locations identified by FCGMA and its partner agencies, as identified in Chapter 4, Monitoring Networks. As additional data are collected, the effectiveness of applying a water level proxy to groundwater quality degradation will continue to be assessed.

3.3.4.2 Nitrate

In the Oxnard Forebay area of the Oxnard Subbasin, nitrate concentrations above the water quality objectives (WQOs) and basin management objectives (BMOs) are routinely detected in

groundwater (UWCD 2008). These concentrations have resulted in significant and unreasonable impacts to beneficial uses and users of the Oxnard Subbasin, as not all municipal users of groundwater in this area have the ability to blend groundwater with nitrate exceeding the federal maximum contaminant level (MCL) with other water to sufficiently reduce the nitrate concentration for municipal use. Although nitrate concentrations in the Forebay have impacted municipal users of groundwater, the concentrations of nitrate in the Forebay are not caused by groundwater conditions occurring throughout the Subbasin. Rather, nitrate concentrations above WQOs and BMOs in the Forebay are likely a legacy of historical septic discharges and agricultural fertilizer application practices.[1]

Although nitrate concentrations decrease when water levels are high, the decreases are not a result of regional groundwater production patterns. Instead, the reduction in nitrate concentration results from dilution of nitrate in groundwater by lower nitrate concentration surface-water recharge from the Santa Clara River. Operationally, in years when surface-water diversions are lower than the overall demand, UWCD prioritizes surface-water recharge in areas where nitrate concentrations in the groundwater exceed the MCL over deliveries to areas with lower concentrations of nitrate in the groundwater. UWCD currently anticipates maintaining and potentially increasing surface-water recharge from the Santa Clara River in the future. Increases in surface-water recharge, combined with the cessation of septic discharges and modern agronomic fertilization practices, are anticipated to result in long-term declines in nitrate concentration in the Forebay.

Because nitrate concentrations are not impacted by local or regional groundwater production, and the currently impacted area is not anticipated to get larger in the future, the concentration of nitrate is not considered to be a SGMA sustainability indicator in the Subbasin. Because nitrate impacts are not a sustainability indicator, no minimum threshold concentration for nitrate is proposed at this time. Nitrate concentrations will continue to be monitored and the relationship between groundwater production and nitrate concentrations will be reevaluated during the 5-year evaluation.

3.3.5 Land Subsidence

The undesirable result associated with land subsidence in the Oxnard Subbasin is subsidence that substantially interferes with surface land uses. The FCGMA Board resolution discussed in Section 3.1, Introduction to Sustainable Management Criteria, calls for groundwater management that will not result in net subsidence due to groundwater withdrawal. Subsidence related to groundwater withdrawal can occur as groundwater elevations decline below previous historical low water levels, because the groundwater acts to reduce the effective stress, or pressure, on the sediments in the aquifers. As water levels decline, the pressure on the sediment matrix increases, and the pore structure of the sediment can collapse, resulting in subsidence. The minimum thresholds metric

[1] Ventura County extended sewer lines into this area in the years between 2000 and 2011 to address additional discharges of nitrate.

against which subsidence will be measured is water levels that were selected to prevent lateral seawater intrusion. These groundwater elevations are equal to, or higher than, previous historical low water levels, which will limit the potential for future land subsidence in the Subbasin resulting from groundwater withdrawal (Table 3-1).

Groundwater production is only one cause of subsidence in the Oxnard Subbasin. In addition to groundwater production, tectonic forces and oil and gas production can also result in subsidence in the Oxnard Subbasin (Section 2.3.5, Subsidence). Currently there are no monitoring stations that separate the effects of groundwater withdrawal from those of the other causes of subsidence.

Groundwater production from the Subbasin may result in significant and unreasonable land subsidence if the subsidence "substantially interferes with surface land uses" (California Water Code, Section 10721(x)(5)). Using this definition, historical records of land subsidence in the Subbasin do not indicate that land subsidence as a result of groundwater production has caused or is likely to cause undesirable results. Parts of the Oxnard Plain have experienced 2 to 3 feet of subsidence in the past, and future projections of subsidence indicate that areas within the Oxnard Plain may experience an additional 0.1 to 1 feet of subsidence by 2040 (Hanson et al. 2003; DWR 2014).

Land subsidence related to groundwater production has the potential to impact the beneficial uses and users of groundwater in the Oxnard Subbasin by interfering with surface land uses in a way that causes additional costs for releveling fields, replacing surface infrastructure, and otherwise interfering with surface land uses. Additional subsidence of 0.1 to 1 feet is not anticipated to substantially interfere with surface land uses in the Subbasin.

Even though substantial interference with land surface uses is not anticipated, actions to reduce groundwater production to a rate that avoids net seawater intrusion will mitigate future seawater intrusion as well as reducing the potential for additional subsidence in the Subbasin related to groundwater production.

3.3.6 Depletions of Interconnected Surface Water

The undesirable result associated with depletion of interconnected surface water in the Oxnard Subbasin is loss of groundwater-dependent ecosystem (GDE) habitat.

The primary cause of groundwater conditions in the Subbasin that would lead to depletion of interconnected surface water is groundwater production from the semi-perched aquifer. This unit is not currently considered a principal aquifer of the Oxnard Subbasin (Section 2.2.3, Principal Aquifers and Aquitards). Groundwater production from the semi-perched aquifer may result in depletion of interconnected surface water with significant and unreasonable adverse effects on beneficial uses of surface water if the groundwater levels were lowered to an elevation below which the vegetation in the existing GDEs could not access groundwater over a length of time

that negatively affected the health of the GDE. Historically, this condition has not occurred within the Oxnard Subbasin, because there has been very minor (<31 AFY) groundwater production from the semi-perched aquifer (Section 2.4.1.2, Imported Water Supplies).

Depletion of interconnected surface water in the Oxnard Subbasin is not currently occurring, as evidenced by lack of production, relatively stable groundwater elevations, and the need for tile drains in the semi-perched aquifer. Groundwater elevations will continue to be monitored in the semi-perched aquifer.

Depletion of interconnected surface water in the Oxnard Subbasin has the potential to impact the uses and users of groundwater in the Subbasin by lowering the groundwater table and negatively impacting the health of GDEs. If future projects involve the use of water from the semi-perched aquifer, depletion of interconnected surface water is possible, and significant and unreasonable impacts may occur. Reevaluation of the effects on existing and potential GDEs should be conducted in conjunction with the project approval process for any such future projects.

3.3.7 Defining Subbasin-Wide Undesirable Results

In order to better manage groundwater production and projects within the Oxnard Subbasin, the Subbasin has been divided into four management areas (Section 2.5, Management Areas). Groundwater production in each of the management areas occurs in both the UAS and LAS (Table 2-14, Oxnard Subbasin Groundwater Used). Although there are groundwater production wells screened in both the UAS and the LAS in the Oxnard Subbasin, there are a sufficient number of wells screened only in one of the two aquifer systems to be able to manage groundwater production in the Subbasin by aquifer system. In contrast, there are few production wells screened only within an individual aquifer in the Subbasin. Therefore, the discussion of Subbasin-wide undesirable results that follows has been separated by aquifer system, but not by individual aquifer.

Upper Aquifer System

Fifteen wells were selected as key wells in the UAS (Table 3-1).[2] Of these, three are in the Forebay Management Area, three are in the West Oxnard Plain Management Area, and nine are in the Saline Intrusion Management Area. None of the UAS key wells are located in the Oxnard Pumping Depression Management Area.

[2] Well 02N21W07L05 is screened in multiple aquifers, and has been assigned to the UAS for the purpose of defining undesirable results.

Undesirable results are defined in three ways for the UAS in the Oxnard Subbasin. The first is based on the total number of wells, independent of management area or aquifer. Under this definition, the UAS will be determined to be experiencing undesirable results if, in any single monitoring event, water levels in six of the 15 key wells are below their respective minimum thresholds.

The second definition of undesirable results for the UAS is based on the degree to which a single well exceeds a minimum threshold. Under this definition, the UAS would be determined to be experiencing an undesirable result if the groundwater elevation at any individual key well is below the historical low water level for that well.

The third definition of undesirable results for the UAS is based on the time over which a well may exceed the minimum threshold. Under this definition, the UAS would be determined to be experiencing an undesirable result if the water level in any individual key well was below the minimum threshold for either three consecutive monitoring events or three of five consecutive monitoring events. Monitoring events are scheduled to occur in the spring and fall of each year.

If conditions in the UAS meet any of the definitions of undesirable results listed above, the UAS would be considered to be experiencing undesirable results.

Lower Aquifer System

Nineteen wells were selected as key wells in the LAS (Table 3-1).[3] Of these, six are in the Forebay Management Area, five are in the West Oxnard Plain Management Area, six are in the Saline Intrusion Management Area, and two are in the Oxnard Pumping Depression Management Area.

Undesirable results are defined in three ways for the LAS in the Oxnard Subbasin. The first is based on the total number of wells, independent of management area or aquifer. Under this definition, the LAS will be determined to be experiencing undesirable results if, in any single monitoring event, water levels in 8 of the 19 key wells are below their respective minimum thresholds.

The second definition of undesirable results for the LAS is based on the degree to which a single well exceeds a minimum threshold. Under this definition, the LAS would be determined to be experiencing an undesirable result if the groundwater elevation at any individual key well is below the historical low water level for that well.

The third definition of undesirable results for the LAS is based on the time over which a well may exceed the minimum threshold. Under this definition, the LAS would be determined to be experiencing an undesirable result if the water level in any individual key well were below the minimum threshold for either three consecutive monitoring events or in three of five consecutive monitoring events. Monitoring events are scheduled to occur in the spring and fall of each year.

[3] Wells 02N21W07L03, 01N21W07J02, and 01N21W07L03 are screened in multiple aquifers and have been assigned to the LAS for the purpose of defining undesirable results.

If conditions in the LAS meet any of the definitions of undesirable results listed above, the LAS would be considered to be experiencing undesirable results.

3.4 MINIMUM THRESHOLDS

The following sections and discussion set forth the minimum thresholds for each of the six sustainability indicators. These thresholds discussed below are the proposed minimum groundwater elevations that would prevent undesirable results, defined as net landward migration of the 2015 saline water impact front, net seawater intrusion in the UAS, or net seawater intrusion in the LAS. When groundwater elevations drop below the proposed minimum threshold, the Subbasin may experience undesirable results (Section 3.3.7, Defining Subbasin-Wide Undesirable Results).

The minimum thresholds for chronic lowering of water levels, change in groundwater storage, seawater intrusion, groundwater quality, and land subsidence are based on the historical record of groundwater elevation in individual aquifers, the documented impacts of seawater intrusion, and the hydrogeologic conceptual model developed for the Oxnard Subbasin. All of these undesirable results are interrelated, and each is directly tied to seawater intrusion. Because groundwater elevations, change in storage, and groundwater quality are directly tied to seawater intrusion, the minimum threshold groundwater levels selected to mitigate the effects of seawater intrusion are also used for the other undesirable results as well (Table 3-1).

The minimum threshold groundwater levels selected to prevent seawater intrusion were based on a review of the historical groundwater elevation data and an analysis of the potential for seawater intrusion under multiple future groundwater production scenarios. Predicted groundwater levels were simulated over a 50-year period from 2020 to 2069 (Section 2.4.5, Projected Future Water Budget and Sustainable Yield). The future climate simulated in the model recreated the observed climate from 1930 to 1979, with adjustments to precipitation and streamflow based on climate change factors provided by the California Department of Water Resources (DWR). The historical period from 1930 to 1979 includes periods of drought and periods of above-average precipitation, but has the average precipitation of the entire climate record for the Oxnard Subbasin (Section 2.4.5). The 50-year future simulations were used to assess the rate of groundwater production that results in no net seawater intrusion in either the UAS or the LAS in the Oxnard Subbasin after 2040.

Two simulations were found to minimize net seawater intrusion after 2040 (Figures 2-67a through 2-67e, UWCD Model Particle Tracks for the Reduction With Projects Simulation, and Figures 2-68a through 2-68e, UWCD Model Particle Tracks for the Reduction Without Projects Simulation 1; Section 2.4). Groundwater production in the first simulation, referred to as the Reduction With Projects Scenario (Section 2.4.5.3), averaged approximately 40,000 AFY, with 27,000 AFY of production in the UAS, and 13,000 AFY in the LAS. This simulation incorporated projects, including temporary fallowing of approximately 500 AFY in the Oxnard Subbasin, and deliveries

of approximately 4,000 AFY of recycled water from the City of Oxnard's Groundwater Recovery Enhancement and Treatment (GREAT) Program for irrigation in the coastal area. Groundwater production in the second simulation, referred to as the Reduction Without Projects Scenario 1 (Section 2.4.5.4), averaged approximately 39,000 AFY, with 27,000 AFY of production in the UAS, and 12,000 AFY in the LAS (Section 2.4.5). In general, the simulated groundwater elevations in the model scenario with projects were close to those in the scenario without projects, with any observed difference between the two limited to less than approximately 10 feet (Figures 3-6 through 3-11, Key Well Hydrographs).

The minimum threshold groundwater elevations selected to protect against net seawater intrusion in the UAS and LAS are based on the lowest simulated groundwater elevation after 2040 for the two model simulations in which net seawater intrusion was minimized. To account for some of the uncertainty in the simulated future groundwater elevations, the lowest simulated value in either of the two simulations was used as a starting point for selecting the minimum thresholds. The lowest simulated value was then rounded down to the nearest 5-foot interval to further account for uncertainty in the future simulated groundwater elevations. The rounded groundwater elevation was then raised by 2 feet to account for predicted sea level rise by 2070. The minimum thresholds for each well are presented in Table 3-1 and Figures 3-6 through 3-11.

There are no proposed minimum thresholds in the EOPMA because there are no suitable monitoring wells in the EOPMA (Figure 2-69). The thresholds for the Saline Intrusion Management Area and Oxnard Pumping Depression Management Area, both of which border the EOPMA, are presumed to protect the EOPMA, which has considerably less groundwater production than the adjoining management areas (see Section 2.5). This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

It is important to remember that there are several sources of uncertainty in the model predictions. These sources of uncertainty include, but are not limited to, the prediction of future climate, future diversions from the Santa Clara River, groundwater model assumptions and assigned values, and future groundwater production distribution in the Subbasin. The uncertainty in each of these factors is anticipated to decrease with time. As these factors are better understood, the minimum thresholds should be reassessed, and adjustments should be made, when warranted by the assessment.

3.4.1 Chronic Lowering of Groundwater Levels

The selected minimum thresholds for chronic lowering of groundwater levels are presented in Table 3-1. These minimum thresholds are water levels that were selected based on future groundwater model simulations that limit migration of the 2015 saline water impact front after 2040, limit net seawater intrusion into the UAS and LAS, and indicate that declines in groundwater elevations during periods of future drought will be offset by recoveries during future periods of above-average rainfall.

These minimum thresholds are anticipated to improve the beneficial uses of the Subbasin by limiting seawater intrusion and chronic lowering of groundwater levels. This allows for long-term use of groundwater supplies in the Subbasin without ongoing loss of storage that would cause economic harm to the users of groundwater in the Subbasin and impair the beneficial uses of groundwater in the Subbasin.

These minimum thresholds may impact groundwater users in the Subbasin by requiring both an overall reduction in groundwater production relative to historical levels, and potentially by requiring a redistribution of groundwater pumping within the Subbasin. A redistribution of groundwater production to shift groundwater production inland may require inland users to deepen existing wells or replace wells, and may require adjustment of the currently proposed minimum thresholds in the future. Furthermore, the minimum threshold groundwater elevations may result in a return to artesian conditions in wells screened in the UAS and LAS adjacent to the coast. In these areas, improperly abandoned wells can act as conduits for flow from the aquifer systems to land surface. Additional efforts may need to be undertaken by FCGMA and stakeholders in the Subbasin to prevent negative impacts from rising water levels and improperly abandoned wells.

The minimum thresholds for chronic lowering of groundwater levels are water levels that will be measured at the monitoring wells listed in Table 3-1. Groundwater levels in these wells, which are referred to as "key wells," will be reported to DWR in the annual reports that will follow the submittal of this GSP. Additionally, as funding becomes available, it is recommended that each of these monitoring wells be instrumented with a pressure transducer capable of recording hourly water levels. The groundwater elevation in each well will be compared to the minimum threshold assigned in Table 3-1 to determine whether water levels in individual wells are above the minimum thresholds.

3.4.2 Reduction of Groundwater Storage

The minimum thresholds for reduction in groundwater storage are water levels that were selected based on future groundwater model simulations that limit seawater intrusion in the Subbasin, and indicate that declines in groundwater elevations during periods of future drought will be offset by recoveries during future periods of above-average rainfall (Table 3-1). The minimum thresholds impacts to groundwater users for reduction of groundwater storage are the same as those for chronic lowering of groundwater levels. These minimum thresholds are anticipated to improve the beneficial uses of the Subbasin by allowing for long-term use of groundwater supplies in the Subbasin without replacing freshwater in the UAS and LAS with seawater. Such a replacement would lead to a loss of storage that would cause economic harm to the users of groundwater in the Subbasin and impair the beneficial uses of groundwater in the Subbasin.

The minimum thresholds for reduction of groundwater storage are water levels that will be measured at the key wells two times per year. Additionally, as funding becomes available, it is recommended that each key well be instrumented with a pressure transducer capable of recording hourly water levels. The groundwater elevation in each well will be compared to the minimum threshold assigned in Table 3-1 to determine whether water levels in individual wells are above the minimum thresholds.

3.4.3 Seawater Intrusion

Because the concentration of chloride is not necessarily the best indicator of modern seawater intrusion, the relationship between seawater intrusion and groundwater elevation was investigated using a numerical groundwater model (Appendix C). Groundwater levels in the Oxnard and Mugu Aquifers in coastal areas have historically fallen below sea level in response to increased production and drought cycles since the 1950s (Figure 2-9a, Groundwater Well Hydrographs in the Oxnard Aquifer – Oxnard Plain, and Figure 2-12, Groundwater Well Hydrographs in the Mugu Aquifer). The groundwater levels below sea level resulted in seasonal seawater intrusion during the fall irrigation season and during droughts in coastal wells in the vicinity of Point Hueneme and Point Mugu (Figure 2-35, Selected Historical Records of Water Elevation and Chloride Concentration).

Modeling by UWCD (2018; see Appendix C to this GSP) indicates that there was flux from the ocean into the Oxnard and Mugu Aquifers in the vicinity of the offshore Mugu and Hueneme Submarine Canyons when the coastal groundwater levels in the UAS fell below 5 to 10 feet above mean sea level. In 1990, FCGMA directed pumpers to decrease production in these aquifers to mitigate seawater intrusion. As a result, production in coastal areas shifted from the Oxnard and Mugu Aquifers to the deeper Hueneme Aquifer, the Fox Canyon Aquifer (FCA), and the Grimes Canyon Aquifer (the aquifers that compose the LAS). Water levels in the FCA and the Grimes Canyon Aquifer near the coast quickly fell below sea level and have remained there since the 1980s, even after periods of above-average precipitation (Figure 2-18, Groundwater Well Hydrographs in the Fox Canyon Aquifer, and Figure 2-21, Groundwater Well Hydrographs in the Grimes Canyon Aquifer). The UWCD model indicates continuous flux from the ocean into these aquifers since 1985 (Figure 2-34, Groundwater Flux along the Coast in the Lower Aquifer System).

Because the model indicates a strong relationship between groundwater elevation and seawater intrusion, the minimum thresholds for addressing seawater intrusion are water levels that were selected based on future groundwater model simulations that limited seawater intrusion in the UAS and LAS (Table 3-1). The model simulations suggest that if water levels fall below the minimum threshold elevations, the Subbasin is likely to experience net landward migration of the 2015 saline water impact front after 2040. These minimum thresholds are anticipated to improve the beneficial uses of the Subbasin by limiting seawater intrusion. This allows for long-term use of groundwater supplies in the Subbasin without ongoing loss of storage that would cause economic harm to the users of groundwater in the Subbasin and impair the beneficial uses of groundwater in the Subbasin.

Groundwater users in the Subbasin may be impacted by the minimum thresholds in several ways. First, an overall reduction in groundwater production relative to historical levels will be required to achieve the minimum thresholds. Such a reduction may impact the value of agricultural land, drive changes in crop types, result in temporary fallowing of agricultural acreage, and cause economic disruption to the regional economy. Second, a redistribution of groundwater pumping may be required to optimize water management in the Subbasin. If groundwater production is reduced at the coast and shifted inland, additional infrastructure may be needed to convey water from the inland areas to the coast, inland users may be required to deepen existing wells, and the currently proposed minimum thresholds may need to be lowered for inland areas in the future. Third, as the minimum thresholds are achieved in the coastal areas, additional economic impacts may occur as improperly abandoned wells may need to be properly sealed so they do not act as a conduit for flow from the underlying aquifers.

The minimum thresholds were selected for each aquifer system in the Oxnard Subbasin, primarily using wells screened in a single aquifer. These wells will be used to monitor groundwater elevations in each aquifer system in the Subbasin. Additionally, as funding becomes available, it is recommended that each key well be instrumented with a pressure transducer capable of recording hourly water levels. The groundwater elevation in each well will be compared to the minimum threshold assigned in Table 3-1 to determine whether water levels in individual wells are above the minimum thresholds.

3.4.4 Degraded Water Quality

Water quality impacts to the aquifer systems of the Oxnard Subbasin are limited to high concentrations of nitrate, chloride, and TDS. The sources and mechanisms controlling the concentration of these constituents differs throughout the Subbasin (Section 2.3). Nitrate concentrations in the Forebay exceed the federal MCL in some wells. However, these concentrations cannot be reduced by altering groundwater production in the Subbasin. For these concentrations, the recharge source water should be of the highest quality possible to maintain or improve future groundwater quality (Section 3.3.4, Degraded Water Quality). Although FCGMA cannot control the quality of the recharge water, the groundwater elevations minimum thresholds to prevent net migration of seawater after 2040 are higher than the historical low groundwater elevations at which nitrate concentrations were observed to exceed the federal MCL. These groundwater elevations will be used as the minimum thresholds to prevent further degradation of groundwater quality in the Forebay until such time that a separate concentration minimum threshold is found to be necessary.

In contrast to concentrations of nitrate in the Forebay, the concentration of chloride and TDS in coastal wells is influenced by groundwater production. Concentrations of chloride and TDS exceed federal, state, and local standards in some wells in the Subbasin (Section 2.3). Groundwater

production near the coast induces seawater intrusion, and lowered groundwater elevations induce compaction of fine-grained sediments that release connate brines into the aquifers. Because both of these processes are tied to groundwater elevations in the Subbasin, minimum thresholds for groundwater elevation, rather than concentration, were set to control the additional impacts from seawater and brine migration in the aquifers (Section 3.4.3, Seawater Intrusion). The minimum thresholds selected are the same as the water level thresholds selected to prevent net migration of the 2015 saline water impact front after 2040. These groundwater elevations are higher than historical low elevations, which will prevent further compaction of fine-grained sediments and brine release. They are also designed to prevent further degradation of water quality from direct seawater intrusion.

As discussed previously, the minimum thresholds are anticipated to improve the beneficial uses of the Subbasin by increasing the overall amount of freshwater storage in the Subbasin and limiting the further intrusion of seawater. The minimum thresholds impacts to groundwater users for degraded water quality are anticipated to be the same as those for seawater intrusion, which are described in Section 3.4.3.

The minimum thresholds for degraded water quality are water levels that will be measured at the monitoring wells listed in Table 3-1. Additionally, as funding becomes available, it is recommended that each key well be instrumented with a pressure transducer capable of recording hourly water levels. The groundwater elevation in each well will be compared to the minimum threshold assigned in Table 3-1 to determine whether water levels in individual wells are above the minimum thresholds.

3.4.5 Land Subsidence

The minimum thresholds for land subsidence are water levels that were selected based on future groundwater model simulations that limit seawater intrusion in the Subbasin, and indicate that declines in groundwater elevations during periods of future drought will be offset by recoveries during future periods of above-average rainfall (Table 3-1). As groundwater withdrawals will be reduced to avoid further seawater intrusion, groundwater elevations in the aquifer systems will rise, and the resulting minimum thresholds are higher than historical low water levels. Because groundwater elevations must be maintained above the minimum threshold in order to avoid undesirable results for seawater intrusion and loss of freshwater storage, water levels in the Subbasin will remain above historical low water levels after 2040. Therefore, water levels in the Subbasin will not induce inelastic subsidence in the Subbasin. If the distribution of pumping is altered to mitigate seawater intrusion by reducing pumping near the coast and increasing pumping in the Forebay, the potential subsidence risk may have to be revisited in inland areas. This risk evaluation should be tied to areas in which the minimum thresholds are lowered below previous historical low water levels.

As discussed previously, the minimum thresholds are anticipated to improve the beneficial uses of the Subbasin by increasing the overall amount of freshwater storage in the Subbasin and limiting the further intrusion of seawater. These minimum thresholds also will limit future subsidence because currently they are greater than the historical low groundwater elevation. The minimum thresholds impacts to groundwater users for land subsidence are anticipated to be the same as those for seawater intrusion, which are described in Section 3.4.3.

The minimum thresholds for subsidence are water levels that will be measured at the monitoring wells listed in Table 3-1. Additionally, as funding becomes available, it is recommended that each key well be instrumented with a pressure transducer capable of recording hourly water levels. The groundwater elevation in each well will be compared to the minimum threshold assigned in Table 3-1 to determine whether water levels in individual wells are above the minimum thresholds.

3.4.6 Depletions of Interconnected Surface Water

The minimum thresholds for depletions of interconnected surface water are water levels that were selected based on future groundwater model simulations that limit seawater intrusion in the Subbasin, and indicate that declines in groundwater elevations during periods of future drought will be offset by recoveries during future periods of above-average rainfall (Table 3-1). The areas of interconnected surface water and groundwater and associated GDEs described in Section 2.3.6, Groundwater–Surface Water Connections, and Section 2.3.7, Groundwater-Dependent Ecosystems, are connected to the semi-perched aquifer, from which there is little current groundwater production. Because the semi-perched aquifer is not considered a principal aquifer, specific minimum thresholds were not selected for this unit. Instead, results of the numerical groundwater model scenarios that prevent net landward migration of the 2015 saline water impact front after 2040 indicate that groundwater elevations in the semi-perched aquifer will be supported by groundwater elevations in the underlying Oxnard Aquifer. The Oxnard Aquifer is the uppermost aquifer of the UAS. The simulated minimum threshold water levels in the Oxnard Aquifer that prevent net migration of the 2015 saline water impact front after 2040 were found to result in higher water levels in the semi-perched aquifer. Therefore, the minimum thresholds for depletions of interconnected surface water are water levels in the Oxnard Aquifer that also prevent net migration of the 2015 saline water impact front after 2040. The minimum thresholds are equal to or higher than the lowest groundwater elevation measured at these wells. The selected groundwater elevations are anticipated to protect against depletion of interconnected surface water, because historical groundwater elevations in the semi-perched aquifer have maintained the documented and potential GDEs in the Subbasin (Section 2.3).

As discussed previously, the minimum thresholds are anticipated to improve the beneficial uses of the Subbasin by increasing the overall amount of freshwater storage in the Subbasin and limiting the further intrusion of seawater. The minimum thresholds set will maintain the existing beneficial

uses of the semi-perched aquifer by maintaining groundwater elevations equal to or higher than historical lows. The minimum thresholds impacts to groundwater users for interconnected groundwater and surface water are anticipated to be the same as those for seawater intrusion, which are described in Section 3.4.3.

Currently there is very little groundwater production from the semi-perched aquifer. If water levels in this aquifer rise as a result of reduced groundwater production in the underlying UAS, additional projects may investigate producing water from the semi-perched aquifer. Such projects will have to evaluate the potential impact to interconnected surface water and GDEs as part of the feasibility and permitting process. Additionally, if projects that produce groundwater from the semi-perched aquifer are implemented, the need for specific water level minimum thresholds in the semi-perched aquifer should be reevaluated.

The minimum thresholds for interconnected surface water are water levels that will be measured at the monitoring wells listed in Table 3-1. Additionally, as funding becomes available, it is recommended that each key well be instrumented with a pressure transducer capable of recording hourly water levels. The groundwater elevation in each well will be compared to the minimum threshold assigned in Table 3-1 to determine whether water levels in individual wells are above the minimum thresholds.

3.5 MEASURABLE OBJECTIVES

The measurable objectives are quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted GSP to achieve the sustainability goal. For the Oxnard Subbasin, the measurable objective is the water level—measured at each of the key wells throughout the Subbasin—at which there is neither seawater flow into nor freshwater flow out of the UAS or LAS. If water levels in the Subbasin remained at the measurable objective in perpetuity, no groundwater would flow from the aquifer systems into the Pacific Ocean, and no ocean water would flow into the aquifer systems. This is the theoretical ideal water level for managing the aquifer systems of the Subbasin, because seawater intrusion would be prevented while maintaining the maximum freshwater use from the aquifer systems. However, because groundwater elevations in the Oxnard Subbasin respond to climatic cycles, actual groundwater levels in the Subbasin cannot be maintained at the measurable objective indefinitely. Therefore, to allow for operational flexibility while still preventing net migration of the 2015 saline water impact front after 2040, the measurable objectives were selected to work with the minimum thresholds in the Oxnard Subbasin.

To allow for operational flexibility during drought periods, water levels in the Subbasin are allowed to fall below the measurable objective, so long as they remain above the minimum threshold. As water levels fall below the measurable objective, seawater will flow toward the freshwater aquifer systems in the Subbasin, even if the water levels remain above the minimum threshold. The longer

groundwater elevations remain between the measurable objective and the minimum threshold the greater the volume of seawater that will migrate into the aquifer systems. In order to prevent net seawater intrusion over periods of drought and recovery, the periods during which seawater intrusion occurs must be offset by periods when the groundwater elevations are higher.

There are two components to balancing groundwater levels over climate cycles to prevent net migration of the 2015 saline water impact front after 2040. The first is not allowing groundwater levels to decline below an elevation at which net seawater intrusion will occur. This elevation is the minimum threshold. The second is ensuring that periods during which groundwater levels are above the minimum threshold but below the measurable objective are offset by equal periods during which groundwater levels are above the measurable objective. Therefore, the measurable objectives were selected based on the median groundwater elevation between 2040 and 2070, simulated for each well, in model simulations that prevented net landward migration of the 2015 saline water impact front after 2040.

The median groundwater elevation was rounded down to the nearest 5-foot interval to account for uncertainty in the model simulated future groundwater elevations. In order to account for future sea level rise, the rounded groundwater elevations were increased by 2 feet. The median simulated groundwater elevation (from 2040 to 2070) at each well after rounding and accounting for sea level rise is the measurable objective (Table 3-1). In order to prevent net seawater intrusion in the Subbasin after 2040, observed groundwater levels should be above the measurable objective 50% of the time. Ideally, the periods during which the water levels are above the measurable objectives will coincide with periods of above-average precipitation. If this occurs, additional reductions in groundwater production are not anticipated to be required to offset seawater intrusion. If, however, prolonged periods of drought limit the ability to recharge the groundwater aquifers in the Oxnard Subbasin, additional reductions in groundwater production may be required to offset seawater intrusion.

3.5.1 Chronic Lowering of Groundwater Levels

The measurable objective for the chronic lowering of groundwater levels is the groundwater level at which there is neither seawater flow into nor freshwater flow out of the UAS or LAS. This groundwater level is the same groundwater level that is used to protect against seawater intrusion in the Subbasin. The measurable objective groundwater level was selected for each of the key wells (Table 3-2). At each of these wells, the difference between the measurable objective and the minimum threshold is greater than 10 feet, which provides a margin of safety for operational flexibility in the Subbasin.

Groundwater elevations within each management area of the Oxnard Subbasin will be used to determine whether chronic lowering of groundwater levels is occurring. All of the management areas except the EOPMA have wells in which water levels can be monitored by aquifer. Until a

monitoring well is installed in the EOPMA, the measurable objectives set for the wells in the Saline Intrusion Management Area and Oxnard Pumping Depression Management Area, closest to the EOPMA, are presumed to also protect the EOPMA. The EOPMA has considerably less groundwater production than the WOPMA and does not have an independent suitable monitoring well for selecting a separate measurable objective. This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

Interim Milestones for Chronic Lowering of Groundwater Levels

Interim milestones, which are target groundwater levels in 2025, 2030, and 2035 at key wells, will be used to assess progress toward sustainable groundwater management in the Oxnard Subbasin between 2020 and 2040. The interim milestones for chronic lowering of groundwater levels are the same as the interim milestones for seawater intrusion, because the interim milestones measure progress toward groundwater elevations in the Subbasin that prevent the net migration of the 2015 saline water impact front after 2040.

Two sets of interim milestones were determined for the key wells in the Subbasin (Table 3-2). The first set of interim milestones was calculated using linear interpolation between the fall 2015 low groundwater elevation and measurable objective (Figure 3-12, Interim Milestones for Dry and Average Conditions – Linear Interpolation). The second set was calculated using linear interpolation between the fall 2015 low groundwater elevation and the minimum threshold (Figure 3-12).

Two sets of interim milestones were calculated because the actual groundwater elevation in 2040 will depend both on groundwater production from the Subbasin and the climatic conditions between 2020 and 2040. Groundwater model simulations of future groundwater levels show that groundwater levels throughout the Subbasin vary by tens of feet at constant groundwater production rates over 5-year periods. This variability reflects the variability in annual precipitation, flow in the Santa Clara River, and groundwater recharge through the UWCD spreading grounds. Just as annual climate conditions vary from the calculated long-term historical mean conditions, so do 5-year average climate conditions (Figure 3-13, Distribution of 5-Year Average Climate Conditions in the Historical Record of Precipitation on the Oxnard Plain). Therefore, progress toward the measurable objective, which is the anticipated median groundwater level necessary to prevent net migration of the 2015 saline water impact front after 2040, must be evaluated in the context of the climate that occurred during the preceding 5 water years.

If, for example, the average precipitation from water years 2020 through 2024 (October 1, 2019, through September 30, 2024) equals the long-term historical average precipitation for the Oxnard Subbasin, then, as groundwater production is reduced, the groundwater level at each key well should reach the interim milestone for average climate conditions shown in Table 3-2. Under these conditions, groundwater levels in the Subbasin would be expected to reach the measurable

objective by 2040. If, however, the precipitation from water years 2020 through 2024 is less than 70% of the average long-term historical precipitation, as has occurred six times in the historical record (Figure 3-13), reductions in groundwater production anticipated as part of this GSP would not be sufficient for groundwater elevations to reach the interim milestone for average climate conditions. In order for the Subbasin to be sustainable in 2040 under ongoing dry climate conditions, the interim milestones should reflect progress toward the minimum threshold at each key well, rather than progress toward the measurable objective (Figure 3-13). Five-year climate conditions that fall between average and less than 70% of average would be expected to produce interim milestone groundwater elevations between those listed in Table 3-2.

Although specific interim milestones were not selected at each key well for above-average climate conditions, a similar analysis should be performed as part of the 5-year assessment process. For example, if the average precipitation from water years 2020 through 2024 exceeds 140% of the average long-term historical precipitation, as has occurred six times in the historical record (Figure 3-13), groundwater elevations in the fall of 2024 should be higher than the interim milestone groundwater elevation for average conditions listed in Table 3-2. Further, although Table 3-2 provides interim milestone groundwater elevations for the years 2030, 2035, and 2040, these interim milestones should be reassessed as part of the 5-year GSP evaluation process because of their climate dependence. The linear interpolation and resultant interim milestones should be updated based on the measured water level in the fall of 2024, 2029, and 2034 at each key well.

3.5.2 Reduction of Groundwater in Storage

The measurable objective for reduction of groundwater in storage is the groundwater level at which there is neither seawater flow into nor freshwater flow out of the UAS or LAS (Table 3-2). The measurable objective groundwater level was selected for each of the key wells based on the median predicted groundwater elevation between 2040 and 2070 from groundwater model simulations that minimized the migration of the 2015 saline water impact front after 2040. This groundwater level is the same groundwater level that is used to protect against seawater intrusion in the Subbasin. At each of the key wells, the difference between the measurable objective and the minimum threshold is greater than 10 feet, which provides a margin of safety for operational flexibility in the Subbasin.

All of the management areas except the EOPMA have wells in which water levels can be monitored by aquifer. Until a monitoring well is installed in the EOPMA, the measurable objectives set for the wells in the Saline Intrusion Management Area and Oxnard Pumping Depression Management Area, closest to the EOPMA, are presumed to also protect the EOPMA. The EOPMA has considerably less groundwater production than the WOPMA and does not have an independent suitable monitoring well for selecting a separate measurable objective. This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

Interim Milestones for Reduction of Groundwater in Storage

Interim milestones for reduction of groundwater in storage are presented for two climate scenarios in Table 3-2. The two sets of interim milestones were calculated from a linear interpolation between the fall 2015 low groundwater elevation and either the measurable objective or the minimum threshold at each well. These interim milestones will be used to assess progress toward sustainable groundwater management in the Oxnard Subbasin between 2020 and 2040 as groundwater production from the Subbasin is reduced. The interim milestones for reduction of groundwater in storage are the same as the interim milestones for seawater intrusion.

3.5.3 Seawater Intrusion

The measurable objective for seawater intrusion is the groundwater level at which there is neither seawater flow into nor freshwater flow out of the UAS or LAS (Table 3-2). The measurable objective groundwater level was selected for each of the key wells based on the median predicted groundwater elevation between 2040 and 2070 from groundwater model simulations that minimized the migration of the 2015 saline water impact front after 2040. At each of the key wells, the difference between the measurable objective and the minimum threshold is greater than 10 feet, which provides a margin of safety for operational flexibility in the Subbasin.

All of the management areas except the EOPMA have wells in which water levels can be monitored by aquifer. Until a monitoring well is installed in the EOPMA, the measurable objectives set for the wells closest to the EOPMA in the Saline Intrusion Management Area and the Oxnard Pumping Depression Management Area are presumed to also protect the EOPMA. The EOPMA has considerably less groundwater production than the adjoining management areas and does not have an independent suitable monitoring well for selecting a separate measurable objective. This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

Interim Milestones for Seawater Intrusion

Interim milestones for seawater intrusion are presented for two climate scenarios in Table 3-2. The two sets of interim milestones were calculated from a linear interpolation between the fall 2015 low groundwater elevation and either the measurable objective or the minimum threshold at each key well. These interim milestones will be used to assess progress toward sustainable groundwater management in the Oxnard Subbasin between 2020 and 2040 as groundwater production from the Subbasin is reduced.

3.5.4 Degraded Water Quality

The measurable objective for degraded water quality is the groundwater level at which there is neither seawater flow into nor freshwater flow out of the UAS or LAS (Table 3-2). The measurable

objective groundwater level was selected for each of the key wells based on the median predicted groundwater elevation between 2040 and 2070 from groundwater model simulations that minimized the migration of the 2015 saline water impact front after 2040. This groundwater level is the same groundwater level that is used to protect against seawater intrusion in the Subbasin. At each of the key wells, the difference between the measurable objective and the minimum threshold is greater than 10 feet, which provides a margin of safety for operational flexibility in the Subbasin.

Until a monitoring well is installed in the EOPMA, the measurable objectives set for the wells closest to the EOPMA in the Saline Intrusion Management Area and the Oxnard Pumping Depression Management Area are presumed to also protect the EOPMA. The EOPMA has considerably less groundwater production than the adjoining management areas and does not have an independent suitable monitoring well for selecting a separate measurable objective. This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

Interim Milestones for Degraded Water Quality

Interim milestones for degraded water quality are presented for two climate scenarios in Table 3-2. The two sets of interim milestones were calculated from a linear interpolation between the fall 2015 low groundwater elevation and either the measurable objective or the minimum threshold at each key well. These interim milestones will be used to assess progress toward sustainable groundwater management in the Oxnard Subbasin between 2020 and 2040 as groundwater production from the Subbasin is reduced. The interim milestones for degraded water quality are the same as the interim milestones for seawater intrusion.

3.5.5 Land Subsidence

The measurable objective for land subsidence is the groundwater level at which there is neither seawater flow into nor freshwater flow out of the UAS or LAS (Table 3-2). This groundwater level is higher than the historical low water level in each key well. Therefore, it will protect against land subsidence related to groundwater withdrawal. The measurable objective groundwater level was selected for each of the key wells based on the median predicted groundwater elevation between 2040 and 2070 from groundwater model simulations that minimized the migration of the 2015 saline water impact front after 2040. This groundwater level is the same groundwater level that is used to protect against seawater intrusion in the Subbasin. At each of the key wells, the difference between the measurable objective and the minimum threshold is greater than 10 feet, which provides a margin of safety for operational flexibility in the Subbasin.

Until a monitoring well is installed in the EOPMA, the measurable objectives set for the wells closest to the EOPMA in the Saline Intrusion Management Area and the Oxnard Pumping Depression Management Area are presumed to also protect the EOPMA. The EOPMA has considerably less groundwater production than the adjoining management areas and does not have

an independent suitable monitoring well for selecting a separate measurable objective. This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

Interim Milestones for Land Subsidence

Interim milestones for land subsidence are presented for two climate scenarios in Table 3-2. The two sets of interim milestones were calculated from a linear interpolation between the fall 2015 low groundwater elevation and either the measurable objective or the minimum threshold at each key well. These interim milestones will be used to assess progress toward sustainable groundwater management in the Oxnard Subbasin between 2020 and 2040 as groundwater production from the Subbasin is reduced. The interim milestones for land subsidence are the same as the interim milestones for seawater intrusion.

3.5.6 Depletions of Interconnected Surface Water

The measurable objective for depletions of interconnected surface water is the groundwater level at which there is neither seawater flow into nor freshwater flow out of the UAS or LAS (Table 3-2). This groundwater level is higher than the historical low water level in each key well. Therefore, it will protect against depletions of interconnected surface water related to groundwater withdrawal. The measurable objective groundwater level was selected for each of the key wells based on the median predicted groundwater elevation between 2040 and 2070 from groundwater model simulations that minimized the migration of the 2015 saline water impact front after 2040. This groundwater level is the same groundwater level that is used to protect against seawater intrusion in the Subbasin. At each of the key wells, the difference between the measurable objective and the minimum threshold is greater than 10 feet, which provides a margin of safety for operational flexibility in the Subbasin.

Currently there is very little groundwater production from the semi-perched aquifer. If water levels in this aquifer rise as a result of reduced groundwater production in the underlying UAS, additional projects may investigate producing water from the semi-perched aquifer. Such projects will have to evaluate the potential impact to interconnected surface water and GDEs as part of the feasibility and permitting process. Additionally, if projects that produce groundwater from the semi-perched aquifer are implemented, the need for specific water-level measurable objectives in the semi-perched aquifer should be reevaluated.

Until a monitoring well is installed in the EOPMA, the measurable objectives set for the wells closest to the EOPMA in the Oxnard Pumping Depression Management Area are presumed to also protect the EOPMA. The EOPMA has considerably less groundwater production than the Oxnard Pumping Depression Management Area and does not have an independent suitable monitoring well for selecting a separate measurable objective. This presumption will be revisited as groundwater elevation data are collected from the EOPMA.

Interim Milestones for Depletions of Interconnected Surface Water

Interim milestones for depletions of interconnected surface water are presented for two climate scenarios in Table 3-2. The two sets of interim milestones were calculated from a linear interpolation between the fall 2015 low groundwater elevation and either the measurable objective or the minimum threshold at each key well. These interim milestones will be used to assess progress toward sustainable groundwater management in the Oxnard Subbasin between 2020 and 2040 as groundwater production from the Subbasin is reduced. The interim milestones for interconnected surface water are the same as the interim milestones for seawater intrusion.

3.6 REFERENCES CITED

23 CCR (California Code of Regulations), Section 354.28(c)(5). Definition of the minimum threshold for land subsidence.

DWR (California Department of Water Resources). 2014. *Summary of Recent, Historical, and Estimated Potential for Future Land Subsidence in California*. Accessed February 2017. http://www.water.ca.gov/groundwater/docs/Summary_of_Recent_Historical_Potential_Subsidence_in_CA_Final_with_Appendix.pdf.

DWR. 2016. "Map of Basin Boundary Modifications." Bulletin 118 Basins (2016 Edits) [GIS layer]. https://gis.water.ca.gov/app/bbat/.

Hanson, R.T., P. Martin, and K. Koczot. 2003. *Simulation of Ground-Water/Surface-Water Flow in the Santa Clara-Calleguas Ground-Water Basin, Ventura County, California*. U.S. Geological Survey Water Resources Investigation Report 2002-4136.

Izbicki, J.A. 1991. "Chloride Sources in a California Coastal Aquifer." In *American Society of Civil Engineers Symposium on Groundwater in the Pacific Rim*, 71–77. Honolulu: American Society of Civil Engineers. Proceedings: July 22–26, 1991.

Izbicki, J.A. 1996. "Use of $\delta^{18}O$ and δD to Define Seawater Intrusion." In *North American Water Congress*, edited by C.T. Bathala. Anaheim, California: New York American Society of Civil Engineers. Proceedings: June 23–28, 1996.

UWCD (United Water Conservation District). 2008. *Nitrate Observations in the Oxnard Forebay and Vicinity, 1995–2006*. Prepared by D. Detmer. Santa Paula, California: UWCD. July 2008.

UWCD. 2016. *Saline Intrusion Update, Oxnard Plain and Pleasant Valley Basins.* United Water Conservation District Open-File Report 2016-04. October 2016.

UWCD. 2018. *United Water Conservation District Multiple Species Habitat Conservation Plan*. Administrative Draft. September 7, 2018. Accessed April 10, 2019. https://www.unitedwater.org/images/stories/Resource-Conservation/MSHCP%202018/UWCD%20Multiple%20Species%20Habitat%20Conservation%20Plan%202018-09-07.pdf.

Table 3-1
Minimum Threshold Groundwater Elevations by Well, Management Area, and Aquifer for Key Wells in the Oxnard Subbasin

State Well Number	Management Area	Aquifer	Perforations (ft bgs)	Top Perforations (ft msl)	Bottom Perforations (ft msl)	Historical Water Level Low (ft msl) and Date Measured		2015 Spring Water Level (ft msl) and Date Measured		GSP Undesirable Result	Proposed Minimum Threshold (ft msl)
01N21W32Q06S	Saline Intrusion Management Area	Oxnard	180–220	−172.7	−212.7	−25.8	11/22/1991	−12.7	March 2015	SWI, reduction in groundwater storage	2
01N22W20J08S	Saline Intrusion Management Area	Oxnard	155–195	−143.8	−183.8	−14.8	09/28/1991	−7.6	March 2015	SWI, reduction in groundwater storage	7
01N22W26J04S	Saline Intrusion Management Area	Oxnard	185–205	−170.2	−190.2	−28.3	10/26/1990	−14.3	March 2015	SWI, reduction in groundwater storage	2
01N22W27C03S	Saline Intrusion Management Area	Oxnard	175–195	−162.8	−182.8	−18.6	12/13/1990	−9.0	March 2015	SWI, reduction in groundwater storage	7
01N23W01C05S	West Oxnard Plain Management Area	Oxnard	120–145	−105.8	−130.8	−6.9	11/18/1991	1.2	March 2015	SWI, reduction in groundwater storage	7
02N22W36E06S	West Oxnard Plain Management Area	Oxnard	230–320	−211.7	−251.7	−25.0	10/28/2015	−15.3	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	12
01N21W32Q05S	Saline Intrusion Management Area	Mugu	330–370	−322.7	−362.7	−107.4	11/30/2015	−60.7	March 2015	SWI, reduction in groundwater storage	2
01N21W32Q07S	Saline Intrusion Management Area	Mugu	275–285	−268.2	−278.2	−72.5	11/30/2015	−41.2	March 2015	SWI, reduction in groundwater storage	2
01N22W20J07S	Saline Intrusion Management Area	Mugu	310–350	−298.8	−338.8	−16.5	11/13/1991	−10.7	March 2015	SWI, reduction in groundwater storage	7
01N22W26J03S	Saline Intrusion Management Area	Mugu	524–620	−509.2	−605.2	−52.6	10/26/1990	−33.1	March 2015	SWI, reduction in groundwater storage	2
01N22W27C02S	Saline Intrusion Management Area	Mugu	275–295	−262.8	−282.8	−27.3	12/13/1990	−14.3	March 2015	SWI, reduction in groundwater storage	7
02N21W07L06S	Forebay Management Area	Mugu	135–155	11.9	−8.1	−12.2	12/03/2015	8.3	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	25
02N22W23B07S	Forebay Management Area	Mugu	260–300	−150.2	−190.2	−40.8	12/15/1992	−20.7	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	15
02N22W36E05S	West Oxnard Plain Management Area	Mugu	360–420	−288.4	−348.4	−21.0	11/04/2015	−13.6	February 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	10
01N22W20J05S	Saline Intrusion Management Area	Hueneme	640–680	−628.8	−668.8	−29.9	11/30/2015	−19.9	March 2015	SWI, reduction in groundwater storage	2
01N23W01C03S	West Oxnard Plain Management Area	Hueneme	965–1,065	−950.8	−1,050.8	−39.7	01/07/1991	−23.2	March 2015	SWI, reduction in groundwater storage	7
01N23W01C04S	West Oxnard Plain Management Area	Hueneme	630–695	−615.8	−680.8	−34.9	01/07/1991	−20.0	March 2015	SWI, reduction in groundwater storage	7
02N22W23B04S	Forebay Management Area	Hueneme	1,110–1,150	−1,000.2	−1,040.2	−147.1	10/28/2014	−75.6	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	−5
02N22W23B05S	Forebay Management Area	Hueneme	830–870	−720.2	−760.2	−121.0	10/12/1991	−65.5	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	−5

Table 3-1
Minimum Threshold Groundwater Elevations by Well, Management Area, and Aquifer for Key Wells in the Oxnard Subbasin

State Well Number	Management Area	Aquifer	Perforations (ft bgs)	Top Perforations (ft msl)	Bottom Perforations (ft msl)	Historical Water Level Low (ft msl) and Date Measured		2015 Spring Water Level (ft msl) and Date Measured		GSP Undesirable Result	Proposed Minimum Threshold (ft msl)
02N22W23B06S	Forebay Management Area	Hueneme	460–500	−350.2	−390.2	−41.7	02/03/1993	−23.2	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	15
02N22W36E03S	West Oxnard Plain Management Area	Hueneme	195–285	−123.1	−213.1	−51.8	12/03/2014	−30.5	June 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	10
02N22W36E04S	West Oxnard Plain Management Area	Hueneme	130–170	−58.9	−98.9	−32.11	11/04/2015	−32.1	November 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	10
01N21W32Q04S	Saline Intrusion Management Area	FCA	600–640	−592.7	−632.7	−116.9	11/30/2015	−66.3	March 2015	SWI, reduction in groundwater storage	−23
01N22W20J04S	Saline Intrusion Management Area	FCA	870–930	−858.8	−918.8	−40.7	11/30/2015	−28.1	March 2015	SWI, reduction in groundwater storage	2
01N22W26K03S	Saline Intrusion Management Area	FCA	470–580	−456.9	−566.9	−71.8	06/16/2015	−65.6	March 2015	SWI, reduction in groundwater storage	−18
01N23W01C02S	West Oxnard Plain Management Area	FCA	1,390–1,490	−1,375.8	−1,475.8	−50.4	01/07/1991	−29.3	March 2015	SWI, reduction in groundwater storage	7
02N21W07L04S	Forebay Management Area	FCA	500–540	−353.1	−393.1	−32.0	10/14/2015	3.9	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	15
02N22W23B03S	Forebay Management Area	FCA	1,210–1,250	−1,100.2	−1,140.2	−128.7	02/28/1991	−77.0	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	−5
01N21W32Q02S	Saline Intrusion Management Area	GCA	930–970	−922.7	−962.7	−115.2	11/30/2015	−64.7	March 2015	SWI, reduction in groundwater storage	−23
01N21W32Q03S	Saline Intrusion Management Area	GCA	800–840	−792.7	−832.7	−125.8	11/30/2015	−75.6	March 2015	SWI, reduction in groundwater storage	−23
01N21W07J02S	Oxnard Pumping Depression Management Area	Multiple	590–1,280	−555.4	−1,245.4	−145.4	10/21/2014	−96.2	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	−40
01N21W21H02S	Oxnard Pumping Depression Management Area	Multiple	503–863	−484.3	−844.3	−149.4	10/20/2014	−101.1	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	−70
02N21W07L03S	Forebay Management Area	Multiple	640–700	−493.1	−553.1	−24.6	10/15/2015	1.8	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	15
02N21W07L05S	Forebay Management Area	Multiple	270–310	−1,23.1	−163.1	−7.4	12/30/2015	20.5	March 2015	SWI, reduction in groundwater storage, chronic lowering of WL, subsidence	25

Notes: FCA = Fox Canyon Aquifer; ft bgs = feet below ground surface; ft msl = feet mean sea level; GCA = Grimes Canyon Aquifer; GSP = Groundwater Sustainability Plan; SWI = seawater intrusion; WL = water level.
Interim milestones are proposed for wells with spring 2015 groundwater elevations that are lower than the minimum threshold groundwater elevation. Wells with spring 2015 groundwater elevations that are higher than the minimum threshold are currently in compliance with the goals of this GSP and do not require milestones to assess progress toward sustainability.

Table 3-2
Measurable Objectives and Interim Milestones

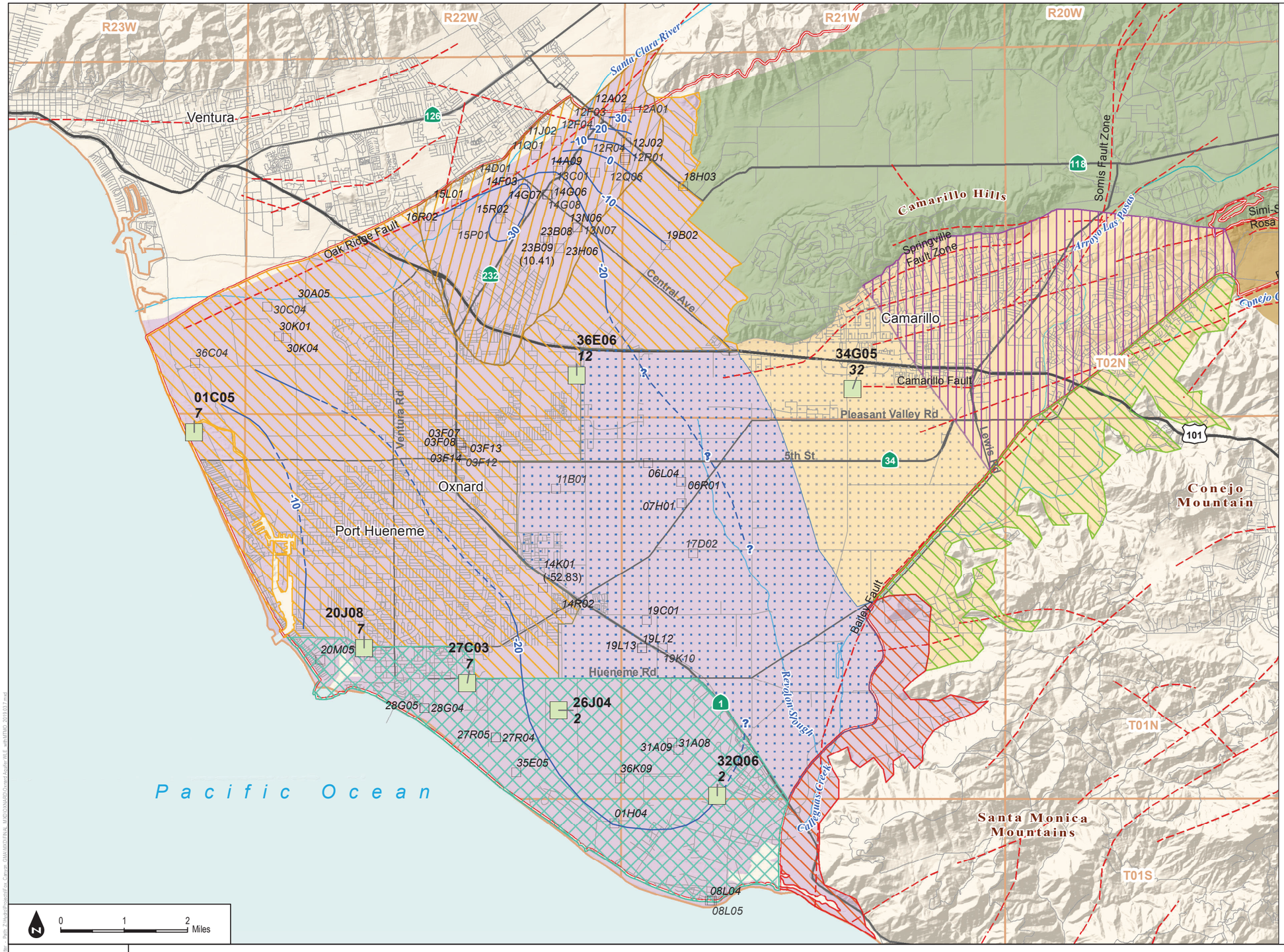
Well Number	Aquifer	Minimum Threshold (ft msl)	Measurable Objective (ft msl)	Fall 2015 Water Level Low (ft msl) and Date Measured		Interim Milestone Average Climate (ft msl)				Interim Milestone Dry Climate (ft msl)			
						2025	*2030*[a]	*2035*[a]	*2040*[a]	*2025*	*2030*[a]	*2035*[a]	*2040*[a]
01N21W32Q06S	Oxnard	2	17	−23.12	11/30/2015	−15	−5	6	17	−18	−11	−4	2
01N22W20J08S	Oxnard	7	17	-14.56	11/2/2015	−7	1	9	17	−10	−5	1	7
01N22W26J04S	Oxnard	2	17	−23.31	10/16/2015	−15	−5	6	17	−18	−11	−4	2
01N22W27C03S	Oxnard	7	17	−14.83	10/6/2015	−7	1	9	17	−10	−5	1	7
01N23W01C05S	Oxnard	7	17	−1.94	11/2/2015	4	8	12	17	2	4	6	7
02N22W36E06S	Oxnard	12	37	−25.03	10/28/2015	−10	6	22	37	−16	−7	2	12
01N21W32Q05S	Mugu	2	17	−107.36	11/2/2015	−78	−46	−14	17	−82	−54	−26	2
01N21W32Q07S	Mugu	2	17	−72.50	11/30/2015	−52	−29	−6	17	−56	−37	−18	2
01N22W20J07S	Mugu	7	17	−16.21	11/2/2015	−7	1	9	17	−10	−5	1	7
01N22W26J03S	Mugu	2	17	−44.39	10/16/2015	−30	−15	1	17	−33	−21	−9	2
01N22W27C02S	Mugu	7	17	−22.57	10/6/2015	−15	−5	6	17	−17	−9	−1	7
02N21W07L06S	Mugu	27	62	−12.21	12/3/2015	8	26	44	62	−1	8	17	27
02N22W23B07S	Mugu	17	47	−31.59	12/30/2015	−11	8	27	47	−18	−6	6	17
02N22W36E05S	Mugu	12	37	−21.01	11/4/2015	−6	8	22	37	−12	−4	4	12
01N22W20J05S	Hueneme	2	17	−29.87	11/30/2015	−18	−6	6	17	−22	−14	−6	2
01N23W01C03S	Hueneme	7	22	−32.26	11/30/2015	−17	−4	9	22	−21	−12	−3	7
01N23W01C04S	Hueneme	7	22	−28.36	11/4/2015	−17	−4	9	22	−21	−12	−3	7
02N22W23B04S	Hueneme	−3	17	−95.68	12/3/2015	−67	−39	−11	17	−72	−49	−26	−3
02N22W23B05S	Hueneme	−3	17	−83.59	12/3/2015	−60	−35	−10	16	−65	−45	−25	−4
02N22W23B06S	Hueneme	17	47	−37.35	12/3/2015	−15	6	27	47	−22	−9	4	17
02N22W36E03S	Hueneme	12	37	−51.77	12/3/2014	−28	−6	16	37	−35	−20	−5	11
02N22W36E04S	Hueneme	12	37	−32.12	11/4/2015	−13	4	21	37	−20	−10	1	12
01N21W32Q04S	FCA	−23	2	–116.94	11/30/2015	−86	−57	−28	2	−92	−69	−46	−23
01N22W20J04S	FCA	2	17	–40.72	11/30/2015	42	34	26	17	38	26	14	2
01N22W26K03S	FCA	−18	2	–71.84	6/16/2015	−52	−34	−16	2	−57	−44	−31	−18
01N23W01C02S	FCA	7	22	–37.63	11/30/2015	−25	−10	6	22	−28	−16	−4	7
02N21W07L04S	FCA	17	42	–32.02	10/14/2015	−12	6	24	42	−18	−6	6	17
02N22W23B03S	FCA	−3	17	–94.26	12/3/2015	−67	−39	−11	17	−72	−49	−26	−3
01N21W32Q02S	GCA	−23	2	–115.19	11/30/2015	−86	−57	−28	2	−92	−69	−46	−23

Table 3-2
Measurable Objectives and Interim Milestones

Well Number	Aquifer	Minimum Threshold (ft msl)	Measurable Objective (ft msl)	Fall 2015 Water Level Low (ft msl) and Date Measured		Interim Milestone Average Climate (ft msl)				Interim Milestone Dry Climate (ft msl)			
						2025	*2030*[a]	*2035*[a]	*2040*[a]	*2025*	*2030*[a]	*2035*[a]	*2040*[a]
01N21W32Q03S	GCA	−23	2	–125.76	11/30/2015	−93	−61	−29	2	−100	−75	−50	−24
01N21W07J02S	Multiple	−38	2	–140.02	10/25/2015	−105	−70	−35	1	−115	−90	−65	−39
01N21W21H02S	Multiple	−68	-8	–137.09	9/30/2015	−103	−71	−39	−7	−118	−101	−84	−67
02N21W07L03S	Multiple	17	37	–24.59	10/15/2015	−10	6	22	37	−15	−5	6	17
02N21W07L05S	Multiple	27	57	–7.41	12/30/2015	11	27	43	58	3	11	19	27

Notes: FCA = Fox Canyon Aquifer; ft msl = feet mean sea level; GCA = Grimes Canyon Aquifer.

[a] Interim milestones for 2030, 2035, and 2040 will depend on climate conditions and Subbasin water level recoveries between 2020 and 2025. These thresholds are proposed for the current GSP but will be reviewed and revised with each 5-year evaluation.



Legend

- Key Wells screened in the Oxnard Aquifer
- Wells screened in the Oxnard Aquifer
- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- 15P01 / **15P01** — Abbreviated State Well Number (see notes)
- ***5*** — Minimum Threshold for Key Wells in Feet above mean sea level (AMSL)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)
- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area
- East Pleasant Valley Management Area (EPVMA)
- Pleasant Valley Pumping Depression Management Area
- North Pleasant Valley Management Area

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) All elevation values are in feet above mean sea level (ft AMSL).
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

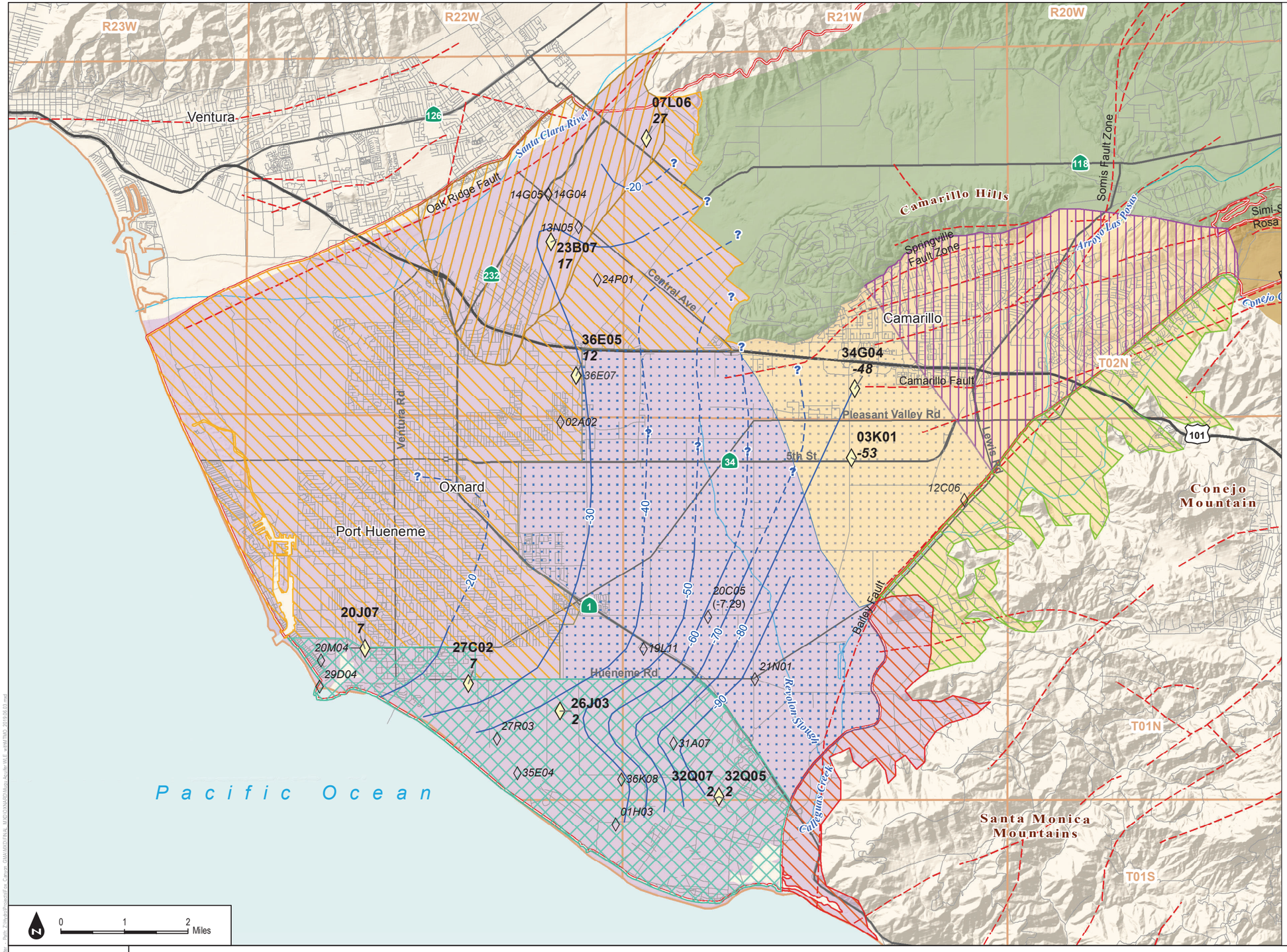
FIGURE 3-1

Minimum Thresholds and Groundwater Elevation Contours in the Oxnard Aquifer, October 2-29, 2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Key Wells screened in the Mugu Aquifer
- Well screened in the Mugu Aquifer
- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- *15P01* / **15P01** — Abbreviated State Well Number (see notes)
- ***5*** — Minimum Threshold for Key Wells in Feet above mean sea level (AMSL)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)
- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area
- East Pleasant Valley Management Area (EPVMA)
- Pleasant Valley Pumping Depression Management Area
- North Pleasant Valley Management Area

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) All elevation values are in feet above mean sea level (ft AMSL).
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

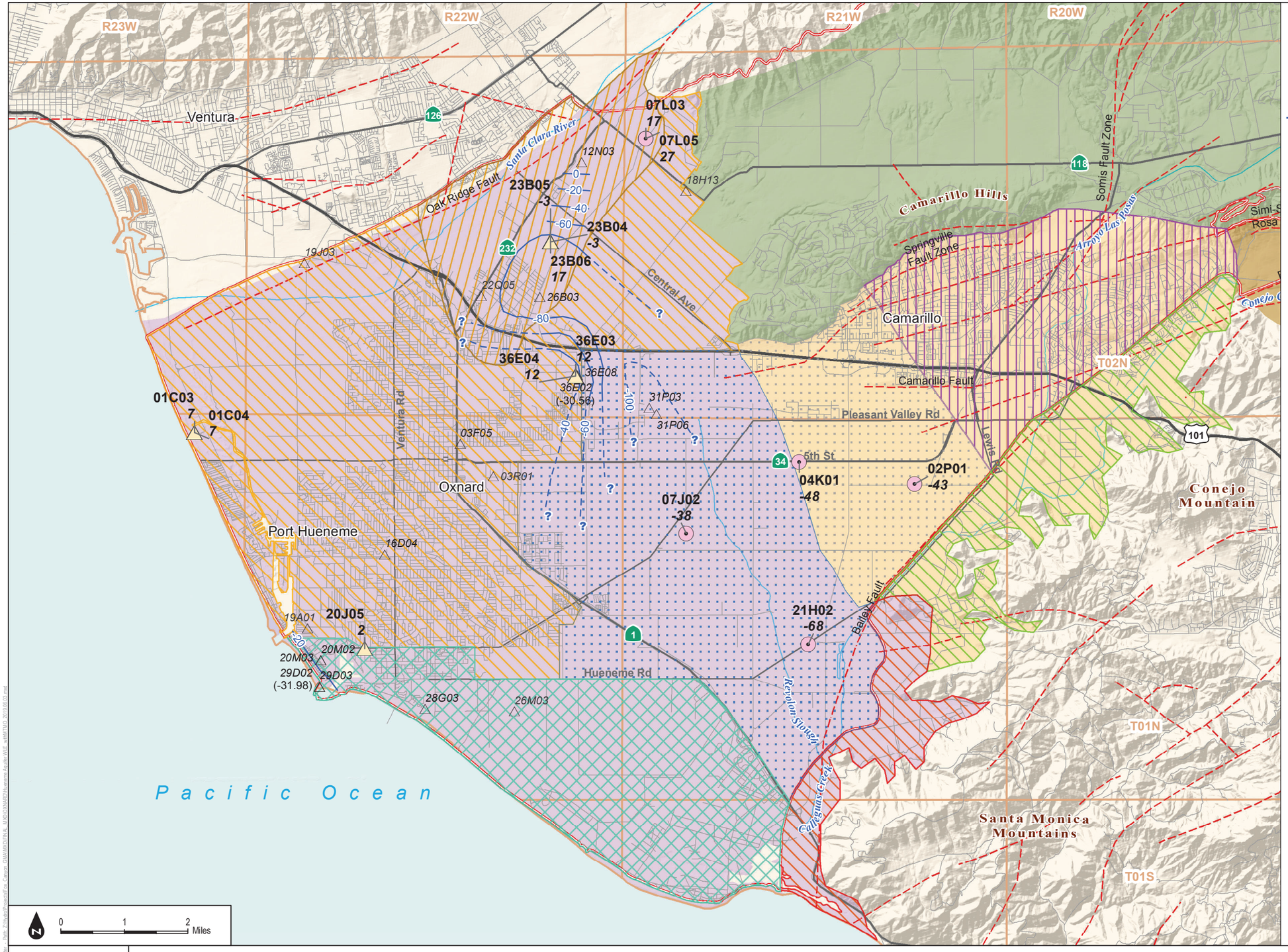
SOURCE: DWR; County of Ventura; UWCD; CMWD

FIGURE 3-2

Minimum Thresholds and Groundwater Elevation Contours in the Mugu Aquifer, October 2-29, 2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Key Wells screened in the Hueneme Aquifer
- Key Wells screened in Multiple Aquifers
- Well screened in the Hueneme aquifer
- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- *15P01* / **15P01** — Abbreviated State Well Number (see notes)
- ***5*** — Minimum Threshold for Key Wells in Feet above mean sea level (AMSL)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)
- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area
- East Pleasant Valley Management Area (EPVMA)
- Pleasant Valley Pumping Depression Management Area
- North Pleasant Valley Management Area

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) All elevation values are in feet above mean sea level (ft AMSL).
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

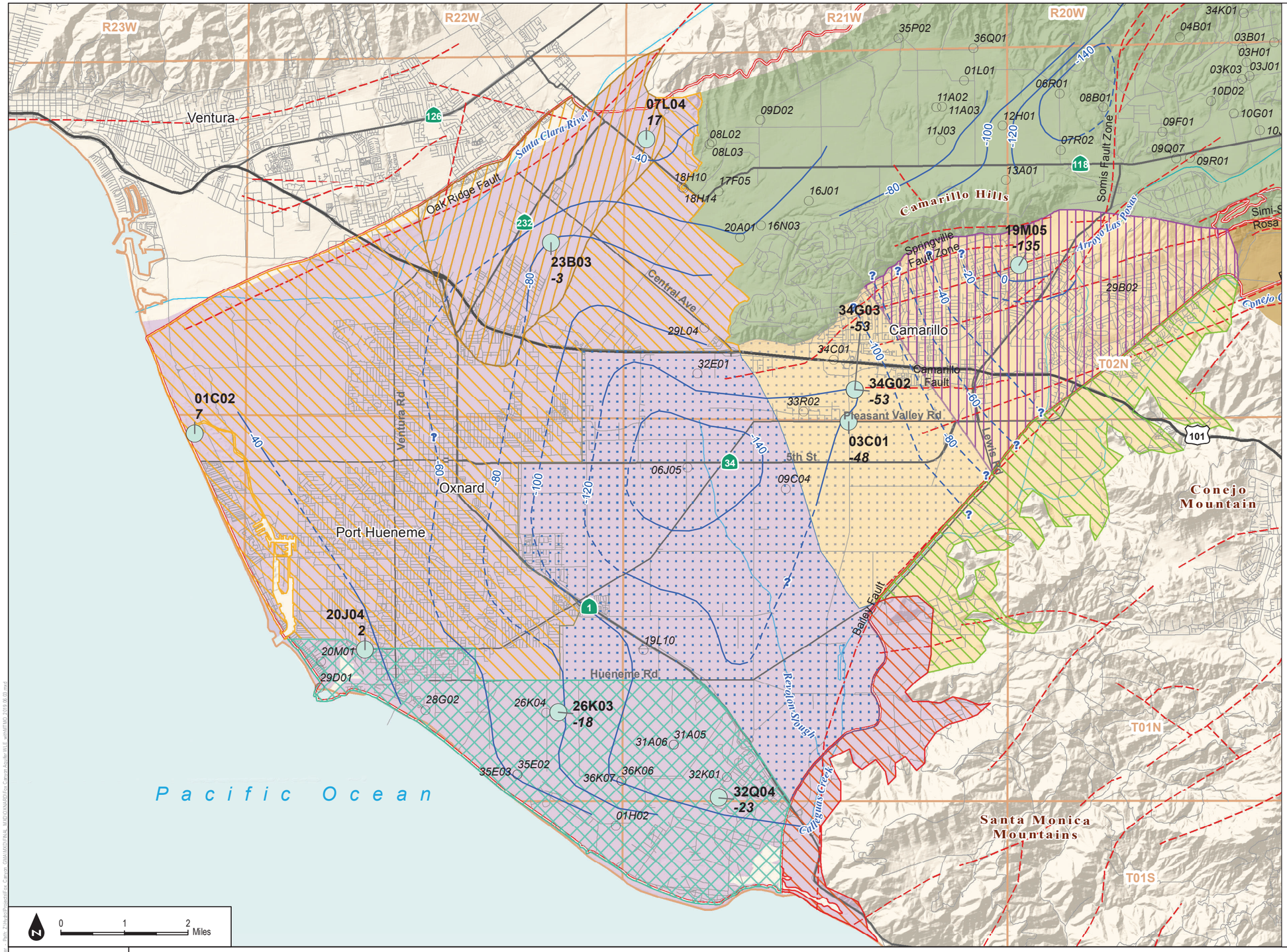
FIGURE 3-3

Minimum Thresholds and Groundwater Elevation Contours in the Hueneme Aquifer, October 2-29, 2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Key Wells screened in the Fox Canyon Aquifer
- Well screened in the Fox Canyon aquifer
- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- 15P01 / **15P01** — Abbreviated State Well Number (see notes)
- ***5*** — Minimum Threshold for Key Wells in Feet above mean sea level (AMSL)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)
- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area
- East Pleasant Valley Management Area (EPVMA)
- Pleasant Valley Pumping Depression Management Area
- North Pleasant Valley Management Area

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) All elevation values are in feet above mean sea level (ft AMSL).
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

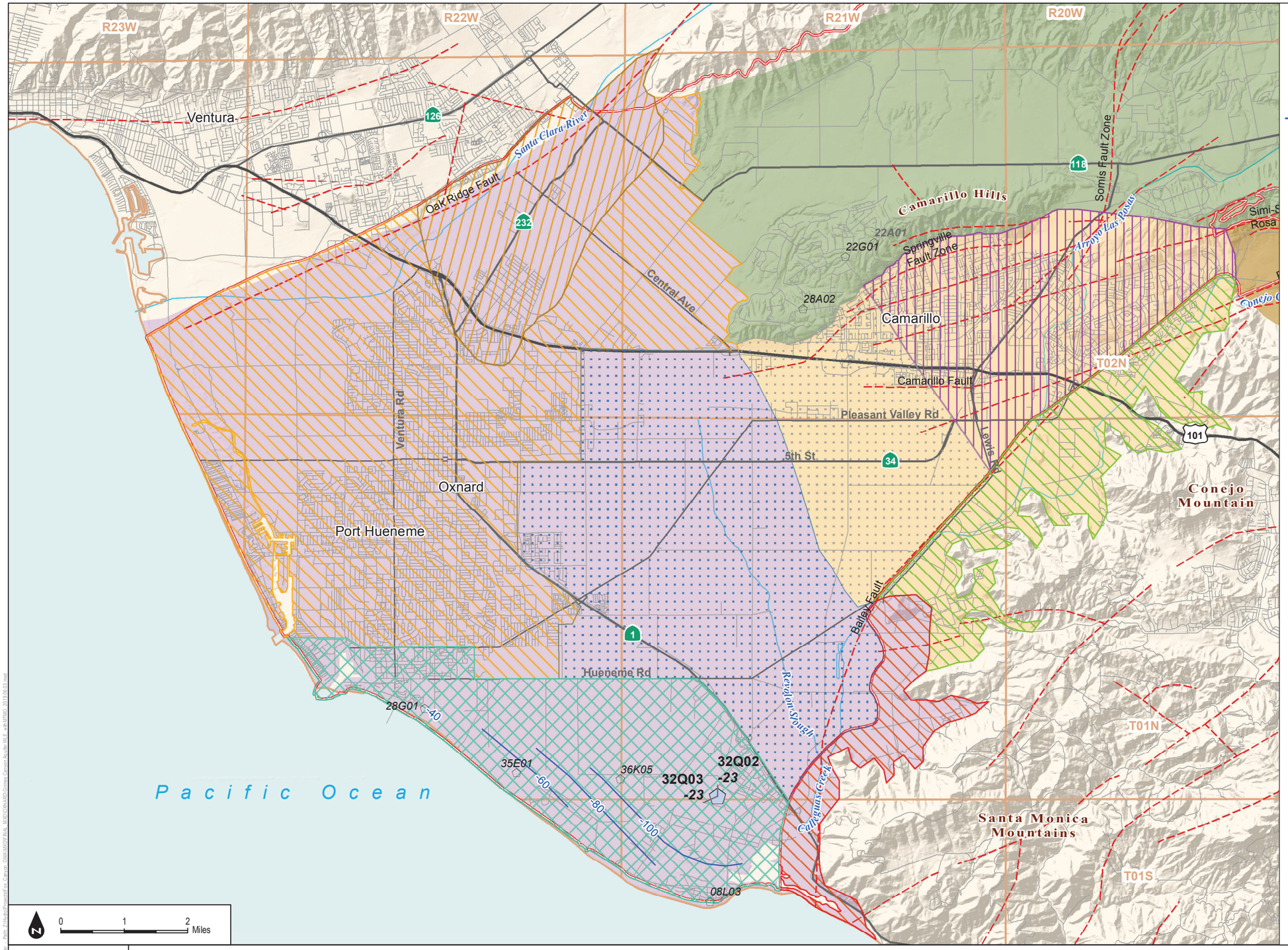
SOURCE: DWR; County of Ventura; UWCD; CMWD

FIGURE 3-4

Minimum Thresholds and Groundwater Elevation Contours in the Fox Canyon Aquifer, October 2-29, 2015

DUDEK

INTENTIONALLY LEFT BLANK



Legend

- Key Wells screened in the Grimes Canyon Aquifer
- Well screened in the Grimes Canyon aquifer
- Approximate contour of equal elevation (feet amsl) of groundwater. Dashed where approximate; queried where inferred.
- *15P01* / **15P01** Abbreviated State Well Number (see notes)
- ***5*** Minimum Threshold for Key Wells in Feet above mean sea level (AMSL)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)
- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management
- East Pleasant Valley Management Area (EPVMA)
- Pleasant Valley Pumping Depression Management Area
- North Pleasant Valley Management

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S. Geotracker wells do not have SWN IDs and so are not labeled.
2) All elevation values are in feet above mean sea level (ft AMSL).
3) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

FIGURE 3-5

Minimum Thresholds and Groundwater Elevation Contours in the Grimes Canyon Aquifer, October 2-29, 2015

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

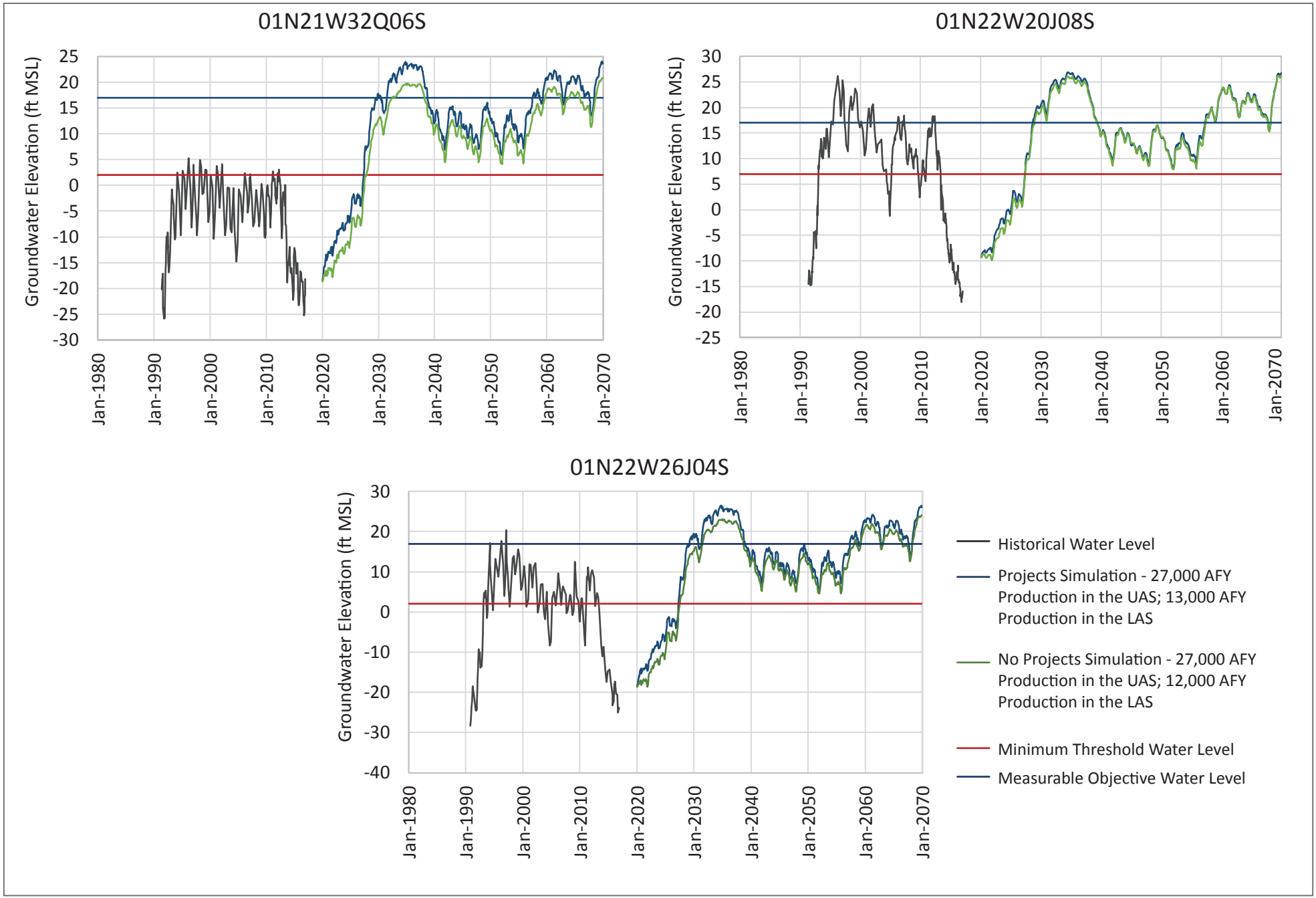


FIGURE 3-6a

Key Well Hydrographs for Wells Screened in the Oxnard Aquifer

INTENTIONALLY LEFT BLANK

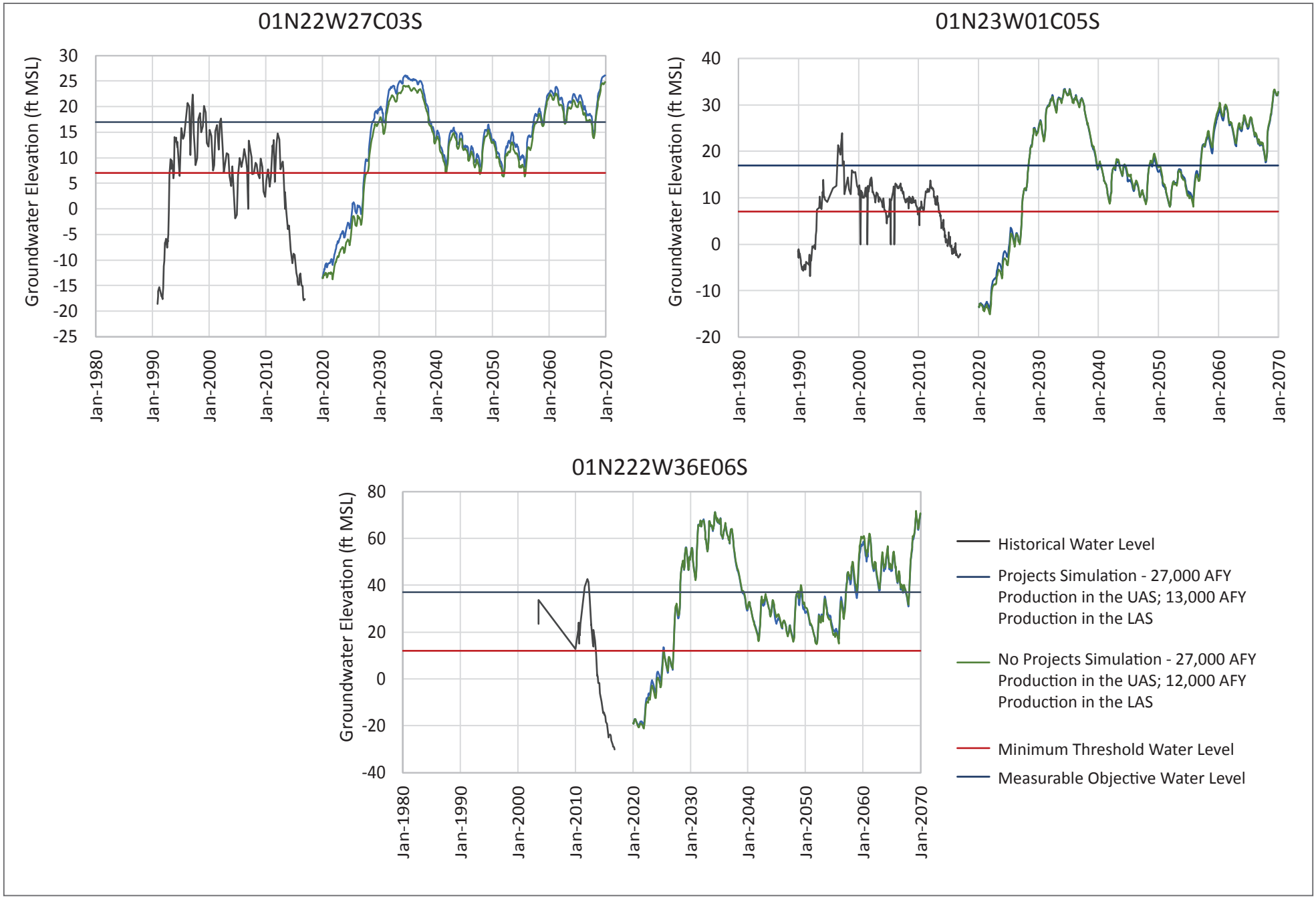


FIGURE 3-6b

Key Well Hydrographs for Wells Screened in the Oxnard Aquifer

INTENTIONALLY LEFT BLANK

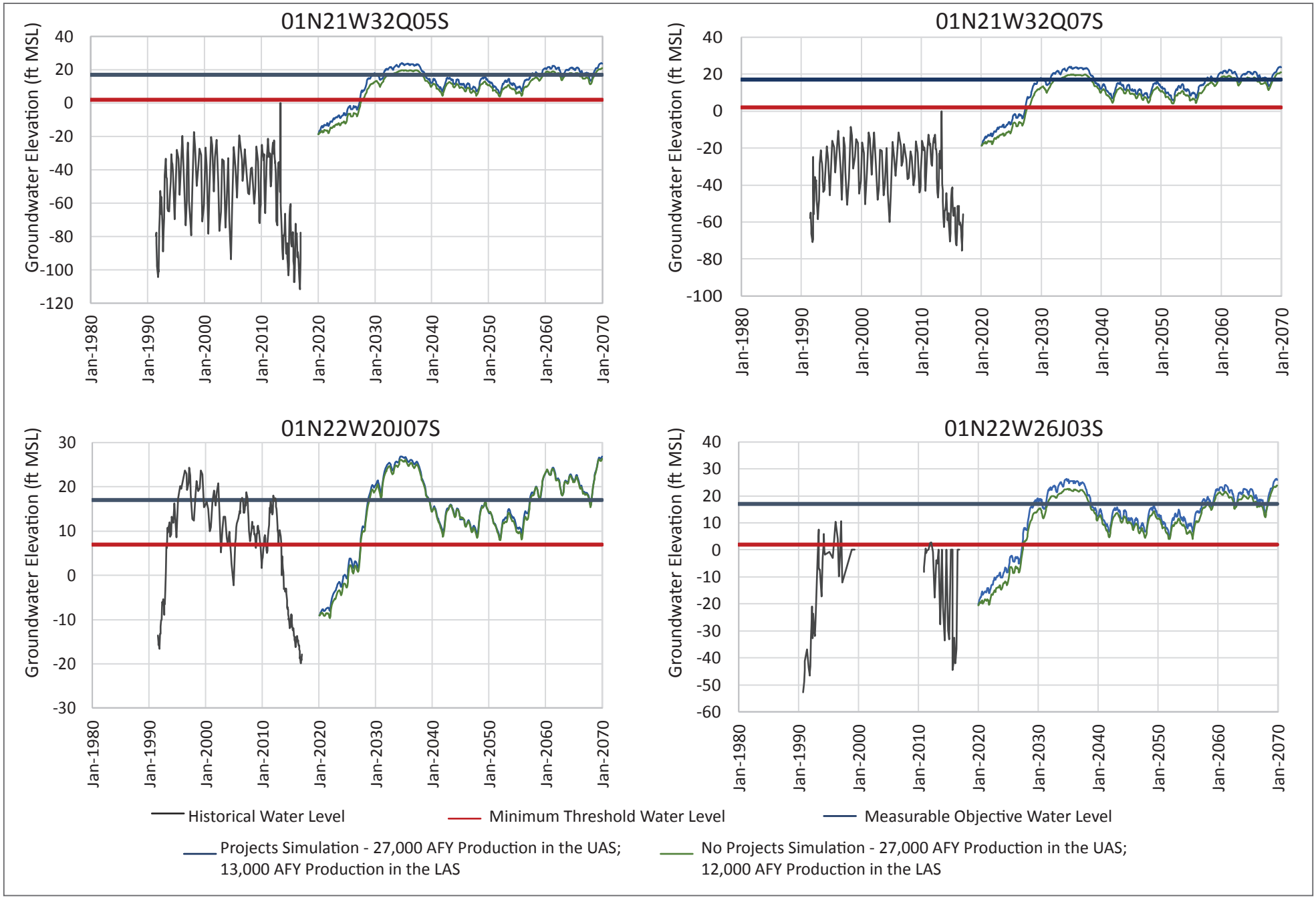


FIGURE 3-7a

Key Well Hydrographs for Wells Screened in the Mugu Aquifer

INTENTIONALLY LEFT BLANK

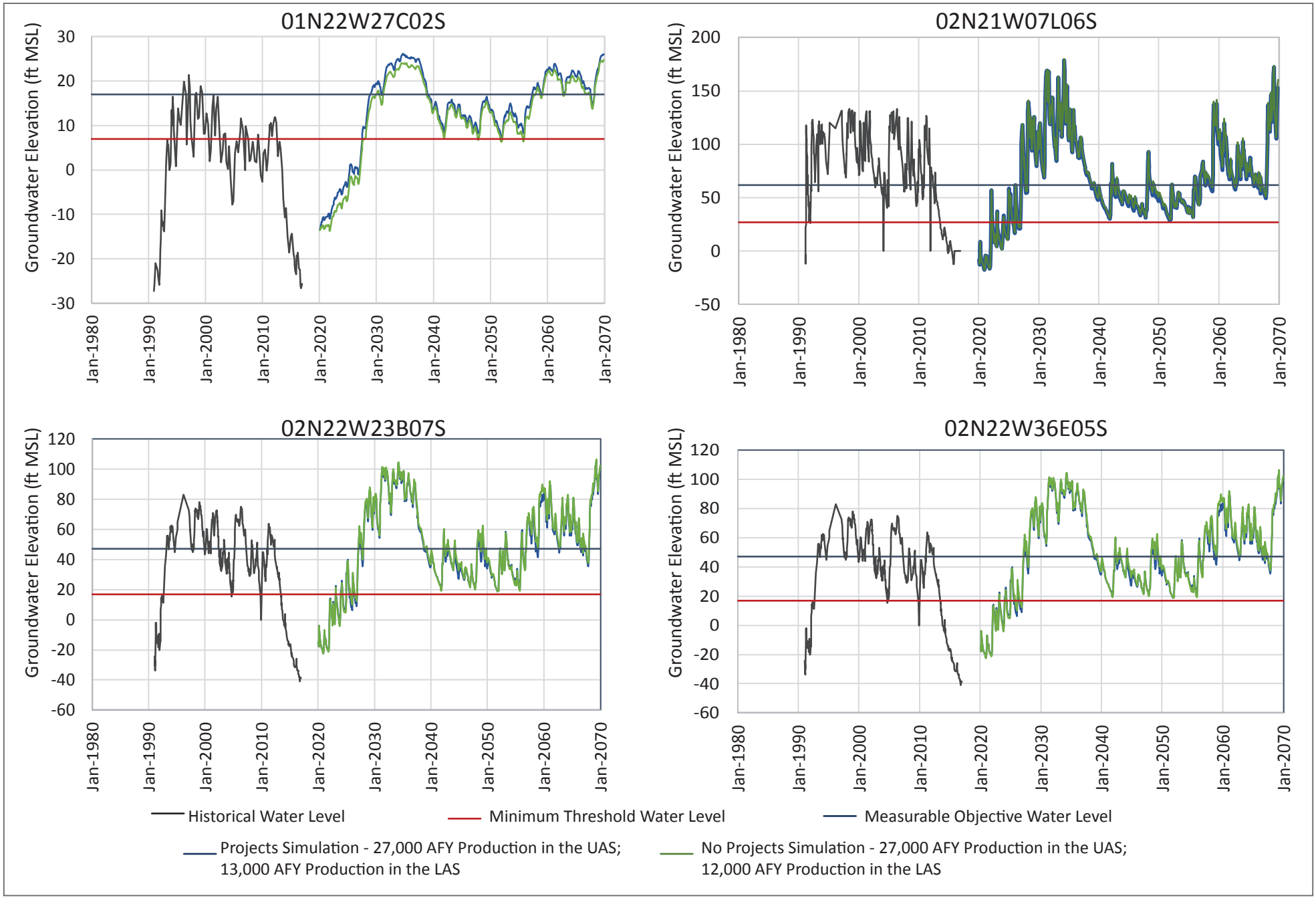


FIGURE 3-7b

Key Well Hydrographs for Wells Screened in the Mugu Aquifer

INTENTIONALLY LEFT BLANK

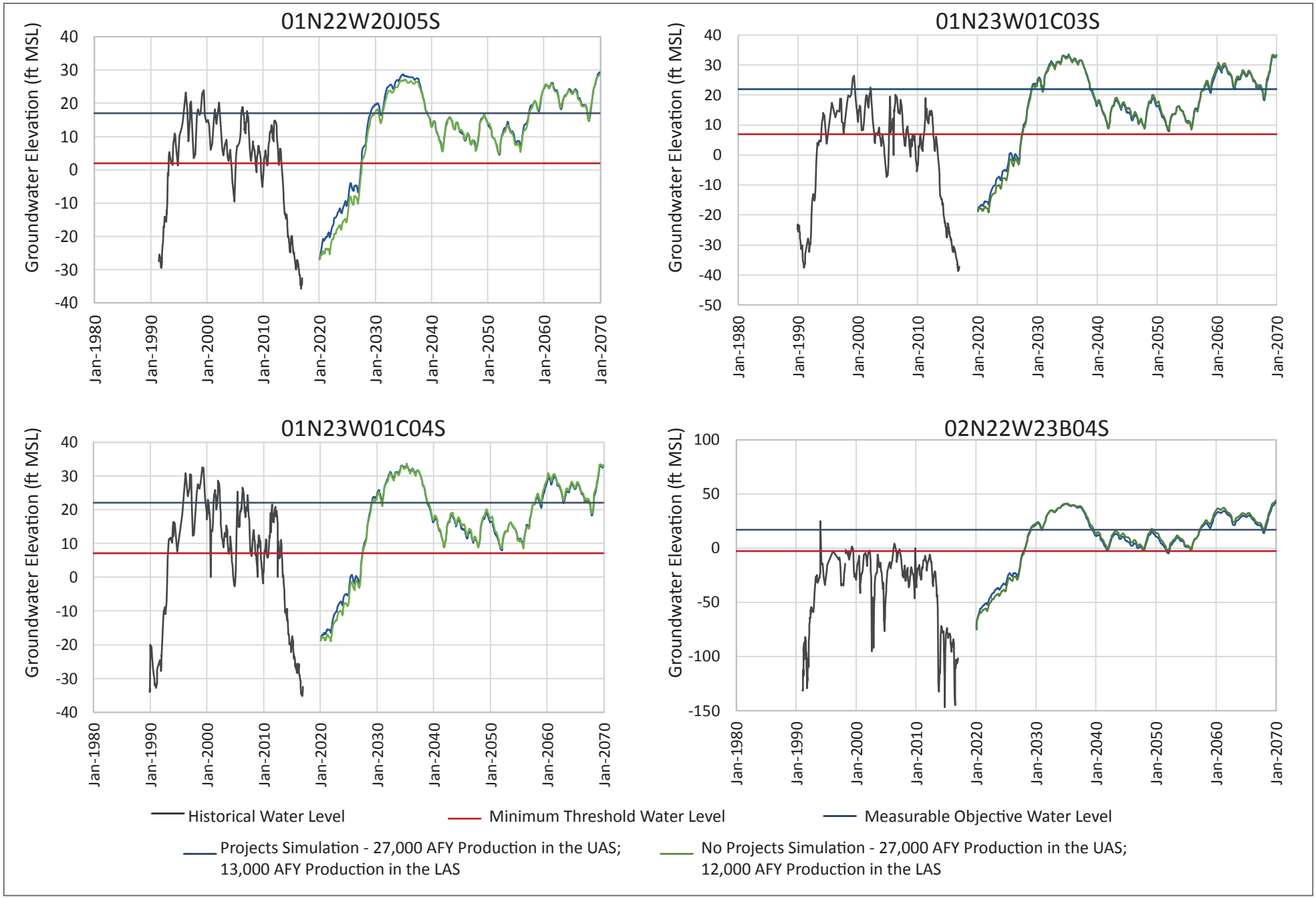


FIGURE 3-8a

Key Well Hydrographs for Wells Screened in the Hueneme Aquifer

INTENTIONALLY LEFT BLANK

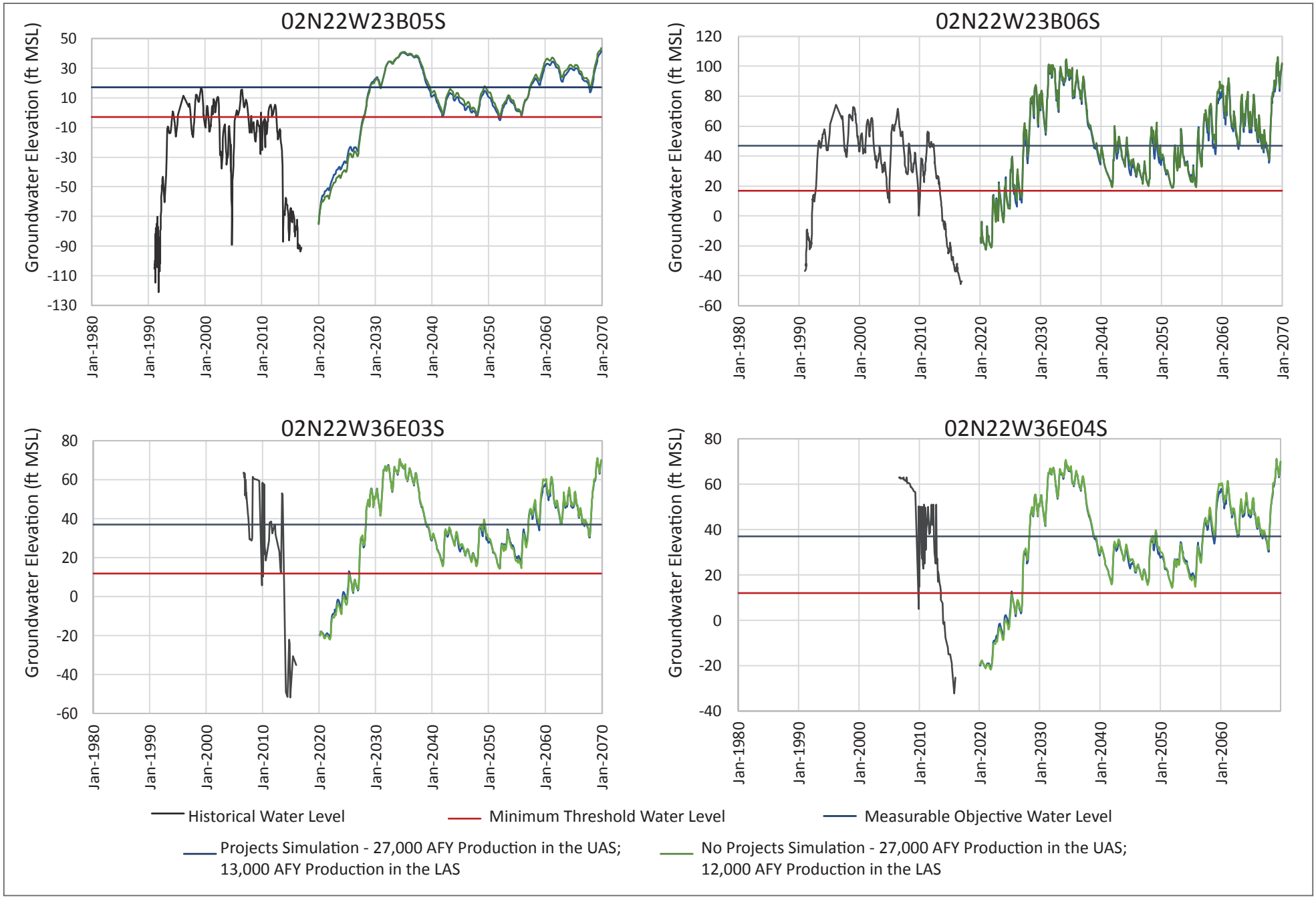


FIGURE 3-8b

Key Well Hydrographs for Wells Screened in the Hueneme Aquifer

INTENTIONALLY LEFT BLANK

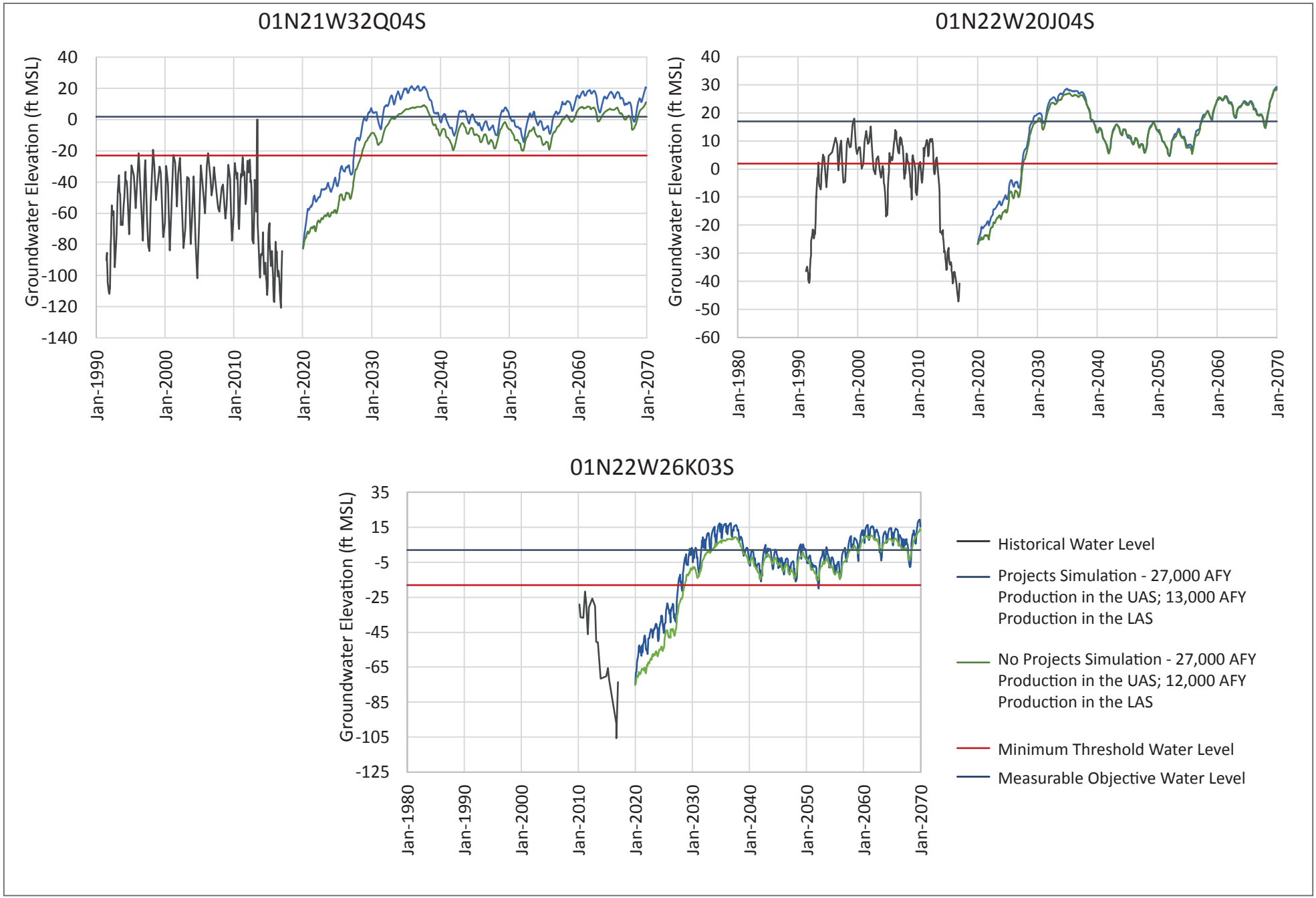


FIGURE 3-9a

Key Well Hydrographs for Wells Screened in the Fox Canyon Aquifer

INTENTIONALLY LEFT BLANK

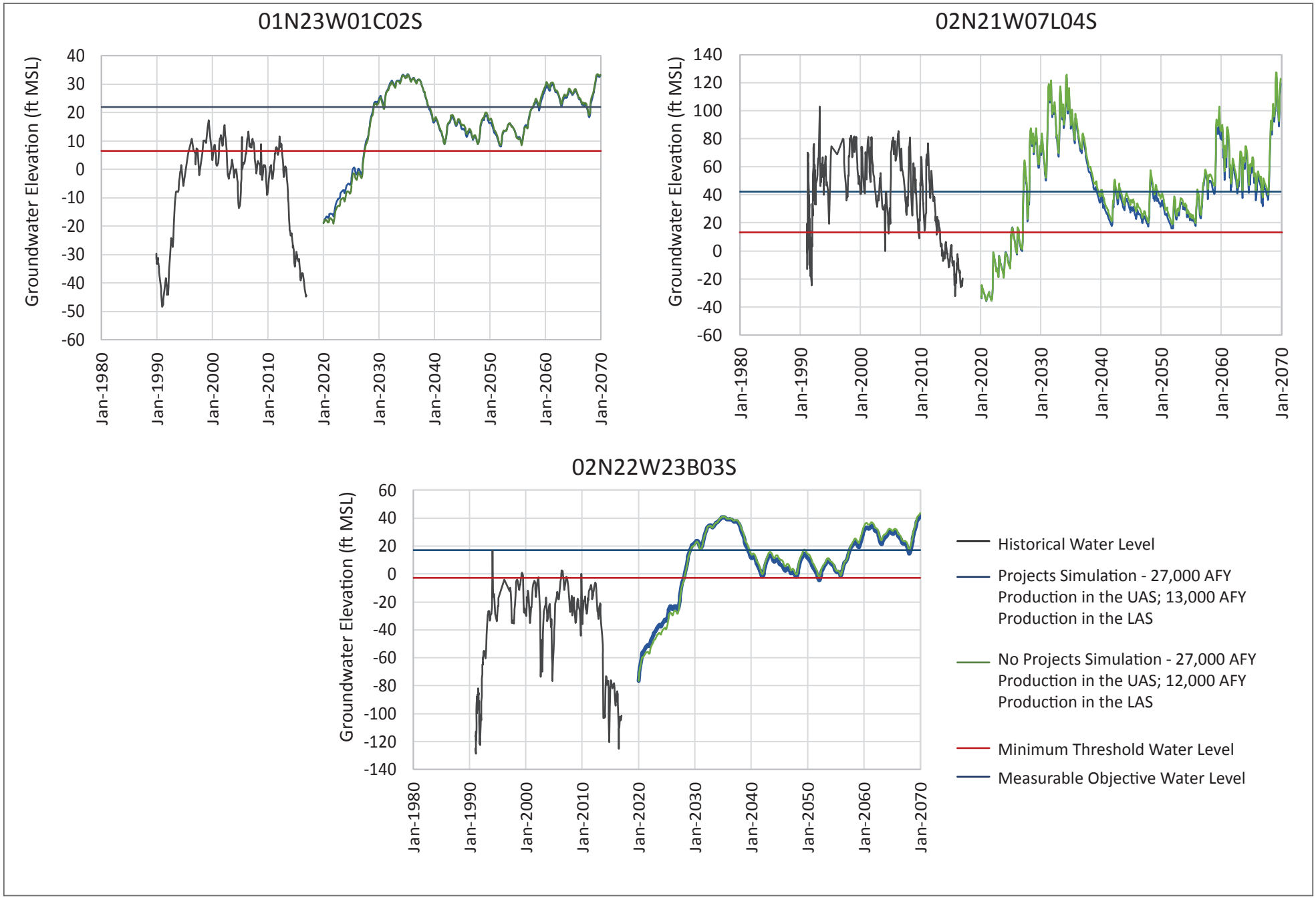


FIGURE 3-9b

Key Well Hydrographs for Wells Screened in the Fox Canyon Aquifer

INTENTIONALLY LEFT BLANK

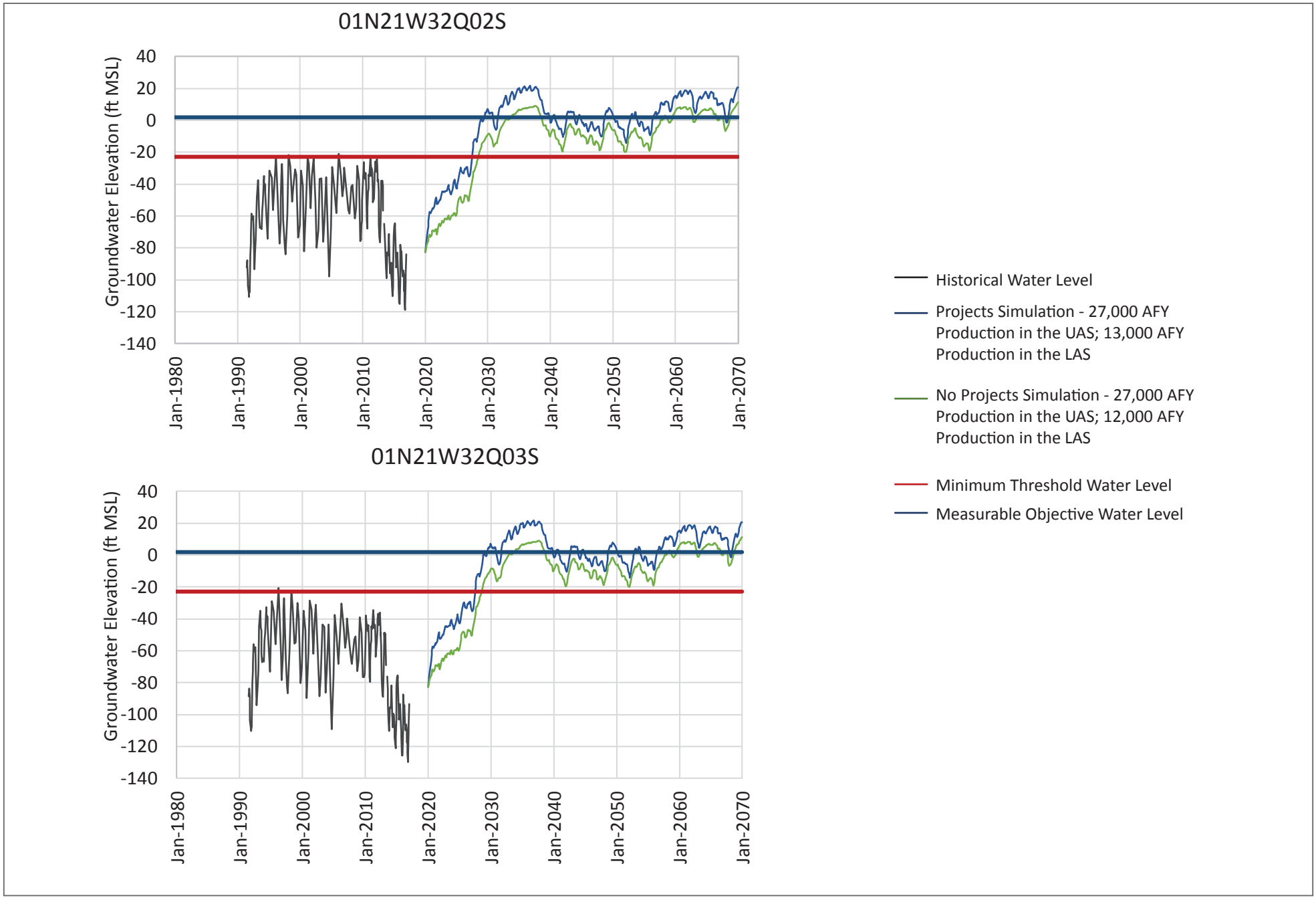


FIGURE 3-10

Key Well Hydrographs for Wells Screened in the Grimes Canyon Aquifer

INTENTIONALLY LEFT BLANK

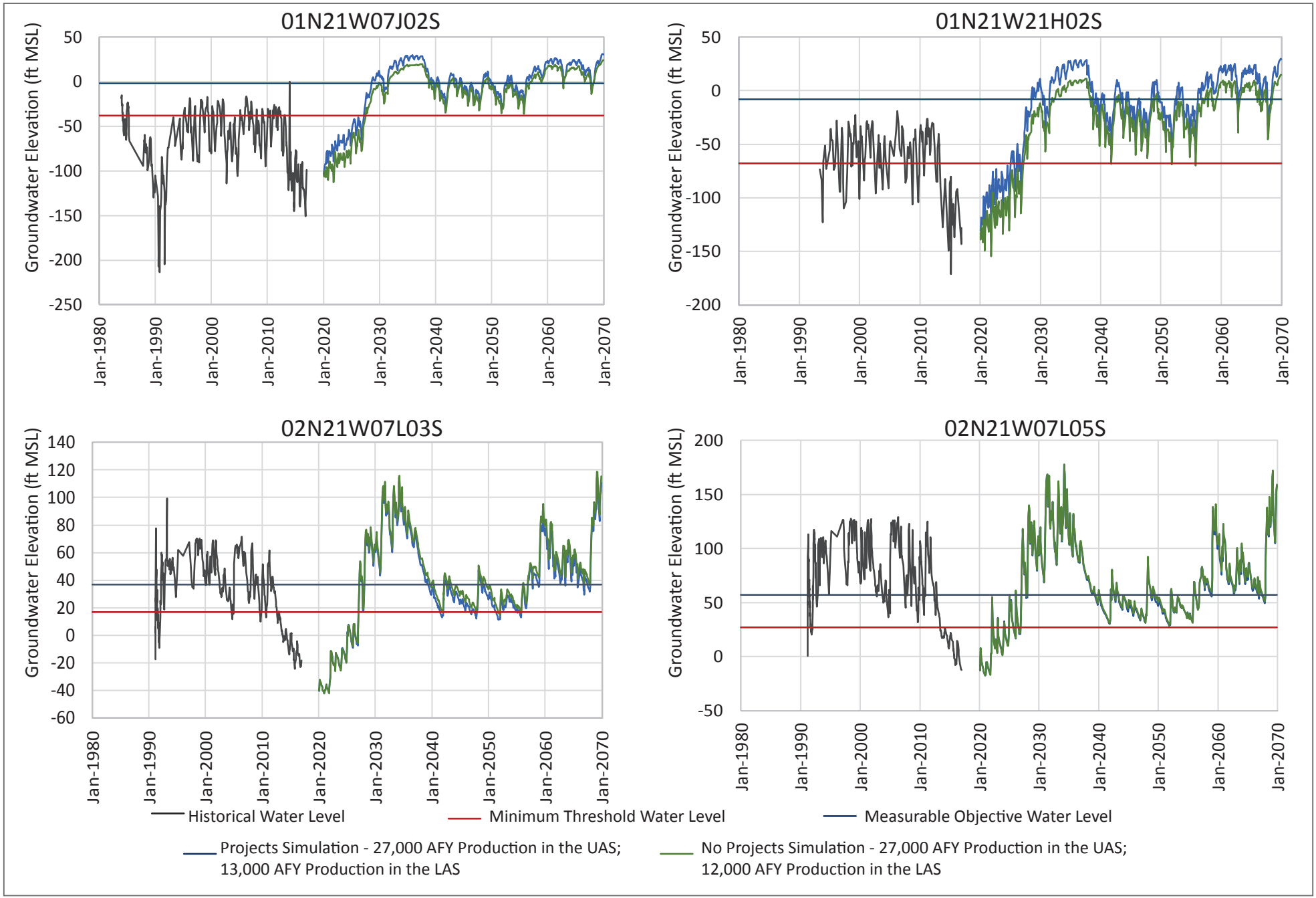


FIGURE 3-11

Key Well Hydrographs for Wells Screened in Multiple Aquifers

INTENTIONALLY LEFT BLANK

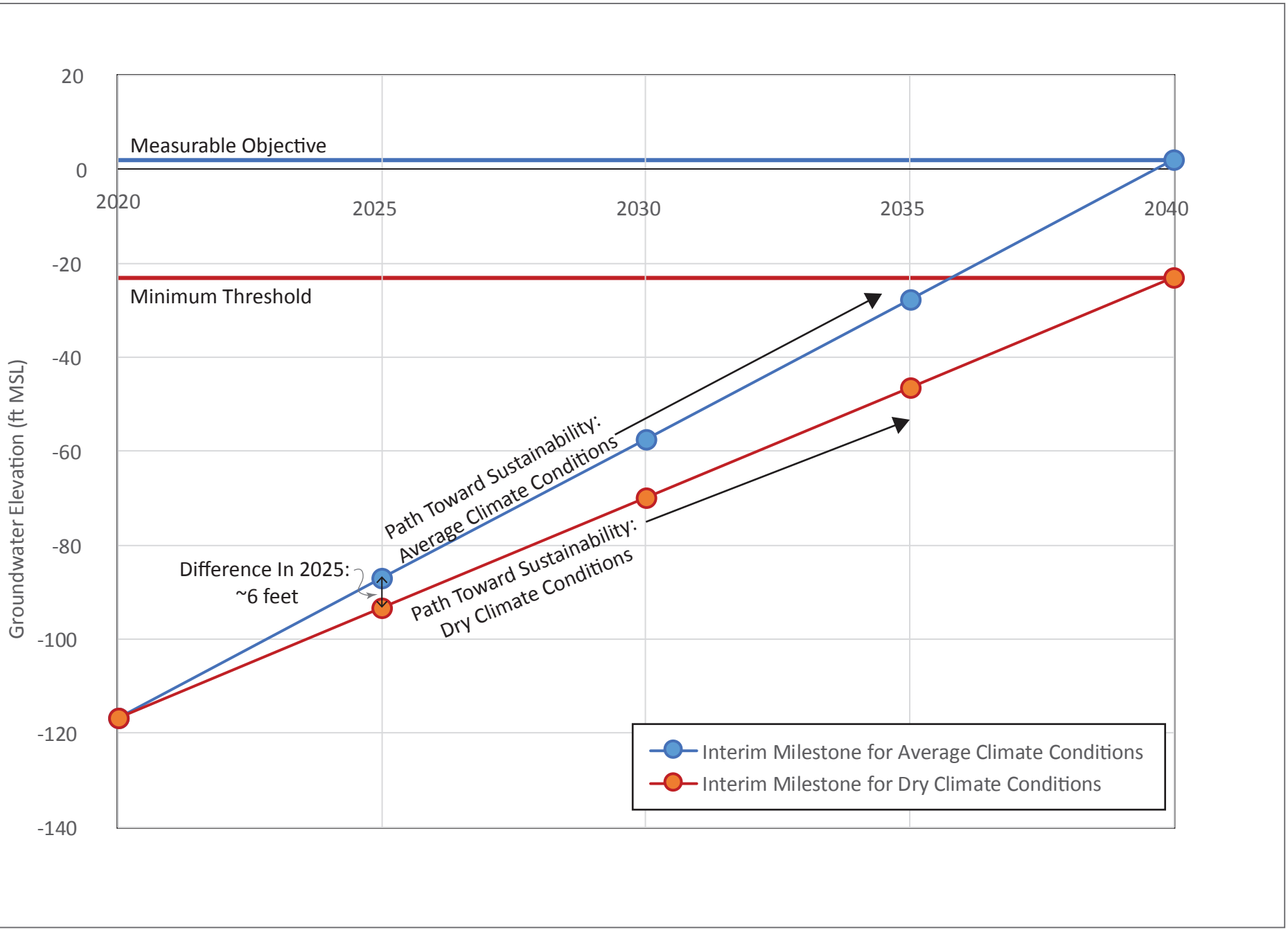


FIGURE 3-12

Interim Milestones for Dry and Average Conditions - Linear Interpolation

INTENTIONALLY LEFT BLANK

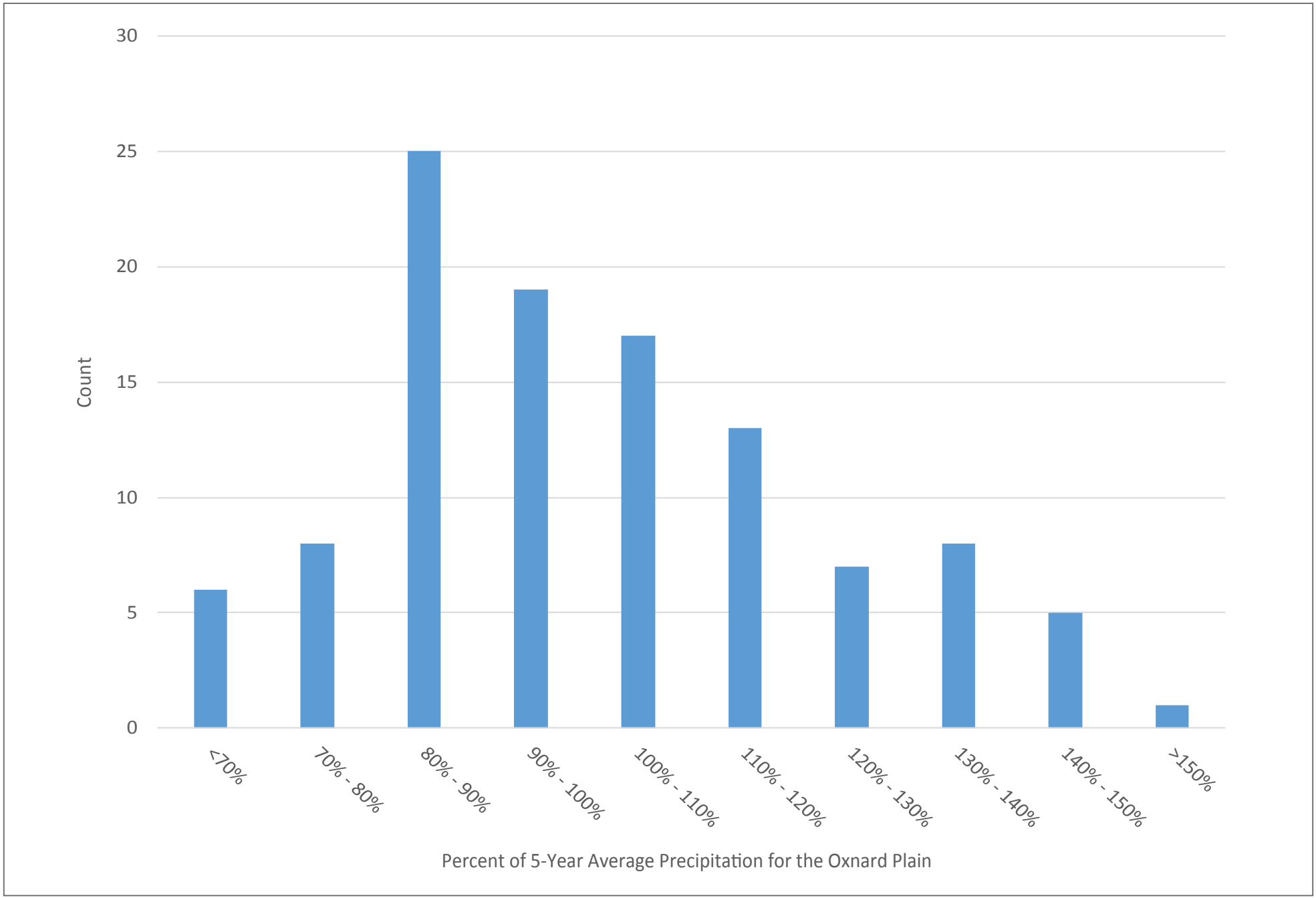


FIGURE 3-13

Distribution of 5-Year Average Climate Conditions in the Historical Record of Precipitation on the Oxnard Plain

INTENTIONALLY LEFT BLANK

CHAPTER 4
MONITORING NETWORKS

4.1 MONITORING NETWORK OBJECTIVES

The overall objective of the monitoring network in the Oxnard Subbasin (Subbasin) is to track and monitor parameters that demonstrate progress toward meeting the sustainability goals. In order to accomplish this objective, the monitoring network in the Subbasin must be capable of the following:

- Monitoring changes in groundwater conditions (in six sustainability indicator categories)
- Monitoring progress toward minimum thresholds and measurable objectives
- Quantifying annual changes in water budget components

The existing network of groundwater wells includes both monitoring wells and production wells. This network is capable of delineating the groundwater conditions in the Subbasin and has been used for this purpose in the past. The current groundwater well network will be used to monitor groundwater conditions moving forward, in order to continue to assess long-term trends in groundwater elevation and groundwater quality in the Subbasin.

In the future, to the extent possible, additional dedicated monitoring wells will be incorporated into the existing monitoring network. These wells will provide information on groundwater conditions in geographic locations where data gaps have been identified, or where a dedicated monitoring well would better represent conditions in the aquifers than a production well currently used for monitoring.

4.2 DESCRIPTION OF EXISTING MONITORING NETWORK

The existing monitoring network for groundwater and related surface conditions in the Subbasin includes groundwater production wells, dedicated groundwater monitoring wells, stream gauges, and weather stations. The components of the monitoring network are discussed in Section 4.2.1, Groundwater Monitoring, and Section 4.2.2, Surface Conditions Monitoring, in the context of their ability to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions and of the ability of the network to provide representative conditions in the Subbasin. A discussion of how the monitoring network relates to each of the sustainability criteria follows this discussion in Section 4.3, Monitoring Network Relationship to Sustainability Indicators.

4.2.1 Groundwater Monitoring

Groundwater Elevation

Data collected from more than 150 wells in the Subbasin have been used to demonstrate historical groundwater elevation conditions in the Upper Aquifer System and Lower Aquifer System (Figures 4-1 through 4-6, Monitoring Wells Screened in the Oxnard Subbasin (by aquifer)). The groundwater well monitoring network contains wells that are located in every management area of the Subbasin except the East Oxnard Plain Management Area (EOPMA) and that are screened in every primary aquifer in the Subbasin. Although the network of groundwater wells includes agricultural, municipal and industrial, and domestic production wells, the majority of the wells used to determine groundwater elevations are designated as monitoring wells in the Ventura County Watershed Protection District (VCWPD) database of groundwater elevation and groundwater quality data collected in the Subbasin.

The United Water Conservation District (UWCD) collects groundwater elevation data from more than 100 monitoring and agricultural wells in the Subbasin. These wells are monitored either monthly or bimonthly (once every two months). Water levels are measured both manually and with pressure transducers, which record the pressure of water (or height of the water column) above the transducer in the well. Pressure transducers have been installed in 65 of these wells. These transducers record the height of the water column in the well every 4 hours, thereby providing high temporal resolution data on groundwater conditions in the aquifers. Data are downloaded from the transducers quarterly, in a rotating pattern. Transducer records are subject to quality control review before being added to UWCD databases and reported to VCWPD.

Manual groundwater elevation measurements are collected monthly or bimonthly from the UWCD network of groundwater wells. These data are used to assess seasonal and long-term trends in groundwater elevation in the Subbasin, where groundwater elevations were first measured in the 1930s. Seasonal and long-term groundwater elevation trends have been assessed based on the data collected from the existing network of groundwater monitoring wells, and are discussed in Section 2.3, Groundwater Conditions, of this Groundwater Sustainability Plan (GSP).

The spatial and temporal coverage of the existing groundwater monitoring network is sufficient to provide an understanding of representative conditions in the Upper Aquifer System and Lower Aquifer System throughout the Subbasin, and this network will be used to demonstrate progress toward the sustainability goals for the Subbasin. Although evaluation of the current network suggests that the network is sufficient to document groundwater conditions in the Subbasin, areas for future improvement of the network are identified in Section 4.6, Potential Monitoring Network Improvements.

Groundwater Quality

The majority of the wells in the groundwater elevation monitoring network in the Subbasin are also monitored for groundwater quality. UWCD conducts the majority of the water quality monitoring in the Subbasin. UWCD water quality monitoring is conducted in a rotating pattern such that each well is monitored at least once per year. Annual monitoring of groundwater quality is sufficient to demonstrate long-term trends in groundwater quality, because the physical processes that drive changes in groundwater quality operate on a longer timescale. Currently, groundwater elevations are the primary metric by which progress toward sustainability will be measured. However, groundwater quality data will continue to be collected and analyzed to assess whether groundwater elevation thresholds are sufficiently protective of groundwater conditions in the Subbasin. Recommendations for improvement of the groundwater quality monitoring network are identified in Section 4.6.

Groundwater Extraction

The Fox Canyon Groundwater Management Agency (FCGMA) has required reporting of groundwater extraction from the Subbasin since 1983. Historically, groundwater extraction data from wells within the FCGMA jurisdictional boundary have been self-reported by well owners semi-annually (Figure 2-5, Upper Aquifer System 2015 Extraction [acre-feet] in Oxnard and Pleasant Valley, and Figure 2-6, Lower Aquifer System 2015 Extraction [acre-feet] in Oxnard and Pleasant Valley). In 2018, FCGMA adopted an ordinance that required installation of advanced metering infrastructure (AMI) telemetry on wells that were equipped with flowmeters (FCGMA 2018). All agricultural wells were required to install AMI by December 31, 2018; municipal and industrial wells are required to install AMI by October 1, 2019; and all other metered wells are required to install AMI by October 1, 2020. Requiring AMI on all metered wells within FCGMA jurisdiction will provide for broader simultaneous reporting of groundwater extractions, improve FCGMA's ability to monitor and manage groundwater use, and facilitate implementation of this GSP.

4.2.2 Surface Conditions Monitoring

The primary surface conditions that impact groundwater conditions in the Oxnard Subbasin are surface water flows and precipitation. The monitoring networks for both surface conditions are discussed in this section.

Surface Water

Surface flows in the Subbasin are monitored by a network of gauges that are maintained by the VCWPD (Table 4-1). The network includes three types of gauges:

1. Recording Stream Gauges (also known as Daily and Peak Stations). These stream gauges record daily average flowrates as well as "peak" flowrates during rain events.

2. Peak Only (Event) Gauges. This type of stream gauge records only "peak" flowrates during rain events (the threshold over which a flowrate is considered to be part of a rain event is site-specific).
3. ALERT Peak Gauges. These stream gauges serve only as a flood warning system. These stations register high flows but are not used to measure numerical flow rates.

The recording stations at the Freeman Diversion Channel near Saticoy, Santa Clara River at Victoria Avenue, Beardsley Wash at Central Avenue, and the Revolon Slough at Pleasant Valley Road are recording gauges that provide the primary data on surface flows. These gauges collect daily data, while the other gauges in the basin only record flows during precipitation events.

In addition to the surface flow monitoring network in the Subbasin, UWCD monitors and reports diversions from the Santa Clara River. These diversions are used to deliver surface water to agricultural users in lieu of groundwater production and are used for recharge, via UWCD's spreading grounds, to the groundwater aquifers in the Subbasin.

Surface water flows have been recorded in the Subbasin since the 1930s (Figure 1-4, Average Daily Flows (ADF) and Monthly Minimum ADF in Oxnard Surface Waters). Daily flows on Calleguas Creek and in the Revolon Slough have been recorded since the 1970s. There are currently gauges on the major surface water bodies in the Subbasin (Figure 4-7, Active Surface Water Monitoring Network for the Oxnard Subbasin). The historical and existing spatial and temporal coverage from the surface water flow gauge network provides adequate coverage for the short-term, seasonal, and long-term surface flow conditions in the Subbasin. Although the current network is sufficient to document surface flow conditions in the Subbasin, areas for improvement are identified in Section 4.6.

Precipitation

Thirteen precipitation gauges currently monitor precipitation in the Subbasin (Table 4-2; Figure 4-8, Active Precipitation Monitoring Network for the Oxnard Subbasin). The precipitation gauges are maintained, and data are collected, by VCWPD and the National Weather Service.

Precipitation in the Subbasin has been recorded for more than a century (Figure 1-5, Oxnard Plain Annual Precipitation). Although the locations of individual precipitation gauges have changed through time, with some gauges being removed from service and others added, there is overlap between the records collected from the various gauges. Therefore, a continuous precipitation record can be constructed for the Subbasin to demonstrate long-term trends. More recent data, collected with greater frequency, can be used to demonstrate short-term and seasonal trends in precipitation.

In addition to providing adequate temporal coverage of the Subbasin, the current network of precipitation gauges includes sites in every management area of the Subbasin except the EOPMA. This is sufficient spatial coverage to document precipitation in the Subbasin and to connect the precipitation measurements to both streamflow and groundwater conditions. Additional precipitation monitoring locations are not currently recommended for characterizing surface conditions in the Oxnard Subbasin.

4.3 MONITORING NETWORK RELATIONSHIP TO SUSTAINABILITY INDICATORS

To document changes in groundwater conditions related to each of the six sustainability indicators, monitoring will be conducted using the existing network of groundwater wells (Figures 4-1 through 4-6). This network includes a greater number of wells than the list of key wells provided in Chapter 3, Sustainable Management Criteria, of this GSP (see Tables 4-3 and 4-4). Minimum thresholds and measurable objectives have been selected for the set of key wells but have not been selected for every well used to monitor groundwater conditions in the Subbasin. Conditions measured in the key wells will be used to document progress toward the sustainability goals. Groundwater conditions measured in the broader network of wells, which includes the key wells, will be used to document conditions in the Subbasin at a greater spatial coverage than is provided by the key wells. Recommendations and findings based on the key well data will be supported by the data collected by the broader well network.

4.3.1 Chronic Lowering of Groundwater Levels

To monitor conditions related to chronic lowering of groundwater levels, the groundwater monitoring network must be structured to accomplish the following:

- Track short-term, seasonal, and long-term trends in water elevation.
- Demonstrate groundwater elevations in mid-March and mid-October for each primary aquifer or aquifer system.
- Record groundwater elevations in key wells in which minimum thresholds and measurable objectives have been identified to track progress toward the sustainability goals for the Subbasin.

Spatial Coverage by Aquifer

The Subbasin monitoring well density for groundwater elevations varies by aquifer (Tables 4-3 and 4-4). Of the primary aquifers in the Subbasin identified in Chapter 2, Basin Setting, the Grimes Canyon Aquifer has the lowest density of active wells in which groundwater elevations can be measured. The density of wells in the Grimes Canyon Aquifer is approximately 1 well per 13 square

miles (the Oxnard Subbasin area is approximately 90 square miles). There is no definitive rule for the density of groundwater monitoring points needed in a basin; however, for comparison, the monitoring well density recommended by CASGEM Groundwater Elevation Monitoring Guidelines ranges from 1 to 10 wells per 100 square miles (DWR 2010). Additional California Department of Water Resources (DWR) guidelines recommend a well network with a density of 1 observation per 16 square miles (DWR 2010, 2016b). Therefore, the density of wells in the Grimes Canyon Aquifer meets the criteria for adequate coverage to accomplish the objectives of the monitoring well network for determining chronic lowering of groundwater levels.

In addition to the Grimes Canyon Aquifer, the density of wells in the other primary aquifers in the Subbasin is also greater than the recommended well density provided in the DWR and CASGEM guidelines. The density of active monitoring wells in the Fox Canyon Aquifer (FCA) and the Hueneme Aquifer is approximately 1 well per 4 square miles. The density of active monitoring wells in the Mugu Aquifer is approximately 1 well per 3 square miles, and the density of active monitoring wells in the Oxnard Aquifer is approximately 1 well per square mile.

Groundwater elevations are also monitored in the semi-perched aquifer, although the semi-perched aquifer is not a primary aquifer in the Subbasin. These elevations are measured to document interactions between the semi-perched aquifer and the surface water bodies in the Subbasin, as well as to document potential gradients between the semi-perched aquifer and the underlying Oxnard Aquifer. The density of monitoring wells in the semi-perched aquifer is approximately 1 well per 13 square miles. This density meets the DWR and CASGEM criteria for documenting groundwater elevations in the semi-perched aquifer.

Although the active network of wells used to document chronic lowering of groundwater levels in the Subbasin has sufficient spatial density on the Subbasin scale, in some aquifers, there are local areas in which coverage can be improved. Potential improvements in local coverage are discussed in Section 4.6.

Temporal Coverage by Aquifer

Groundwater elevation data will be collected from the network of groundwater wells to provide groundwater elevation conditions in the spring and fall of each year. Further discussion of the monitoring schedule is provided in Section 4.4, Monitoring Network Implementation.

4.3.2 Reduction of Groundwater Storage

To monitor conditions related to reduction of groundwater storage, the groundwater monitoring network must be structured to accomplish the following:

- Demonstrate groundwater elevations in mid-March and mid-October for each primary aquifer or aquifer system.
- Calculate year-over-year (mid-March to mid-March) change in storage by aquifer.
- Provide data from which lateral and vertical hydraulic gradients within and between aquifers can be calculated.
- Record groundwater elevations in key wells in which minimum thresholds and measurable objectives have been identified to track progress toward the sustainability goals for the Subbasin.

The requirements for documenting reduction in groundwater storage are similar to those for chronic lowering of groundwater levels (see Section 4.3.1), because these two sustainability indicators are interrelated. The primary difference between the two sets of requirements is the need to document potential gradients between aquifers. These gradients influence the movement of water between aquifers, which in turn influences storage in the aquifer.

Historically, the change in groundwater stored in freshwater aquifers in the Subbasin has been modeled by UWCD. After GSP adoption, modeled volumes of annual change in storage will be reported by aquifer and by year in annual reports. A standardized method to calculate the change in storage that relies solely on water elevations within each aquifer, rather than on a numerical model, may also be developed as a check on the model predictions.

The spatial and temporal density of groundwater elevation data necessary to document groundwater storage changes in the aquifers of the Subbasin is the same as that necessary to document groundwater elevation changes. The current network of wells is capable of documenting changes to both sustainability indicators. Specific recommendations for potential improvements to local coverage are discussed in Section 4.6.

4.3.3 Seawater Intrusion

To monitor conditions related to seawater intrusion, groundwater elevations will be measured, and water quality samples will be collected, in such a way as to accomplish the following:

- Track short-term, seasonal, and long-term trends in water elevation.
- Demonstrate groundwater elevations in mid-March and mid-October for each primary aquifer or aquifer system.

- Record groundwater elevations in key wells in which minimum thresholds and measurable objectives have been identified to track progress toward the sustainability goals for the Subbasin.

These goals are the same as those for chronic lowering of groundwater levels (see Section 4.3.1). Groundwater elevations are the metric by which seawater intrusion will be assessed (see Section 3.3.3).

Spatial Coverage by Aquifer

A network of nested monitoring wells was installed in the early 1990s by the U.S. Geological Survey for the Regional Aquifer System Analysis, which includes 16 wells in the Oxnard Subbasin (USGS 1996). Fourteen of these well sites are located within an approximately 28-square-mile area adjacent to the Pacific Ocean. Thus, the density of dedicated monitoring wells adjacent to the coast is approximately 1 well per 2 square miles. The current network of wells is capable of documenting groundwater elevations that could induce seawater intrusion. No additional coastal monitoring wells are proposed.

Water Quality Constituents

Groundwater samples will continue to be collected and analyzed for total dissolved solids (TDS) and chloride in order to assess trends in groundwater quality related to seawater intrusion. The network of existing wells is capable of providing an adequate assessment of groundwater quality trends for these constituents.

Temporal Resolution

Historically, groundwater quality samples have been collected with sufficient temporal resolution to identify seawater intrusion in the aquifers of the Subbasin (see Section 2.3.3, Seawater Intrusion, of this GSP). The temporal resolution of the data has varied through time and depends on the entity monitoring a given well. UWCD has collected annual groundwater samples from the network of monitoring wells along the Subbasin coastline since the late 1980s (UWCD 2016). These samples have documented long-term trends in chloride concentration for the coastal wells. Because the degradation of water quality associated with seawater intrusion is a process that occurs over a longer time than changes in groundwater elevation associated with groundwater production, annual groundwater quality sampling is adequate for documenting changes in chloride and TDS concentration associated with seawater intrusion.

4.3.4 Degraded Water Quality

To monitor conditions related to degraded water quality, water quality samples will be collected in such a way as to track long-term trends in water quality that may impact beneficial uses and users of groundwater in the Subbasin. Specifically, these water quality samples should be targeted to constituents of concern and areas of the Subbasin that have documented degradation, or the potential for degradation, in water quality related to groundwater production from the Subbasin.

Spatial Coverage by Aquifer

The network of wells currently used to monitor groundwater elevation conditions in each aquifer is sufficient to determine trends in groundwater quality as well. The primary areas of concern for groundwater quality degradation relating to groundwater elevations in the Subbasin are the Forebay Management Area, the Saline Intrusion Management Area, and the Oxnard Pumping Depression Management Area. Monitoring groundwater quality changes associated with seawater intrusion is discussed in Section 4.3.3. The spatial density of groundwater elevation monitoring wells is discussed in Section 4.3.1. The spatial coverage provided by the existing monitoring network is sufficient to document changes in groundwater quality.

Water Quality Constituents

Monitoring and annual reporting has occurred for constituents that are associated with a water quality threshold adopted by the FCGMA Board of Directors or by the Los Angeles Regional Water Quality Control Board. These constituents are TDS, chloride, nitrate, sulfate, and boron. The network of existing wells is capable of providing an adequate assessment of groundwater quality trends for these constituents.

Temporal Resolution

Degradation of groundwater quality occurs on a longer timescale than changes in groundwater elevation. Historically, UWCD has collected water quality samples on a quarterly basis and VCWPD has collected samples annually, although more frequent sampling can occur in some wells. These samples have provided information on trends in groundwater quality throughout the Subbasin. Samples from coastal wells have been used to document seawater intrusion, and samples from wells in the Oxnard Forebay have been used to document degradation of water quality related to increasing nitrate concentrations (see Section 2.3). The temporal resolution of the data collection is adequate to document trends in groundwater concentration for the constituents identified by the FCGMA Board of Directors and the Los Angeles Regional Water Quality Control Board.

4.3.5 Land Subsidence

To monitor conditions related to land subsidence, groundwater elevations will be measured to determine if water levels fall below historical lows. Groundwater elevations are being used as a proxy for land subsidence in the Subbasin. The minimum thresholds identified at the key wells are above the historical low groundwater elevation. Therefore, it is not anticipated that specific land subsidence monitoring will be required for the Subbasin. Instead, the network of groundwater monitoring wells discussed in Sections 4.2.1 and 4.3.1 will be used to determine if land subsidence related to groundwater production may occur.

4.3.6 Depletions of Interconnected Surface Water

To monitor conditions related to depletions of interconnected surface water, surface water flows and shallow groundwater will be measured in such a way as to accomplish the following:

- Track short-term, seasonal, and long-term trends in groundwater elevation in the semi-perched aquifer.
- Demonstrate groundwater elevations in mid-March and mid-October for the semi-perched aquifer.
- Record groundwater elevations in key wells in which minimum thresholds and measurable objectives have been identified to track progress toward the sustainability goals for the Subbasin.

Surface water flows in the Revolon Slough, Calleguas Creek, and the Santa Clara River downstream of, but not including, the Freeman Diversion are connected to water levels in the semi-perched aquifer, rather than the underlying confined aquifers of the Upper Aquifer System and Lower Aquifer System. In turn, the groundwater elevation in the semi-perched aquifer is effectively regulated by the height of the agricultural tile drains installed throughout the Oxnard Plain (UWCD 2016).

Although the active network of wells used to document groundwater conditions in the semi-perched aquifer has sufficient spatial density at the Subbasin scale, there are local areas in which coverage can be improved. Potential improvements in local coverage are discussed in Section 4.6.

4.4 MONITORING NETWORK IMPLEMENTATION

4.4.1 Groundwater Elevation Monitoring Schedule

To reduce uncertainty associated with hydraulic gradients, and to follow guidance documents produced by DWR (DWR 2016b), water level measurements used in the evaluation of seasonal high

and seasonal low groundwater conditions should be collected in a 2-week window in mid-March and mid-October (specifically, March 9–22 and October 9–22 of any given calendar year).

Short-term trends in groundwater elevation are currently, and will continue to be, monitored using transducers that are operated and maintained by UWCD. Data from these transducers are downloaded quarterly and stored in a central database.

Seasonal and long-term trends in groundwater elevation are monitored using the transducer data and manual measurements made by UWCD on a monthly or bimonthly basis, and manual measurements made by VCWPD on a quarterly basis. Additional manual water level measurements made by other partner agencies (e.g., the City of Oxnard or mutual water districts) are typically sent to VCWPD annually.

4.4.2 Groundwater Storage Monitoring Schedule

Groundwater storage is directly related to, and calculated from, groundwater elevations. Consequently, the schedule for monitoring groundwater storage is the same as that for monitoring groundwater elevations.

4.4.3 Seawater Intrusion Monitoring Schedule

Groundwater Elevation

Twice-yearly comprehensive evaluations (in mid-March and mid-October) of groundwater elevations in each aquifer will be used to assess progress toward minimum thresholds designed to avoid seawater intrusion.

Groundwater Quality

Annual groundwater quality samples for each coastal well will be used to monitor water quality trends related to seawater intrusion.

4.4.4 Water Quality Monitoring Schedule

UWCD conducts monthly or quarterly monitoring of groundwater quality in many wells throughout the Oxnard Subbasin. Wells with stable water quality are sampled annually or twice annually by UWCD. Groundwater quality monitoring should continue on the same schedule in order to document groundwater quality trends in the Subbasin. Annual reviews of the groundwater quality trends will be used to assess whether sampling frequency or the spatial density of samples needs to be adjusted.

4.4.5 Groundwater Extraction Monitoring Schedule

Monitoring of groundwater extraction rates will take place continuously, using flowmeters and telemetry equipment installed on individual wellheads, and monthly totals of pumped water will be transmitted to a central database maintained by FCGMA.

4.5 PROTOCOLS FOR DATA COLLECTION AND MONITORING

Protocols for collecting groundwater level measurements and water quality samples, as well as downloading transducers and logging the boreholes of newly drilled wells, are included in the Monitoring Protocols Best Management Practices (BMPs) produced by DWR (DWR 2016a). FCGMA plans to work with agency partners to ensure that future data collection is conducted according to relevant protocols in the BMP. Current practices used by VCWPD and UWCD are described in this section.

VCWPD Protocols

VCWPD technicians collect water levels using steel tapes. For a well that is too deep for the tape, an acoustical sounder or an air pressure gauge is used, and the measurement is stored in the database with a Questionable Measurement Code, indicating that alternate equipment was used.

VCWPD technicians collect water quality samples from production wells using the installed pump equipment. A three-volume purge, or a testing of groundwater parameters including pH, temperature, and electrical conductivity, is conducted to determine whether the water at the wellhead is representative of groundwater in the aquifer. Water quality samples are then sent to an analytical laboratory, where they are filtered and preserved.

UWCD Protocols

UWCD technicians collect water levels using a variety of equipment, including dual-wire and single-wire sounders and metal tapes. In the event that the well contains a pump, the technician manually tests the approximate temperature of the pump housing. If the pump housing is warm, the water level that is entered into the database is qualified with a Questionable Measurement Code, indicating recent pumping. UWCD also considers other indicators, such as wet conditions at wells and in nearby fields, to evaluate if water levels may not be static.

UWCD technicians collect water quality samples using the three-volume purge method, and follow U.S. Geological Survey guidelines for groundwater quality sampling. For shallow wells, a Grundfos Redi-Flo pump is used to purge and sample the groundwater. For deeper wells, a compressor is used to airlift the groundwater for purging and sampling. On rare occasions, a bailer is used to purge and sample.

4.6 POTENTIAL MONITORING NETWORK IMPROVEMENTS

The existing monitoring network in the Subbasin is sufficient to document groundwater conditions in the Subbasin, and can be used to document progress toward the sustainability goals for the Subbasin. Analysis of the monitoring network, however, also indicates that there are local areas in which data coverage and monitoring efforts can be improved in the future. Areas for improvement of the existing monitoring network and data infrastructure system, are described in the following sections.

4.6.1 Water Level Measurements: Spatial Data Gaps

Additional monitoring wells could be used to improve spatial coverage for groundwater elevation measurements in the West Oxnard Plain Management Area, the Oxnard Pumping Depression Management Area, and the EOPMA. Wells that are added to the network should be dedicated monitoring well clusters, with individual wells in the cluster screened in a single aquifer. The potential improvements to the monitoring network in each aquifer are shown on Figures 4-9 through 4-14 (Existing and Potential New Wells for Monitoring Groundwater Conditions, by aquifer).

The groundwater monitoring network in the Subbasin could be improved by adding monitoring wells in the Oxnard Pumping Depression Management Area (Figures 4-9 through 4-14). An additional well, or wells, in this area would provide aquifer-specific groundwater elevations in an area that does not have local wells screened solely in the Mugu Aquifer or the Hueneme Aquifer, and does not have a dedicated monitoring well screened in any of the primary aquifers. Groundwater elevation measurements in this well would help constrain groundwater gradients across the boundary between the Subbasin and the Pleasant Valley Basin. Additionally, a well in this management area could be used to assess groundwater conditions in the semi-perched aquifer adjacent to the Revolon Slough. FCGMA has applied for funding through a DWR Technical Support Services monitoring well funding grant to add a monitoring well in the Oxnard Pumping Depression Management Area.

In the West Oxnard Plain Management Area, the groundwater monitoring network could be improved by adding a monitoring well to the area north of Highway 101 and south of the Oxnard Forebay. Currently, there are no dedicated monitoring wells in this area (Figures 4-9 through 4-14). Adding a monitoring well in this area would provide for aquifer-specific water levels adjacent to the West Las Posas Management Area boundary. These groundwater levels could be used to constrain the gradient between the West Las Posas Management Area and the Subbasin.

The monitoring network in the West Oxnard Plain Management Area could also be improved by adding a monitoring well to the area north of 6th Street and west of Ventura Road. This area has dedicated monitoring wells in the Oxnard Aquifer, but does not have a dedicated monitoring well in the Mugu or Hueneme Aquifer or the FCA. A monitoring well in this area would help constrain groundwater gradients in the northwest part of the Oxnard Subbasin.

There are currently no monitoring wells in the EOPMA, which has minimal known groundwater production. Addition of a monitoring well in the vicinity of Calleguas Creek in the EOPMA would improve understanding of groundwater conditions in this management area. It would also provide data to help constrain the relationship between groundwater elevations in the EOPMA and groundwater conditions in the adjacent Oxnard Pumping Depression and Saline Intrusion Management Areas.

New wells will be constructed to applicable well installation standards set in California DWR Bulletins 74-81 and 74-90, or as updated (DWR 2016b). It is recommended that, where feasible, new wells be subjected to pumping tests to collect additional information about aquifer properties in the vicinity of new monitoring locations.

Proposed locations are approximate and subject to feasibility review (accounting for infrastructure, site acquisition, and site access, among other factors) after GSP submittal. The schedule for new well installation will be developed in conjunction with feasibility review.

4.6.2 Water Level Measurements: Temporal Data Gap

The DWR Monitoring Protocol BMP (DWR 2016a) states the following:

> Groundwater elevation data … should approximate conditions at a discrete period in time. Therefore, all groundwater levels in a basin should be collected within as short a time as possible, preferably within a 1 to 2 week period.

The DWR Monitoring Networks BMP (DWR 2016b) states the following:

> Groundwater levels will be collected during the middle of October and March for comparative reporting purposes.

Currently, groundwater elevation measurements are not scheduled according to these criteria. To minimize the effects of this type of temporal data gap in the future, it will be necessary to coordinate the collection of groundwater elevation data so it occurs within a 2-week window during the key reporting periods of mid-March and mid-October. The recommended collection windows are October 9 to 22 in the fall and March 9 to 22 in the spring (see Section 4.4).

Additionally, as funding becomes available, pressure transducers should be added to wells in the groundwater monitoring network. Pressure transducer records provide the high temporal resolution data that allows for a better understanding of water level dynamics in the wells related to groundwater production, groundwater management activities, and climatic influence.

4.6.3 Groundwater Quality Monitoring

To improve the existing groundwater quality monitoring in the Subbasin, the current analyte list could be expanded to include a full general minerals suite. Stiff or Piper diagrams could then be created to fully characterize the geochemical characteristics of the groundwater and track changes over time. UWCD currently gets a general mineral analysis at least annually for most monitoring wells in the Oxnard Subbasin.

4.6.4 Subsidence Monitoring

Currently, neither FCGMA nor its partner agencies in the region monitor land subsidence. The U.S. Geological Survey maintained one benchmark in the southern part of the Oxnard Plain between 1939 and 1978 (see Section 2.3.5, Subsidence, of this GSP), but it is not currently operational. Subsidence related to groundwater production is not anticipated to occur in the Subbasin in the future because the minimum threshold groundwater elevations are higher than the historical low groundwater elevations in the Subbasin. Preexisting GPS-based benchmarks could be used for monitoring land subsidence in the event that groundwater elevations drop below historical low levels for an extended period, and the potential for land subsidence to substantially interfere with surface land uses is determined (see Section 3.3.5, Land Subsidence). Additionally, historical InSAR and LIDAR records exist for the Oxnard Plain and could be used for comparison to future conditions if groundwater production causes water levels that are below the historical lows.

4.6.5 Shallow Groundwater Monitoring near Surface Water Bodies and GDEs

Currently, there are relatively few wells that can be used to monitor the shallow groundwater in the semi-perched aquifer that may be interconnected with surface water bodies and sustain GDEs or potential GDEs in the Subbasin. To improve the existing monitoring network and to assist with understanding the potential connectivity between shallow groundwater and potential GDEs, a dedicated shallow monitoring well within the boundaries of the potential GDE along the Revolon Slough and an additional dedicated shallow monitoring well in the vicinity of Lower Calleguas Creek could be added to the monitoring network, independent of an additional nested well cluster (Figure 2-52, Groundwater Dependent Ecosystems for the Oxnard Subbasin).

Additional shallow monitoring wells are not proposed for the coastal GDEs (Lower Santa Clara River, McGrath Lake, Ormond Beach, and Mugu Lagoon) described in Section 2.3.7, Groundwater-Dependent Ecosystems, of this GSP (see Figures 2-52 through 2-56). The coastal GDEs are sustained by groundwater in the semi-perched aquifer, which is rarely used for water supply in the Subbasin (FCGMA 2007). However, if future projects propose to produce water from the semi-perched aquifer, depletion of interconnected surface water is possible, and significant and unreasonable impacts may occur. Therefore, additional monitoring wells may be necessary and should be installed in conjunction with the planning for those projects.

4.6.6 Surface Water: Flows in Agricultural Drains in the Oxnard Plain

Discharge flows are currently unmeasured in the drainage system, frequently referred to as the "tile drains," that was installed throughout the Oxnard Plain in the 1950s (Isherwood and Pillsbury 1958). The tile drains were installed to support the development of land in the Oxnard Plain, which was formerly affected by high soil salinity levels, for agriculture (Isherwood and Pillsbury 1958). The drains are typically located 6 to 7 feet below ground surface, though the depth varies and is not well documented in most areas. Shallow groundwater entering the drains discharges to central drainage ditches, and from there flows into local surface waters, such as the Revolon Slough, or directly to the ocean, such as at Port Hueneme.

Metering flow in the tile drains would provide an important check on numerical groundwater results and would also provide valuable information about the water resource potential of the semi-perched aquifer. The tile drain system is extensive, and in much of the Oxnard Plain its current state of repair is currently unknown. A feasibility study is recommended to identify the best locations in the drainage system for installing flowmeters.

4.7 REFERENCES CITED

County of Ventura. 2016. Shapefile data of wells in Ventura County. *Ventura_County_Wells_08_17_2016.shp.* Attachment to an email from Jeff Dorrington. August 17, 2016.

DWR (California Department of Water Resources). 2010. *Department of Water Resources Groundwater Elevation Monitoring Guidelines.* December 2010. http://www.water.ca.gov/groundwater/casgem/pdfs/CASGEM%20DWR%20GW%20Guidelines%20Final%20121510.pdf

DWR. 2016a. *Best Management Practices for the Sustainable Management of Groundwater: Monitoring Protocols, Standards, and Sites*. December 2016.

DWR. 2016b. *Best Management Practices for the Sustainable Management of Groundwater: Monitoring Networks and Identification of Data Gaps*. December 2016.

DWR. 2016c. *Bulletin 118 Interim Update 2016: California's Groundwater—Working Toward Sustainability*. December 22, 2016. www.water.ca.gov/groundwater/bulletin118/index.cfm.

FCGMA (Fox Canyon Groundwater Management Agency). 2007. *2007 Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan.* Prepared by FCGMA, United Water Conservation District, and Calleguas Municipal Water District. May 2007.

FCGMA. 2016. Minutes of the Fox Canyon Groundwater Management Agency regular Board meeting held Wednesday, May 25, 2016. Accessed November 2017. http://www.fcgma.org/public-documents/board-of-directors-meetings.

FCGMA. 2018. Fox Canyon Groundwater Management Agency Advanced Metering Infrastructure (AMI) Ordinance. Adopted February 28 2018.

Isherwood, J.D., and A.F. Pillsbury. 1958. "Shallow Ground Water and Tile Drainage in the Oxnard Plain." *Eos* 39(6): 1101–1110.

USGS (U.S. Geological Survey). 1996. *Lithologic and Ground-Water Data for Monitoring Wells in the Santa Clara–Calleguas Ground-Water Basin, Ventura County, California, 1989–95*. USGS Open-File Report 96-120. Prepared by J.N. Densmore in cooperation with the United Water Conservation District. Sacramento: USGS.

UWCD (United Water Conservation District). 2016. *Saline Intrusion Update, Oxnard Plain and Pleasant Valley Basins*. United Water Conservation District Open-File Report 2016-04. October 2016.

VCWPD (Ventura County Watershed Protection District). 2016. [Ventura County Stream Gauge Locations – Figure 4-7.]

INTENTIONALLY LEFT BLANK

Table 4-1
Network of Stations Monitoring Surface Flows in the Vicinity of the Oxnard Subbasin

Station Number	Station Name	Latitude	Longitude	Elevation (ft msl)	Station Type	USGS ID
A639	Freeman Diversion Weir ALERT	34.299111	−119.108417	187	ALERT Stream Gauge	—
724A	Santa Clara River at Freeman Diversion (ALERT)	34.299222	−119.108	—	ALERT Stream Gauge	—
793	J Street Drain at Lagoon (ALERT)	34.140944	−119.188028	15	ALERT Stream Gauge	—
778	Nyeland Acres Drain	34.225099	−119.126788	46	Peak Only (Event) Gauge	—
779	Rice Rd Drain at Wooley Rd	34.189448	−119.151126	24	Peak Only (Event) Gauge	—
781	Santa Clara Drain	34.242678	−119.113763	79	Peak Only (Event) Gauge	—
719	Freeman Diversion Channel near Saticoy	34.292778	−119.116389	—	Recording Stream Gauge	11113900
723	Santa Clara River at Victoria Ave	34.234917	−119.216611	62	Recording Stream Gauge	—
780	Beardsley Wash at Central Ave	34.2305	−119.112028	60	Recording Stream Gauge	—
776A	Revolon Slough at Pleasant Valley Rd	34.192592	−119.107875	20	Recording Stream Gauge	—

Notes: ft msl = feet above mean sea level; USGS = U.S. Geological Survey.
This table shows results from active gauges only (as of August 2016).

Table 4-2
Network of Stations Monitoring Precipitation in the Vicinity of the Oxnard Subbasin

Station Number	Station Name	Latitude	Longitude	Elevation (ft msl)	Station Type	USGS ID
273A	Oxnard NWS	34.207207	−119.137384	63	National Weather Service Site	—
403	Silverstrand Alert (Type B)	34.15271	−119.218965	18	Non-Standard Recorder	—
017C	Port Hueneme–Oxnard Sewer Plant	34.141684	−119.18665	10	Recording Precipitation Gauge	—
032A	Oxnard Civic Center	34.200087	−119.180278	53	Recording Precipitation Gauge	46569
168	Oxnard Airport	34.201647	−119.207685	34	Recording Precipitation Gauge	—

Table 4-2
Network of Stations Monitoring Precipitation in the Vicinity of the Oxnard Subbasin

Station Number	Station Name	Latitude	Longitude	Elevation (ft msl)	Station Type	USGS ID
175A	Saticoy–County Yard	34.281214	−119.141018	150	Recording Precipitation Gauge	—
177A	Camarillo–Pacific Sod	34.155471	−119.073003	20	Recording Precipitation Gauge	—
215A	Channel Is Harbor–Kiddie Beach	34.158944	−119.222338	15	Recording Precipitation Gauge	—
239	El Rio–UWCD Spreading Grounds	34.239405	−119.153009	105	Recording Precipitation Gauge	—
412	El Rio–Mesa School APCD	34.252361	−119.143056	131	Recording Precipitation Gauge	—
223A	Point Mugu–USN	34.112778	−119.119444	12	Standard Precipitation Midnight	—
215	Channel Islands Harbor	34.162042	−119.222717	5	Standard Precipitation	—
261	Saticoy–Recharge Facility	34.278889	−119.123056	145	Standard Precipitation	—

Notes: APCD = Air Pollution Control District; ft msl = feet above mean sea level; NWS = National Weather Service; USGS = U.S. Geological Survey; USN = U.S. Navy; UWCD = United Water Conservation District.
This table shows results from active gauges only.

Table 4-3
VCWPD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored by VCWPD[a]	Water Quality Samples Collected by VCWPD[a]	Water Level Sampling Schedule after GSP Adoption	Water Quality Sampling Schedule after GSP Adoption
01N21W04D04S	Agricultural	Multiple	LAS	—	Yes		Annual
01N21W04N02S	Monitoring	Multiple	Unassigned	Yes	—		—
01N21W06L04S	Agricultural	Oxnard	UAS	Yes	—		—
01N21W07H01S	Agricultural	Oxnard	UAS	Yes			—
01N21W08R01S	Agricultural	Multiple	LAS	—	Yes		Annual
01N21W09C04S	Agricultural	FCA	LAS	Yes	—		—
01N21W16A04S	Agricultural	Multiple	LAS	Yes	—		—
01N21W16M01S	Agricultural	Multiple	Both	Yes	—		—

Table 4-3
VCWPD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored by VCWPD[a]	Water Quality Samples Collected by VCWPD[a]	Water Level Sampling Schedule after GSP Adoption	Water Quality Sampling Schedule after GSP Adoption
01N21W16M03S	Agricultural	Multiple	LAS	—	Yes		Annual
01N21W16P03S	Agricultural	Multiple	LAS	Yes	—		—
01N21W17D02S	Agricultural	Oxnard	UAS	Yes	—		—
01N21W19J05S	Agricultural	Multiple	LAS	—	Yes		Annual
01N21W20K03S	Agricultural	Multiple	LAS	—	Yes		Annual
01N21W20N07S	Domestic	Multiple	UAS	Yes	—		—
01N21W21H02S	Agricultural	Multiple	LAS	—	Yes		Annual
01N21W21H03S	Agricultural	Unassigned	LAS	—	Yes		Annual
01N21W21K03S	Agricultural	Unassigned	Both	—	Yes		Annual
01N21W21N01S	Agricultural	Mugu	UAS	Yes	—		—
01N21W22C01S	Agricultural	Multiple	LAS	—	Yes		Annual
01N21W28D01S	Agricultural	Multiple	LAS	Yes	Yes		Annual
01N21W28G01S	Agricultural	Unassigned	UAS	—	Yes		Annual
01N21W28H03S	Agricultural	Unassigned	Both	—	Yes		Annual
01N21W29B03S	Agricultural	Multiple	UAS	Yes	Yes		Annual
01N21W32K01S	Municipal	FCA	LAS	Yes	—		—
01N22W03F05S	Municipal	Hueneme	LAS	—	Yes		Annual
01N22W03F07S	Municipal	Oxnard	UAS	—	Yes		Annual
01N22W06B01S	Domestic	Unassigned	UAS	—	Yes		Annual
01N22W12M01S	Agricultural	Unassigned	UAS	—	Yes		Annual
01N22W12N03S	Agricultural	Multiple	LAS	Yes	—		—
01N22W12R01S	Agricultural	Multiple	LAS	Yes	—		—
01N22W14K01S	Agricultural	Oxnard	UAS	Yes	—		—
01N22W16D04S	Municipal	Hueneme	LAS	—	Yes		Annual
01N22W19A01S	Municipal	Hueneme	LAS	—	Yes		Annual
01N22W21B03S	Municipal	Multiple	LAS	Yes	—		—
01N22W21B06S	Municipal	Multiple	LAS	—	Yes		Annual
01N22W23R02S	Agricultural	Unassigned	LAS	—	Yes		Annual
01N22W24B04S	Agricultural	Multiple	LAS	—	Yes		Annual
01N22W24C02S	Agricultural	Multiple	UAS	Yes	—		—
01N22W24C03S	Agricultural	Unassigned	Both	—	Yes		Annual
01N22W25K01S	Agricultural	Unassigned	UAS	—	Yes		Annual
01N22W25K02S	Agricultural	FCA	LAS	—	Yes		Annual

Table 4-3
VCWPD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored by VCWPD[a]	Water Quality Samples Collected by VCWPD[a]	Water Level Sampling Schedule after GSP Adoption	Water Quality Sampling Schedule after GSP Adoption
01N22W26K03S	Agricultural	Multiple	LAS	Yes	—	Twice yearly	—
01N22W26M03S	Agricultural	Hueneme	LAS	Yes	Yes		Annual
01N22W26P02S	Agricultural	Unassigned	LAS	—	Yes		Annual
01N22W26Q01S	Agricultural	Unassigned	Both	—	Yes		Annual
01N22W36B02S	Agricultural	Multiple	LAS	Yes	—		—
02N21W07P04S	Agricultural	Multiple	LAS	Yes	Yes		Annual
02N21W19A01S	Domestic	Multiple	UAS	—	Yes		Annual
02N21W19A03S	Agricultural	Multiple	LAS	Yes	—		—
02N21W19B02S	Agricultural	Oxnard	UAS	Yes	—		—
02N21W20F02S	Domestic	Multiple	Unassigned	Yes	—		—
02N21W20M03S	Agricultural	Multiple	UAS	—	Yes		Annual
02N21W20M06S	Agricultural	Multiple	LAS	Yes	—		—
02N21W31P02S	Monitoring	Multiple	Unassigned	Yes	—		—
02N21W31P03S	Monitoring	Hueneme	LAS	Yes	—		—
02N22W23H03S	Agricultural	Unassigned	UAS	—	Yes		Annual
02N22W24P01S	Agricultural	Mugu	UAS	Yes	Yes		Annual
02N22W24P02S	Agricultural	Multiple	LAS	—	Yes		Annual
02N22W24R02S	Domestic	Unassigned	UAS	—	Yes		Annual
02N22W25A02S	Agricultural	Unassigned	UAS	—	Yes		Annual
02N22W25F01S	Industrial	Unassigned	UAS	—	Yes		Annual
02N22W26E01S	Municipal	Multiple	UAS	Yes	—		—
02N22W27M02S	Municipal	Unassigned	UAS	—	Yes		Annual
02N22W30F03S	Agricultural	Unassigned	LAS	—	Yes		Annual
02N22W30K01S	Agricultural	Oxnard	UAS	Yes	—		—
02N22W31A01S	Agricultural	Multiple	Unassigned	Yes	—		—
02N22W31D02S	Agricultural	Unassigned	UAS	—	Yes		Annual
02N22W32C04S	Agricultural	Multiple	UAS	—	Yes		Annual
02N22W32Q03S	Agricultural	Multiple	UAS	Yes	—	Twice yearly	—
02N22W36E02S	Municipal	Hueneme	LAS	—	Yes		Annual
02N22W36E03S	Municipal	Hueneme	UAS	—	Yes		Annual
02N22W36F01S	Domestic	Unassigned	Unassigned	—	Yes	Twice yearly	Annual
02N22W36F02S	Agricultural	Unassigned	UAS	—	Yes		Annual

Table 4-3
VCWPD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored by VCWPD[a]	Water Quality Samples Collected by VCWPD[a]	Water Level Sampling Schedule after GSP Adoption	Water Quality Sampling Schedule after GSP Adoption
02N23W25G02S	Industrial	Multiple	Unassigned	Yes	Yes		Annual
02N23W25M01S	Agricultural	Unassigned	UAS	—	Yes		Annual
02N23W36C04S	Domestic	Oxnard	UAS	Yes	—		—

Notes: FCA = Fox Canyon Aquifer; GSP = Groundwater Sustainability Plan; LAS = Lower Aquifer System; UAS = Upper Aquifer System; VCWPD = Ventura County Watershed Protection District.

[a] As of October 2017.

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
01N21W04D04S	Agricultural	Multiple	LAS			Yes			Quarterly	
01N21W06J05S	Agricultural	FCA	LAS				Yes			
01N21W06R01S	Monitoring	Oxnard	UAS			Yes			Quarterly	
01N21W07J02S	Agricultural	Multiple	LAS				Yes		Twice yearly	
01N21W10G01S	Agricultural	Multiple	LAS			Yes			Quarterly	
01N21W12D01S	Agricultural	Multiple	UAS	Yes					Bimonthly	
01N21W15J04S	Agricultural	Multiple	LAS	Yes	Yes				Monthly	
01N21W17C02S	Agricultural	Unassigned	UAS			Yes			Quarterly	
01N21W17G03S	Agricultural	Multiple	LAS	Yes					Bimonthly	
01N21W18A04S	Agricultural	Unassigned	UAS	Yes	Yes				Bimonthly	
01N21W18L05S	Agricultural	Unassigned	LAS			Yes			Quarterly	
01N21W19C01S	Agricultural	Oxnard	UAS	Yes					Bimonthly	
01N21W19J05S	Agricultural	Multiple	LAS	Yes					Bimonthly	
01N21W19L10S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W19L11S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W19L12S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W19L13S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W19L14S	Monitoring	Semi-Perched	Semi-Perched	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W20C05S	Agricultural	Mugu	UAS	Yes					Bimonthly	
01N21W20K03S	Agricultural	Multiple	LAS	Yes					Bimonthly	
01N21W21H02S	Agricultural	Multiple	LAS			Yes			Quarterly	
01N21W28D01S	Agricultural	Multiple	LAS			Yes			Quarterly	
01N21W28G04S	Agricultural	Multiple	LAS	Yes					Bimonthly	

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
01N21W31A05S	Monitoring	FCA	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N21W31A06S	Monitoring	FCA	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N21W31A07S	Monitoring	Mugu	UAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N21W31A08S	Monitoring	Oxnard	UAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N21W31A09S	Monitoring	Oxnard	UAS	Yes				Yes	Bimonthly	Quarterly
01N21W32Q02S	Monitoring	GCA	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W32Q03S	Monitoring	GCA	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W32Q04S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W32Q05S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W32Q06S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N21W32Q07S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N22W01M03S	Agricultural	Multiple	LAS				Yes		Quarterly	
01N22W02A02S	Monitoring	Mugu	UAS	Yes	Yes	Yes			Monthly	
01N22W03F05S	Municipal	Hueneme	LAS			Yes			Quarterly	
01N22W03F09S	Monitoring	Unassigned	Unassigned	Yes	Yes			Yes	Monthly	Twice yearly
01N22W03F11S	Monitoring	Unassigned	Unassigned	Yes	Yes			Yes	Monthly	Twice yearly
01N22W03F13S	Municipal	Oxnard	UAS			Yes			Quarterly	
01N22W11C03S	Agricultural	Unassigned	Unassigned	Yes	Yes				Monthly	
01N22W13D03S	Agricultural	Multiple	LAS				Yes		Quarterly	
01N22W14R02S		Oxnard	UAS	Yes					Bimonthly	
01N22W16D04S	Municipal	Hueneme	LAS	Yes	Yes				Monthly	
01N22W17C03S	Municipal	Multiple	LAS			Yes			Quarterly	
01N22W18L02S	Municipal	Unassigned	LAS	Yes					Bimonthly	

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
01N22W19A01S	Municipal	Hueneme	LAS	Yes					Bimonthly	
01N22W20J04S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N22W20J05S	Monitoring	Hueneme	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N22W20J06S	Monitoring	Mugu–Hueneme	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N22W20J07S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N22W20J08S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N22W20M01S	Monitoring	FCA	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W20M02S	Monitoring	Hueneme	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W20M03S	Monitoring	Hueneme	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W20M04S	Monitoring	Mugu	UAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W20M05S	Monitoring	Oxnard	UAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W20M06S	Monitoring	Semi-Perched	Semi-Perched	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W21B03S	Municipal	Multiple	LAS	Yes					Bimonthly	
01N22W21B06S	Municipal	Multiple	LAS	Yes					Bimonthly	
01N22W24B04S	Agricultural	Multiple	LAS	Yes					Bimonthly	
01N22W24C02S	Agricultural	Multiple	UAS	Yes					Bimonthly	
01N22W24M03S	Agricultural	Unassigned	Both	Yes					Bimonthly	
01N22W26J03S	Monitoring	Mugu	UAS	Yes				Yes	Bimonthly	Quarterly
01N22W26J04S	Monitoring	Oxnard	UAS	Yes				Yes	Bimonthly	Quarterly
01N22W26J05S	Monitoring	Semi-Perched	Semi-Perched	Yes				Yes	Bimonthly	Quarterly
01N22W27C02S	Monitoring	Mugu	UAS	Yes				Yes	Bimonthly	Quarterly

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
01N22W27C03S	Monitoring	Oxnard	UAS	Yes				Yes	Bimonthly	Quarterly
01N22W27C04S	Monitoring	Semi-Perched	Semi-Perched	Yes				Yes	Bimonthly	Quarterly
01N22W27R03S	Monitoring	Mugu	UAS	Yes				Yes	Bimonthly	Quarterly
01N22W27R04S	Monitoring	Oxnard	UAS	Yes				Yes	Bimonthly	Quarterly
01N22W27R05S	Monitoring	Oxnard	UAS	Yes				Yes	Bimonthly	Quarterly
01N22W28G01S	Monitoring	GCA	LAS	Yes	Yes			Yes	Monthly	Quarterly
01N22W28G02S	Monitoring	FCA	LAS	Yes	Yes			Yes	Monthly	Quarterly
01N22W28G03S	Monitoring	Hueneme	LAS	Yes	Yes			Yes	Monthly	Quarterly
01N22W28G04S	Monitoring	Oxnard	UAS	Yes	Yes			Yes	Monthly	Quarterly
01N22W28G05S	Monitoring	Oxnard	UAS	Yes	Yes			Yes	Monthly	Quarterly
01N22W29D01S	Monitoring	FCA	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W29D02S	Monitoring	Hueneme	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W29D03S	Monitoring	Hueneme	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W29D04S	Monitoring	Mugu	UAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W35E01S	Monitoring	GCA	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W35E02S	Monitoring	FCA	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W35E03S	Monitoring	FCA	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W35E04S	Monitoring	Mugu	UAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W35E05S	Monitoring	Oxnard	UAS	Yes		Yes		Yes	Bimonthly	Quarterly
01N22W36K05S	Monitoring	GCA	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N22W36K06S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N22W36K07S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N22W36K08S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
01N22W36K09S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N23W01C02S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N23W01C03S	Monitoring	Hueneme	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N23W01C04S	Monitoring	Hueneme	LAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01N23W01C05S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Quarterly
01S21W08L03S	Monitoring	GCA	LAS	Yes		Yes		Yes	Bimonthly	Quarterly
01S21W08L04S	Monitoring	Oxnard	UAS	Yes		Yes		Yes	Bimonthly	Quarterly
01S22W01H01S	Monitoring	Multiple	LAS					Yes		Quarterly
01S22W01H02S	Monitoring	FCA	LAS					Yes		Quarterly
01S22W01H03S	Monitoring	Mugu	UAS					Yes		Quarterly
01S22W01H04S	Monitoring	Oxnard	UAS					Yes		Quarterly
02N21W06P01S	Agricultural	Multiple	Unassigned	Yes					Bimonthly	
02N21W07F01S	Agricultural	Multiple	UAS	Yes					Bimonthly	
02N21W07L03S	Monitoring	Multiple	Unassigned	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N21W07L04S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N21W07L05S	Monitoring	Multiple	Unassigned	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N21W07L06S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N21W07L07S	Municipal	Multiple	UAS				Yes		Bimonthly	
02N21W07M04S	Municipal	Multiple	UAS				Yes		Bimonthly	Twice yearly
02N21W07N02S	Agricultural	Multiple	LAS	Yes					Bimonthly	
02N21W07P03S	Agricultural	Multiple	LAS	Yes					Bimonthly	
02N21W07P04S	Agricultural	Multiple	LAS	Yes					Bimonthly	
02N21W07Q01S	Agricultural	Multiple	LAS			Yes				

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
02N21W07R01S	Monitoring	Multiple	LAS	Yes					Bimonthly	
02N21W08D01S	Monitoring	Multiple	Unassigned	Yes					Bimonthly	
02N21W16J03S	Agricultural	Multiple	LAS	Yes					Bimonthly	
02N21W17F05S	Agricultural	FCA	LAS	Yes					Bimonthly	
02N21W18B01S	Agricultural	Multiple	UAS	Yes				Yes	Bimonthly	Twice yearly
02N21W19P01S	Agricultural	Multiple	LAS	Yes	Yes				Bimonthly	
02N21W20A02S	Agricultural	Unassigned	Unassigned	Yes					Bimonthly	
02N21W22G01S	Municipal	GCA	LAS	Yes					Bimonthly	
02N21W28A02S	Municipal	GCA	LAS	Yes					Bimonthly	
02N21W29L04S	Agricultural	Multiple	LAS	Yes	Yes				Monthly	
02N21W29M02S	Agricultural	Unassigned	Unassigned	Yes	Yes				Monthly	
02N21W30A01S	Agricultural	Unassigned	LAS	Yes	Yes				Monthly	
02N21W31P06S	Agricultural	Hueneme	LAS	Yes					Bimonthly	
02N21W32E01S	Agricultural	Multiple	LAS				Yes		Quarterly	
02N21W34G02S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N21W34G03S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N21W34G04S	Monitoring	Hueneme	LAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N21W34G05S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N21W34G06S	Monitoring	Unassigned	Unassigned	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W01P02S		Oxnard	UAS			Yes		Yes	Quarterly	
02N22W01R02S	Monitoring	Multiple	Unassigned			Yes		Yes	Quarterly	Twice yearly
02N22W02R05S	Agriculture	Multiple	Both	Yes					Bimonthly	
02N22W11G01S		Oxnard	UAS			Yes		Yes	Quarterly	

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
02N22W11J01S	Monitoring	Multiple	Unassigned	Yes		Yes		Yes	Bimonthly	Twice yearly
02N22W11J02S	Monitoring	Oxnard	UAS			Yes		Yes	Quarterly	Twice yearly
02N22W11Q01S	Monitoring	Oxnard	UAS	Yes		Yes		Yes	Bimonthly	Twice yearly
02N22W12A01S	Monitoring	Oxnard	UAS	Yes		Yes			Bimonthly	
02N22W12A02S	Agricultural	Oxnard	UAS	Yes					Bimonthly	
02N22W12B08S	Agricultural	Multiple	UAS	Yes		Yes			Bimonthly	
02N22W12E04S	Industrial	Multiple	Both			Yes			Quarterly	
02N22W12F03S	Monitoring	Oxnard	UAS			Yes		Yes	Quarterly	Twice yearly
02N22W12F04S	Monitoring	Oxnard	UAS			Yes		Yes	Quarterly	Twice yearly
02N22W12G03S	Industrial	Oxnard	UAS	Yes					Bimonthly	
02N22W12H01S	Municipal	Multiple	UAS				Yes		Quarterly	
02N22W12J02S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W12J04S	Municipal	Multiple	UAS				Yes		Quarterly	
02N22W12K05S	Industrial	Unassigned	UAS			Yes			Quarterly	
02N22W12N03S	Agricultural	Hueneme	LAS	Yes					Bimonthly	
02N22W12Q06S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W12R03S	Agricultural	Multiple	Both	Yes					Bimonthly	
02N22W12R04S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W12R05S	Agricultural	Unassigned	Both	Yes					Bimonthly	
02N22W13C01S	Monitoring	Oxnard	UAS			Yes		Yes	Quarterly	Twice yearly
02N22W13N02S	Municipal	Multiple	LAS				Yes		Quarterly	
02N22W13N05S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W13N06S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
02N22W13N07S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W14A09S	Monitoring	Oxnard	UAS	Yes		Yes		Yes	Bimonthly	Twice yearly
02N22W14B01S	Agricultural	Multiple	LAS	Yes	Yes				Monthly	
02N22W14D01S	Monitoring	Oxnard	UAS			Yes		Yes	Quarterly	Twice yearly
02N22W14F03S	Monitoring	Oxnard	UAS	Yes		Yes		Yes	Bimonthly	Twice yearly
02N22W14G04S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W14G05S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W14G06S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W14G07S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W14G08S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W14P02S	Municipal	Multiple	UAS				Yes		Quarterly	
02N22W14P03S	Municipal	Multiple	UAS	Yes				Yes	Bimonthly	
02N22W15L01S	Monitoring	Oxnard	UAS			Yes		Yes	Quarterly	Twice yearly
02N22W15P01S	Monitoring	Oxnard	UAS			Yes		Yes	Quarterly	Twice yearly
02N22W15R02S	Monitoring	Oxnard	UAS			Yes		Yes	Quarterly	Twice yearly
02N22W16R02S	Monitoring	Oxnard	UAS			Yes		Yes	Quarterly	Twice yearly
02N22W22Q05S	Municipal	Multiple	LAS	Yes	Yes				Monthly	
02N22W22R02S	Municipal	Multiple	Unassigned	Yes	Yes				Monthly	
02N22W23B02S	Municipal	Multiple	UAS				Yes		Quarterly	
02N22W23B03S	Monitoring	FCA	LAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W23B04S	Monitoring	Hueneme	LAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W23B05S	Monitoring	Hueneme	LAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W23B06S	Monitoring	Hueneme	LAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
02N22W23B07S	Monitoring	Mugu	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W23B08S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W23B09S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W23C02S	Municipal	Multiple	UAS				Yes		Quarterly	
02N22W23C05S	Agricultural	Multiple	UAS			Yes	Yes		Quarterly	
02N22W23C06S	Municipal	Unassigned	UAS				Yes		Quarterly	
02N22W23D06S	Agricultural	Multiple	UAS	Yes					Bimonthly	
02N22W23G03S	Municipal	Multiple	UAS				Yes		Quarterly	
02N22W23G04S	Municipal	Multiple	UAS				Yes		Quarterly	
02N22W23H04S	Municipal	Multiple	LAS				Yes		Quarterly	
02N22W23H06S	Monitoring	Oxnard	UAS	Yes	Yes	Yes		Yes	Monthly	Twice yearly
02N22W23K05S	Municipal	Multiple	UAS				Yes		Quarterly	
02N22W24A01S	Agricultural	Multiple	UAS	Yes				Yes	Bimonthly	Twice yearly
02N22W24P02S	Agricultural	Multiple	LAS	Yes					Bimonthly	
02N22W25J01S	Municipal	Multiple	LAS	Yes					Bimonthly	
02N22W25L03S	Municipal	Multiple	UAS			Yes			Quarterly	
02N22W26B03S	Municipal	Hueneme	LAS				Yes		Quarterly	
02N22W26E01S	Municipal	Multiple	UAS					Yes		Twice yearly
02N22W26H02S	Agricultural	Multiple	LAS	Yes					Bimonthly	
02N22W27A02S	Municipal	Unassigned	Unassigned					Yes		Twice yearly
02N22W27A03S	Municipal	Unassigned	Unassigned					Yes		Twice yearly
02N22W27K01S	Municipal	Unassigned	UAS					Yes		Twice yearly
02N22W27L01S	Municipal	Unassigned	UAS					Yes		Twice yearly

Table 4-4
UWCD Monitoring Schedule of Wells in the Oxnard Subbasin

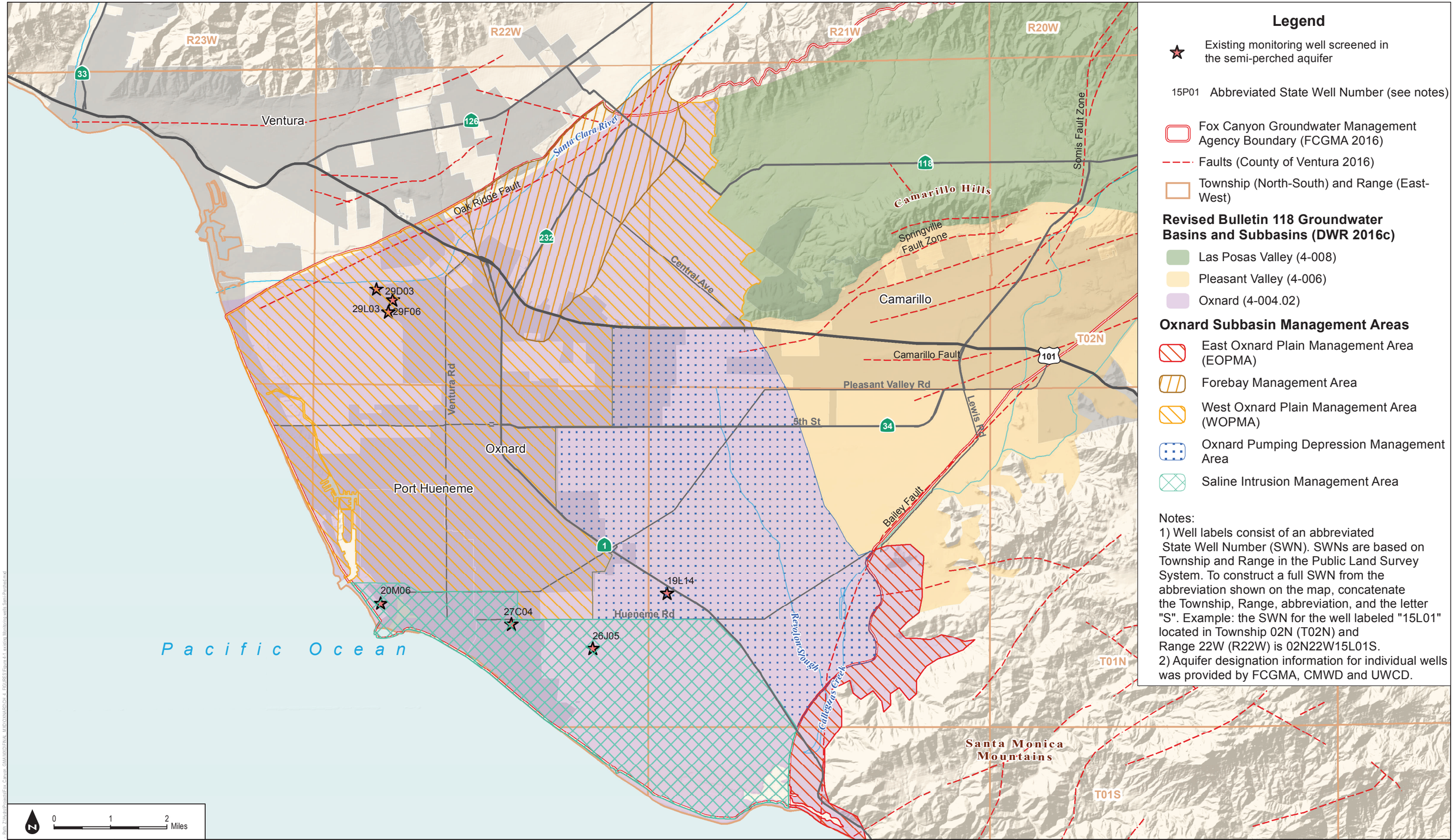
State Well Number (SWN)	Main Use	Screened Aquifer	Screened Aquifer System	Manual Water Levels Monitored Bimonthly[a]	Manual Water Levels Monitored Monthly[a]	Standard Transducer and Manual Water Level[a]	O&M Transducer and Manual Water Level[a]	Water Quality Samples Collected Monthly or Quarterly[a]	Water Level Sampling Schedule after GSP Adoption[a,b]	Water Quality Sampling Schedule after GSP Adoption[a]
02N22W27M02S	Municipal	Unassigned	UAS					Yes		Twice yearly
02N22W28H02S	Domestic	Unassigned	UAS					Yes		Twice yearly
02N22W30K01S	Agricultural	Oxnard	UAS	Yes					Bimonthly	
02N22W31A01S	Agricultural	Multiple	Unassigned			Yes			Quarterly	
02N22W32C04S	Agricultural	Multiple	UAS	Yes					Bimonthly	
02N22W36E04S	Monitoring	Hueneme	LAS						Twice yearly	
02N22W36E05S	Monitoring	Mugu	UAS						Twice yearly	
02N22W36E06S	Monitoring	Oxnard	UAS			Yes			Twice yearly	
02N22W36E07S	Monitoring	Mugu	UAS			Yes			Twice yearly	
02N22W36E08S	Monitoring	Hueneme	LAS			Yes			Twice yearly	
02N22W36M02S	Monitoring	Unassigned	Unassigned	Yes						

Notes: FCA = Fox Canyon Aquifer; GCA = Grimes Canyon Aquifer; GSP = Groundwater Sustainability Plan; LAS = Lower Aquifer System; O&M = operations and maintenance; UAS = Upper Aquifer System; UWCD = United Water Conservation District.

[a] As of October 2017.

[b] Although sometimes used to mean twice a month (i.e., semimonthly), *bimonthly* as used here means once every 2 months.

INTENTIONALLY LEFT BLANK



Legend

- Existing monitoring well screened in the semi-perched aquifer
- 15P01 Abbreviated State Well Number (see notes)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Oxnard Subbasin Management Areas

- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

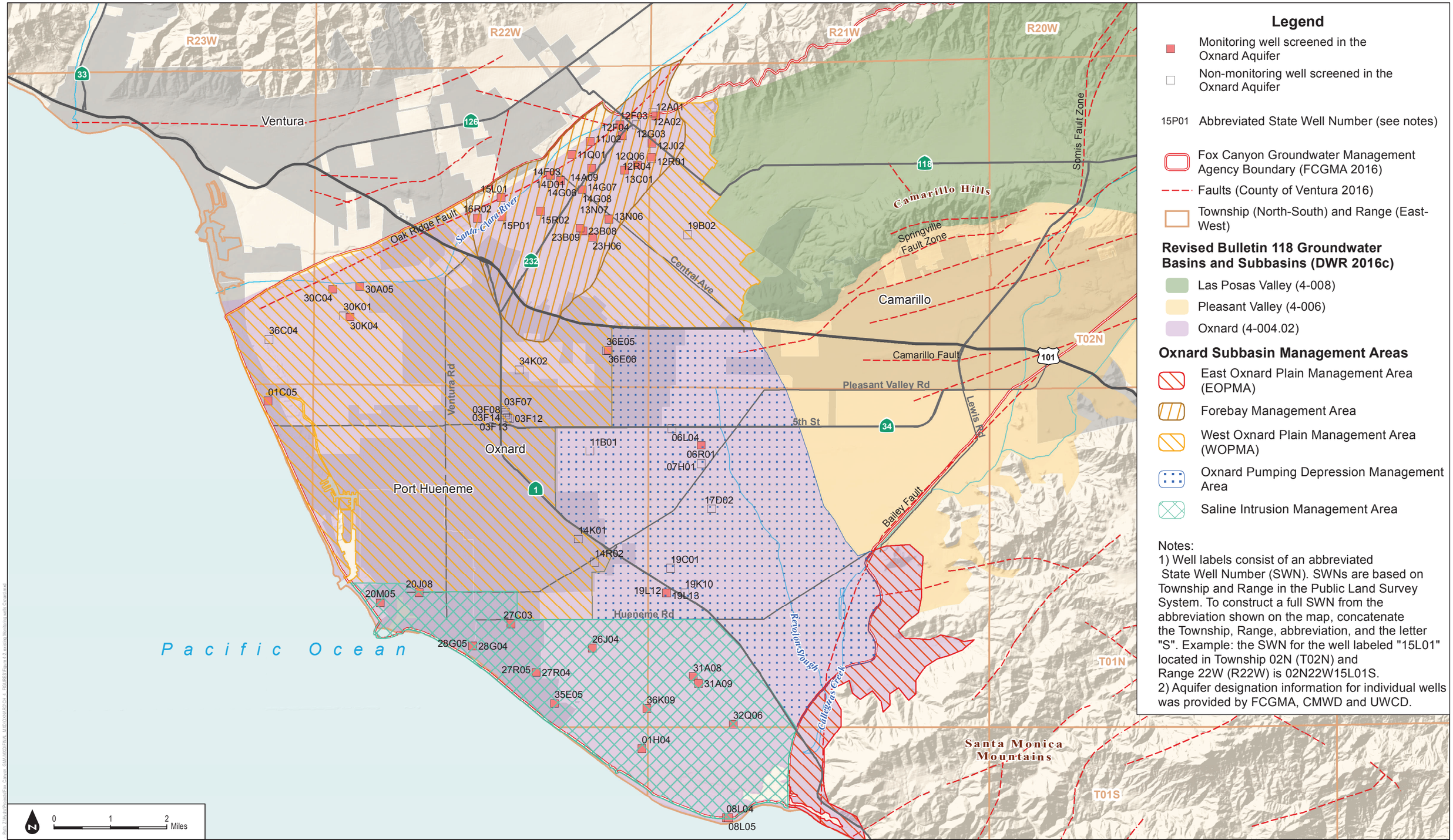
DUDEK

FIGURE 4-1

Monitoring Wells Screened in the Semi-Perched Aquifer in the Oxnard Subbasin

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Monitoring well screened in the Oxnard Aquifer
- Non-monitoring well screened in the Oxnard Aquifer
- 15P01 Abbreviated State Well Number (see notes)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Oxnard Subbasin Management Areas

- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

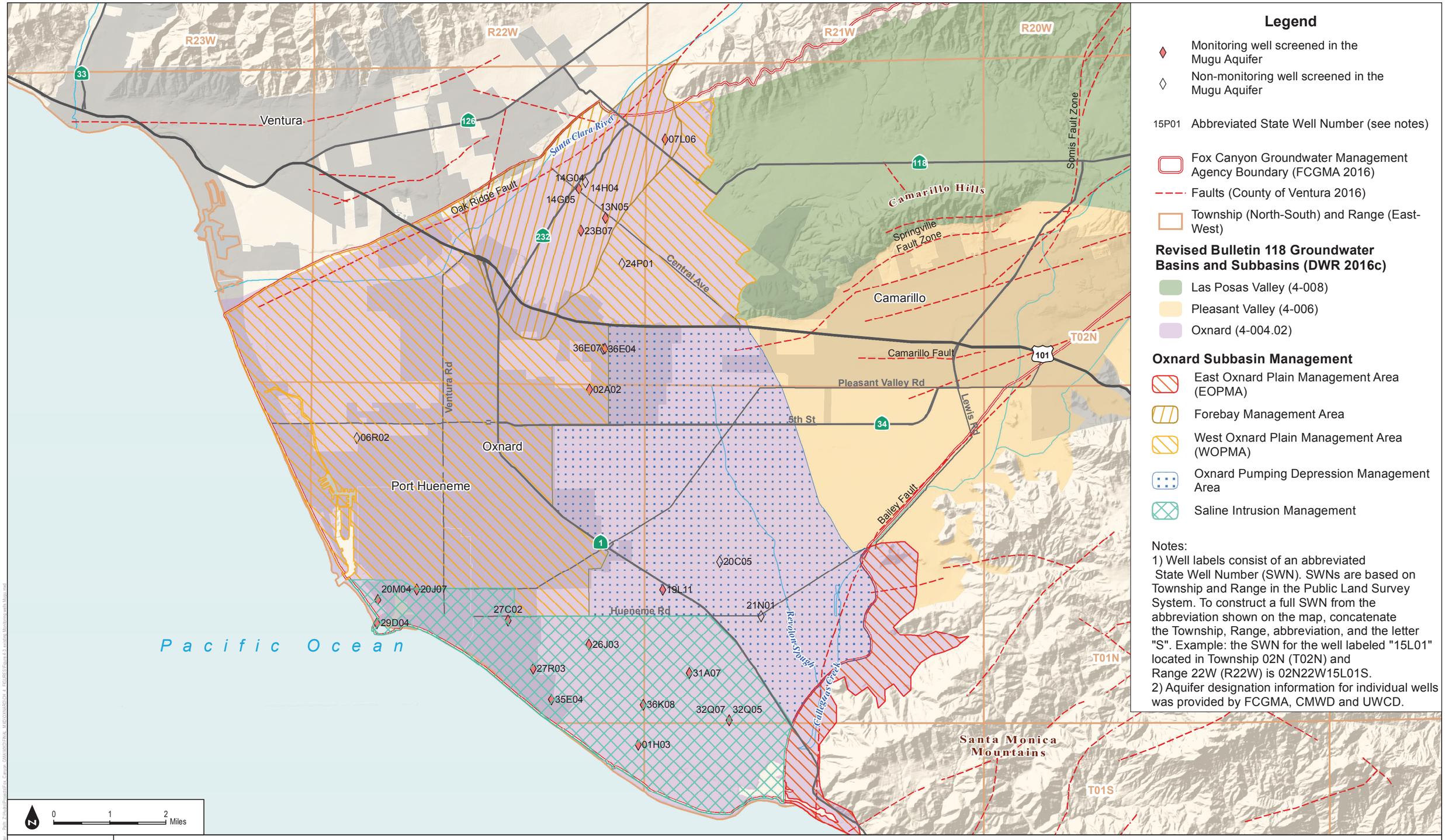
FIGURE 4-2

Monitoring Wells Screened in the Oxnard Aquifer in the Oxnard Subbasin

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Monitoring well screened in the Mugu Aquifer
- Non-monitoring well screened in the Mugu Aquifer
- 15P01 Abbreviated State Well Number (see notes)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Oxnard Subbasin Management

- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

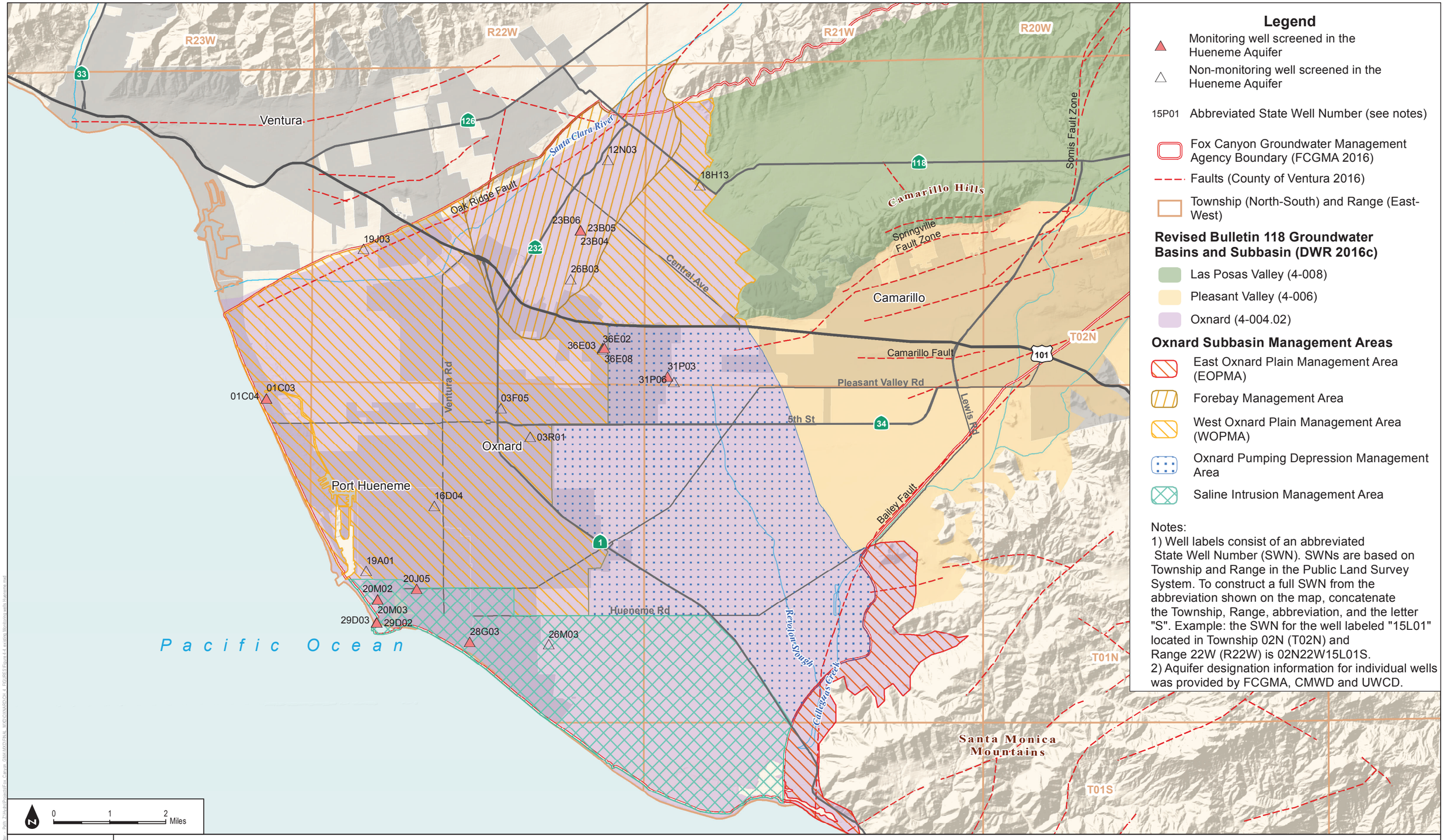
FIGURE 4-3

Monitoring Wells Screened in the Mugu Aquifer in the Oxnard Subbasin

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Monitoring well screened in the Hueneme Aquifer
- Non-monitoring well screened in the Hueneme Aquifer
- 15P01 Abbreviated State Well Number (see notes)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2016c)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Oxnard Subbasin Management Areas

- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

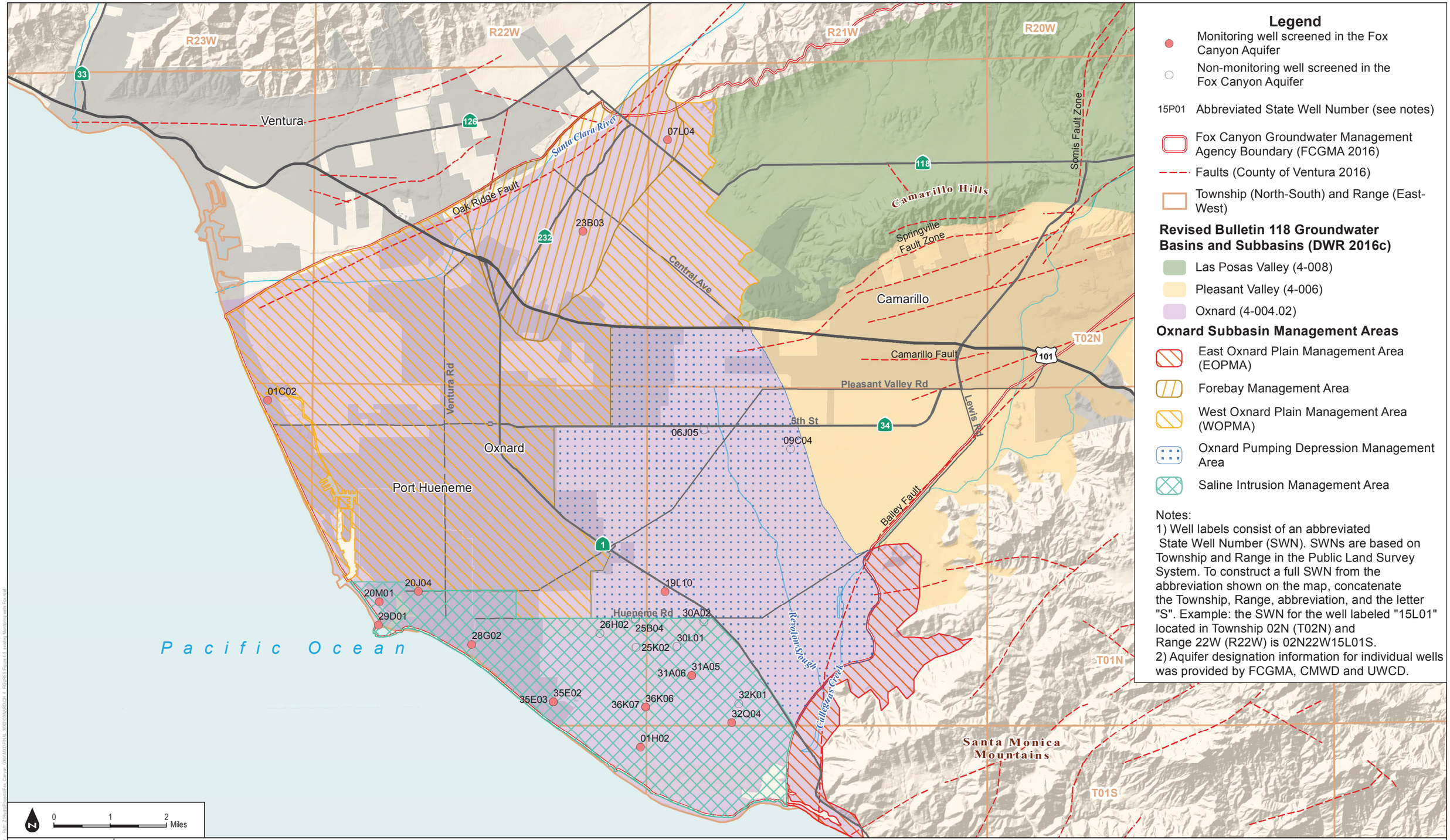
DUDEK

FIGURE 4-4

Monitoring Wells Screened in the Hueneme Aquifer in the Oxnard Subbasin

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Monitoring well screened in the Fox Canyon Aquifer
- Non-monitoring well screened in the Fox Canyon Aquifer
- 15P01 Abbreviated State Well Number (see notes)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Oxnard Subbasin Management Areas

- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

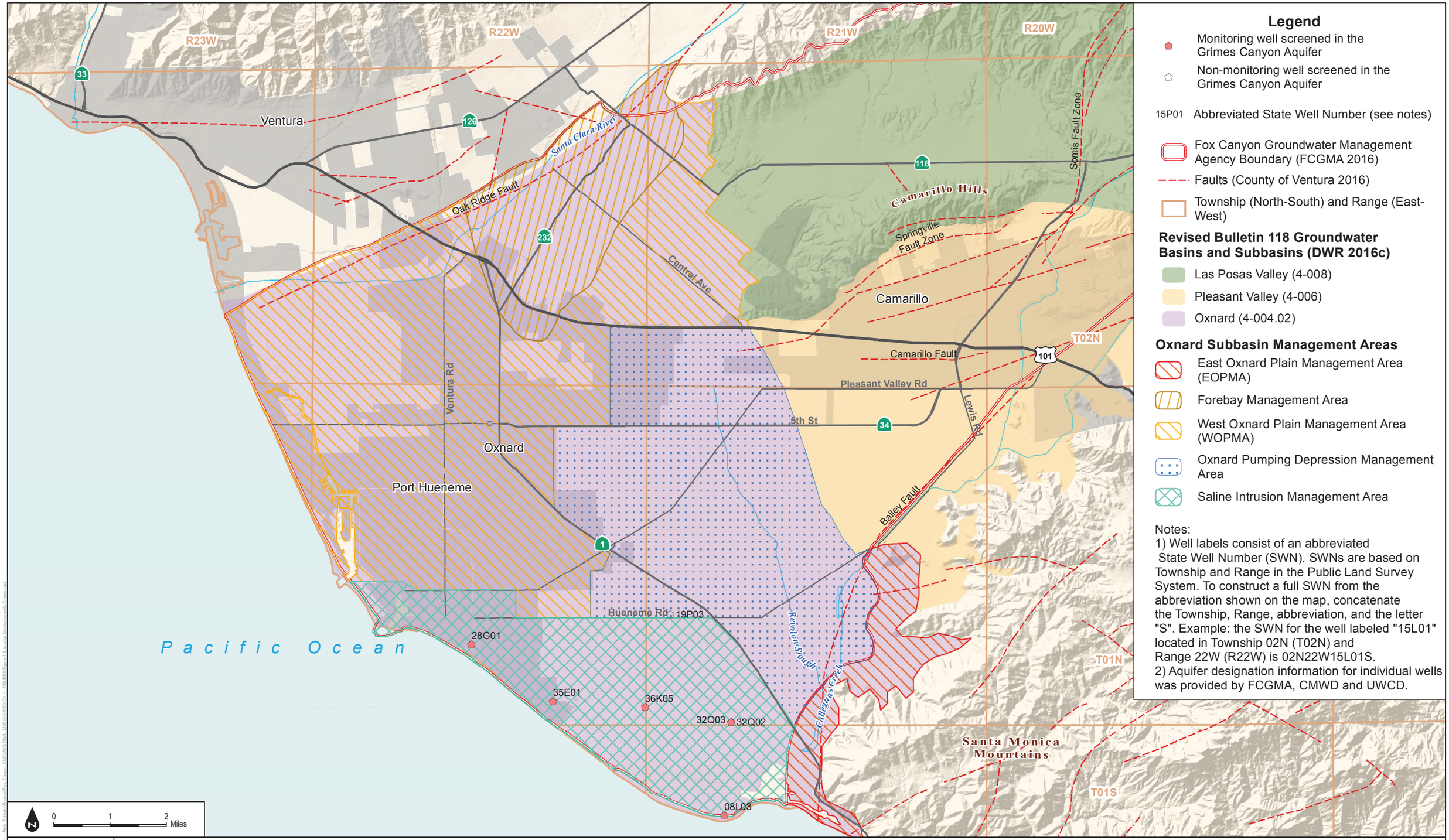
FIGURE 4-5

Monitoring Wells Screened in the Fox Canyon Aquifer in the Oxnard Subbasin

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

- Monitoring well screened in the Grimes Canyon Aquifer
- Non-monitoring well screened in the Grimes Canyon Aquifer
- 15P01 Abbreviated State Well Number (see notes)
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)
- Faults (County of Ventura 2016)
- Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Oxnard Subbasin Management Areas

- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

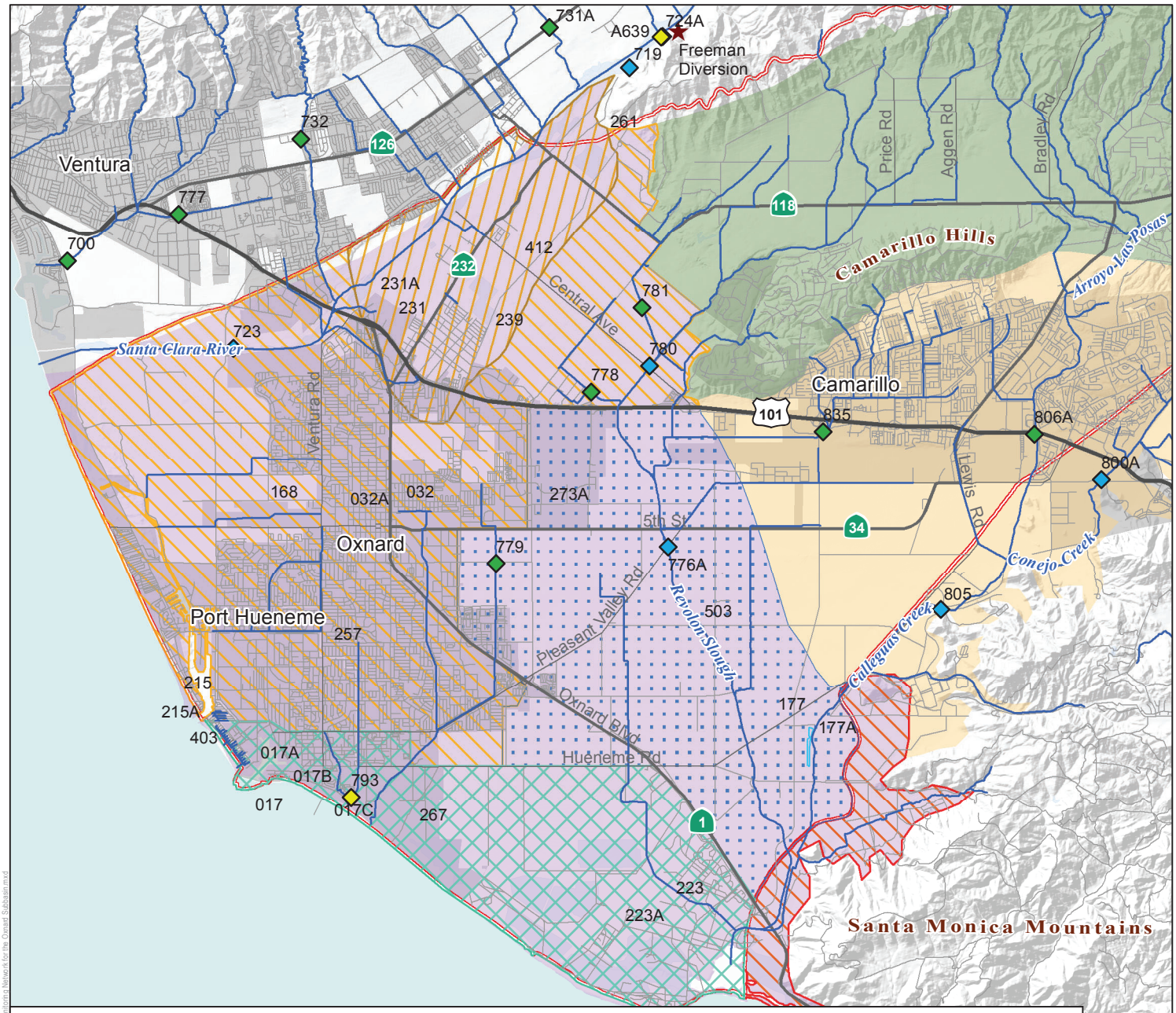
DUDEK

FIGURE 4-6

Monitoring Wells Screened in the Grimes Canyon Aquifer in the Oxnard Subbasin

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Ventura County Gauge Locations (VCWPD 2016; labeled by station number)

- Recording Stream Gauge
- Peak Only (Event) Site
- ALERT Stream Gauge
- Ventura County Rivers, Streams and Channels (VCWPD 2016)
- Freeman Diversion

Oxnard Subbasin Management Areas

- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management
- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

N

0 0.5 1 2 3 Miles

SOURCE: DWR; County of Ventura; VCWPD

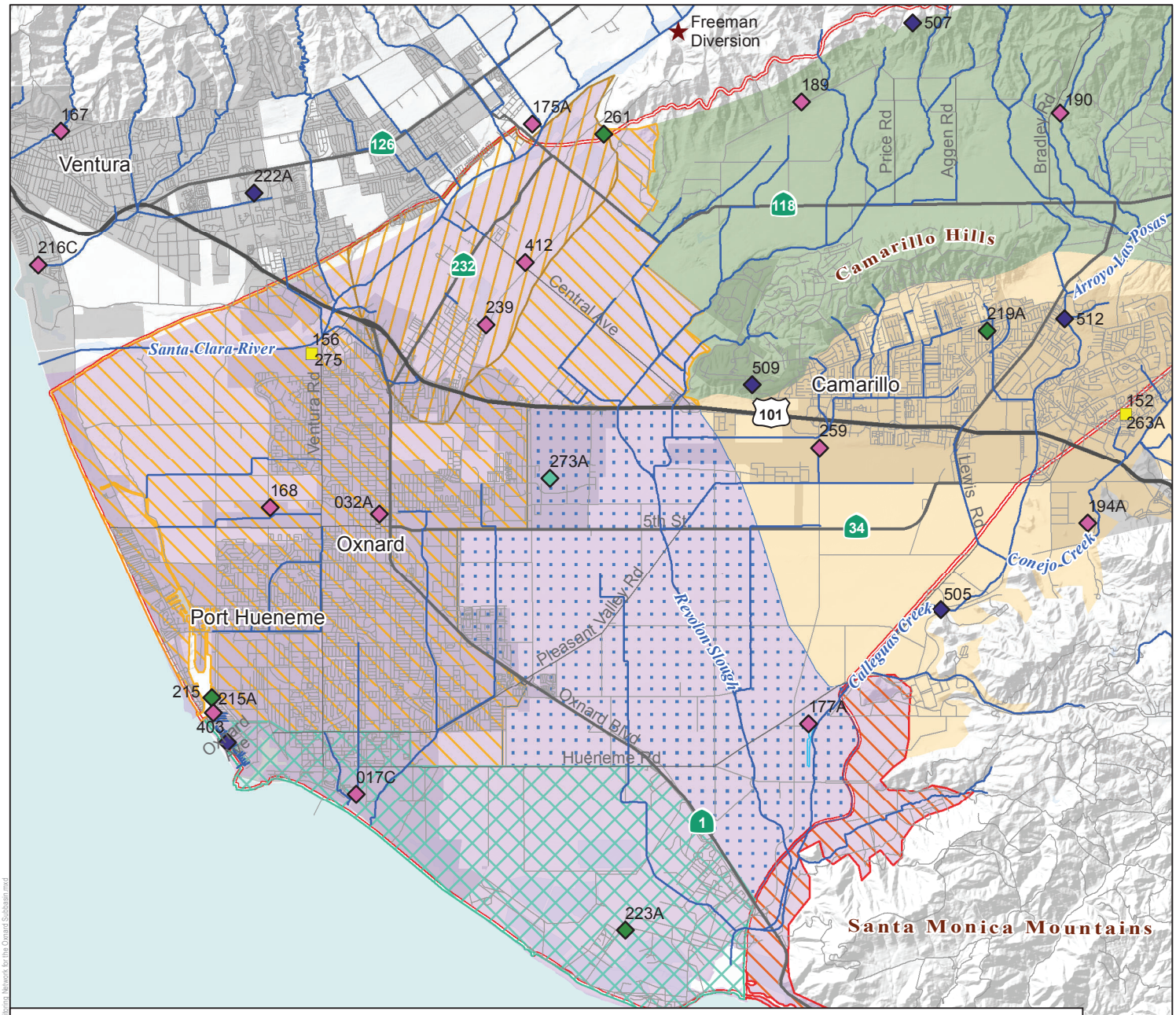
FIGURE 4-7

Active Surface Water Monitoring Network for the Oxnard Subbasin

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Ventura County Gauge Locations (VCWPD 2016; labeled by station number)

- Recording Precipitation Gauge
- Standard Precipitation
- Storage Precipitation
- Non-Standard Recorder
- ALERT Precipitation Gauge
- Storage Precip & ALERT
- National Weather Service Site
- Ventura County Rivers, Streams and Channels (VCWPD 2016)
- Freeman Diversion
- CIMIS Stations

- Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Oxnard Subbasin Management Areas

- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

N

0 0.5 1 2 3 Miles

DUDEK

SOURCE: DWR; County of Ventura; VCWPD

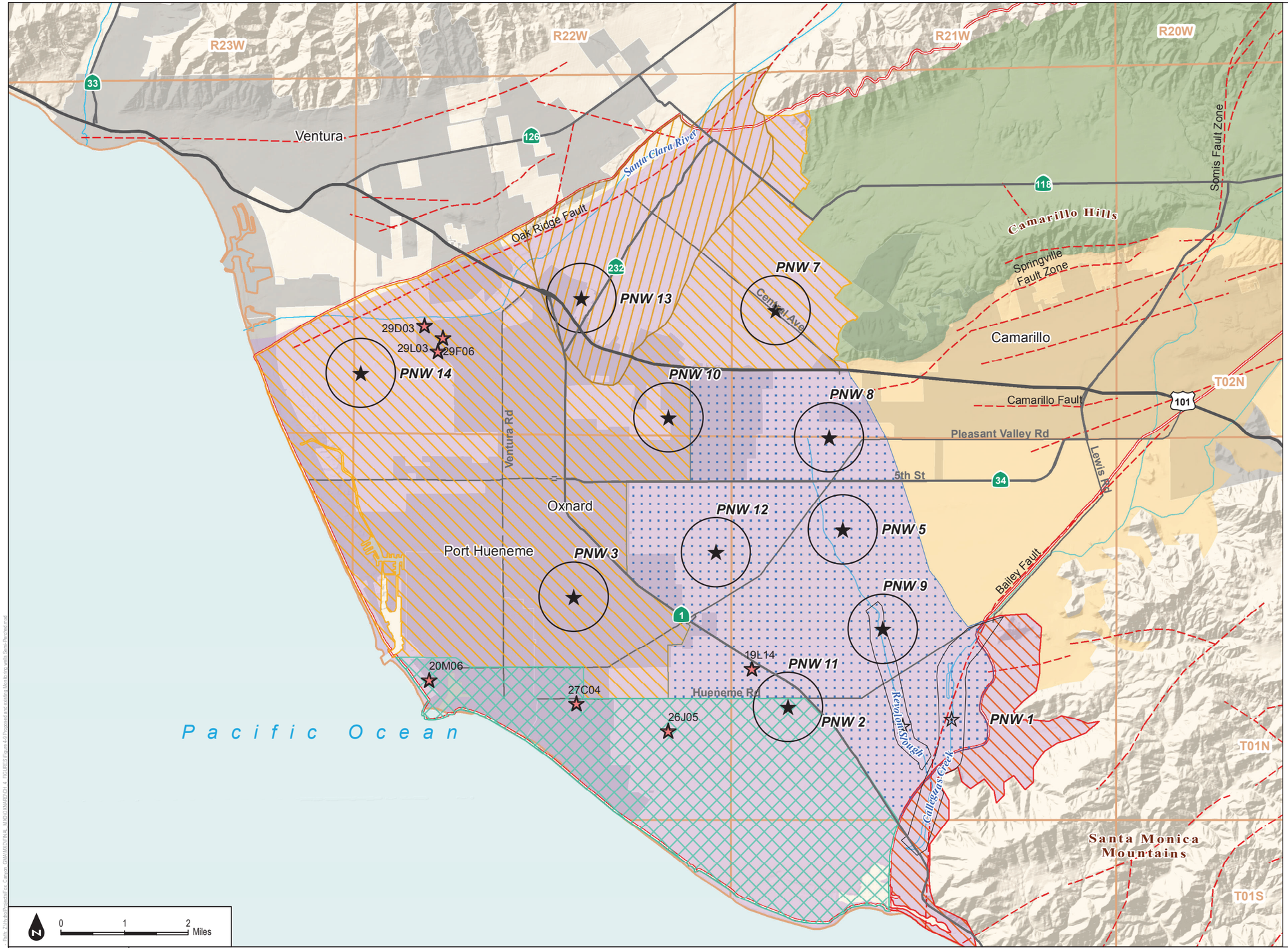
FIGURE 4-8

Active Precipitation Monitoring Network for the Oxnard Subbasin

Groundwater Sustainability Plan for the Oxnard Subbasin

Date: 6/3/2019 - Last saved by cvillalo - Path: Z:\Hydro\Projects\Fox Canyon GMA\MXD\FINAL MXD\OXNARD\Ch 4. FIGURES\Figure 4-8 Active Precipitation Monitoring Network for the Oxnard Subbasin.mxd

INTENTIONALLY LEFT BLANK



Legend

Potential well screened in the semi-perched aquifer (nested cluster)

Potential well screened in the semi-perched aquifer (GDE Monitoring)

Existing monitoring well screened in the semi-perched aquifer

15P01 Abbreviated State Well Number (see notes)

PNW 1 Potential New Well and location number

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (County of Ventura 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

Las Posas Valley (4-008)

Pleasant Valley (4-006)

Oxnard (4-004.02)

Oxnard Subbasin Management Areas

East Oxnard Plain Management Area (EOPMA)

Forebay Management Area

West Oxnard Plain Management Area (WOPMA)

Oxnard Pumping Depression Management Area

Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

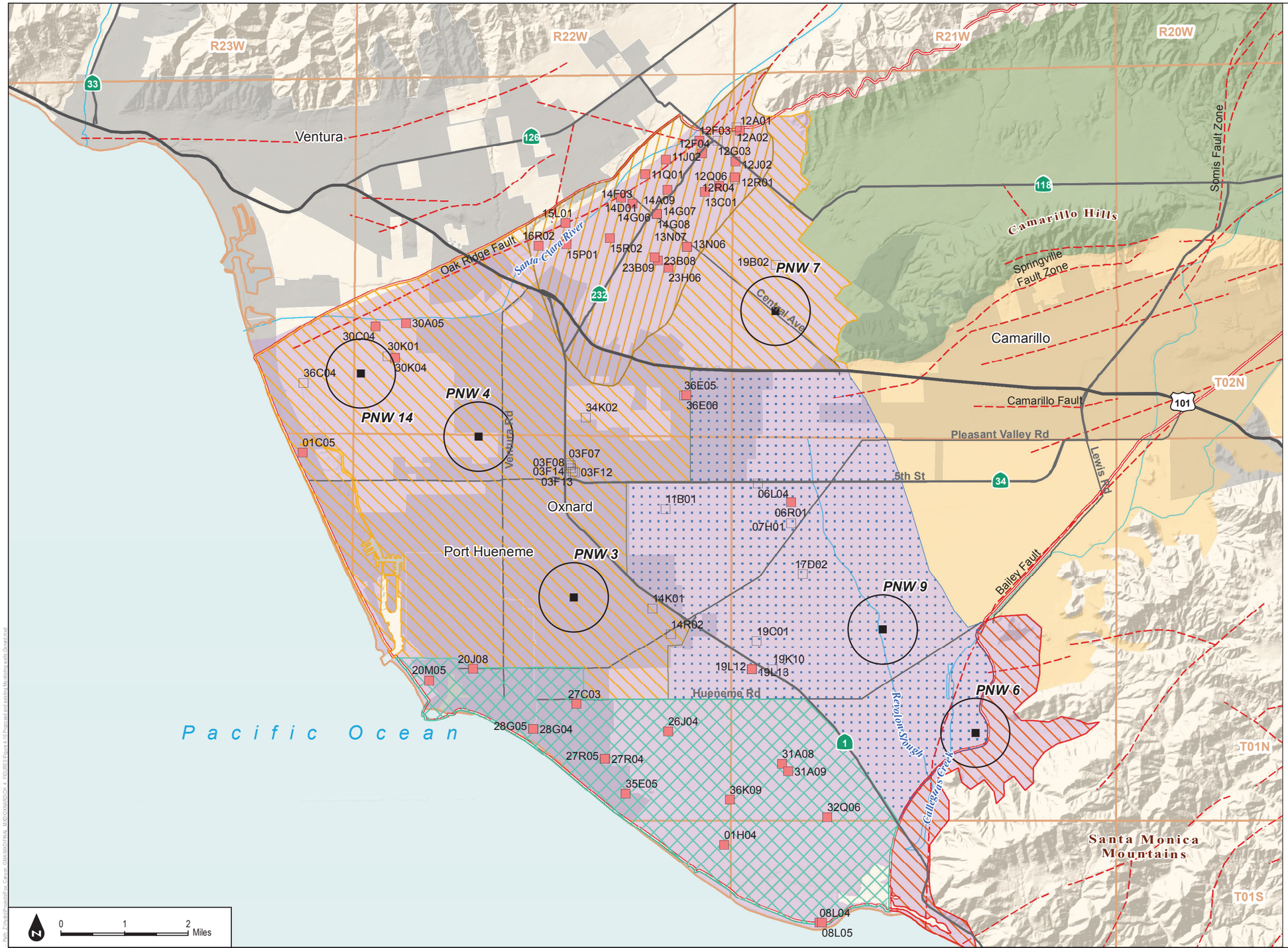
FIGURE 4-9

Existing and Potential New Wells For Monitoring Groundwater Conditions in the Semi-Perched Aquifer

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

Installation target for potential new well screened in the Oxnard Aquifer

Monitoring well screened in the Oxnard Aquifer

Non-monitoring well screened in the Oxnard Aquifer

15P01 Abbreviated State Well Number (see notes)

PNW 1 Potential New Well and location number

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (County of Ventura 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

Las Posas Valley (4-008)

Pleasant Valley (4-006)

Oxnard (4-004.02)

Oxnard Subbasin Management Areas

East Oxnard Plain Management Area (EOPMA)

Forebay Management Area

West Oxnard Plain Management Area (WOPMA)

Oxnard Pumping Depression Management Area

Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

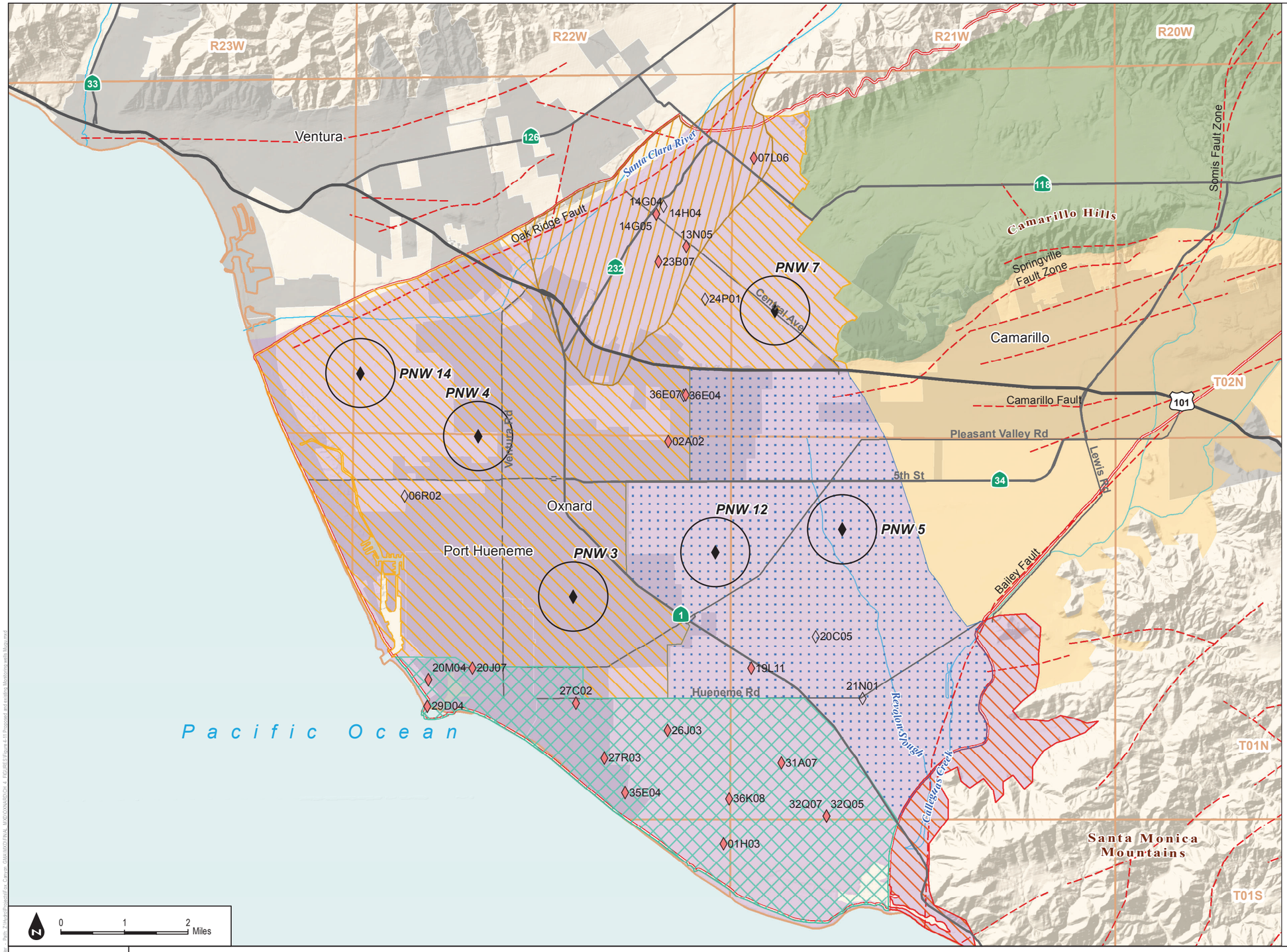
FIGURE 4-10

Existing and Potential New Wells For Monitoring Groundwater Conditions in the Oxnard Aquifer

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

Installation target for potential well screened in the Mugu Aquifer

Monitoring well screened in the Mugu Aquifer

Non-monitoring well screened in the Mugu Aquifer

15P01 Abbreviated State Well Number (see notes)

PNW 1 Potential New Well and location number

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (County of Ventura 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Oxnard Subbasin Management Areas

- East Oxnard Plain Management Area (EOPMA)
- Forebay Management Area
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

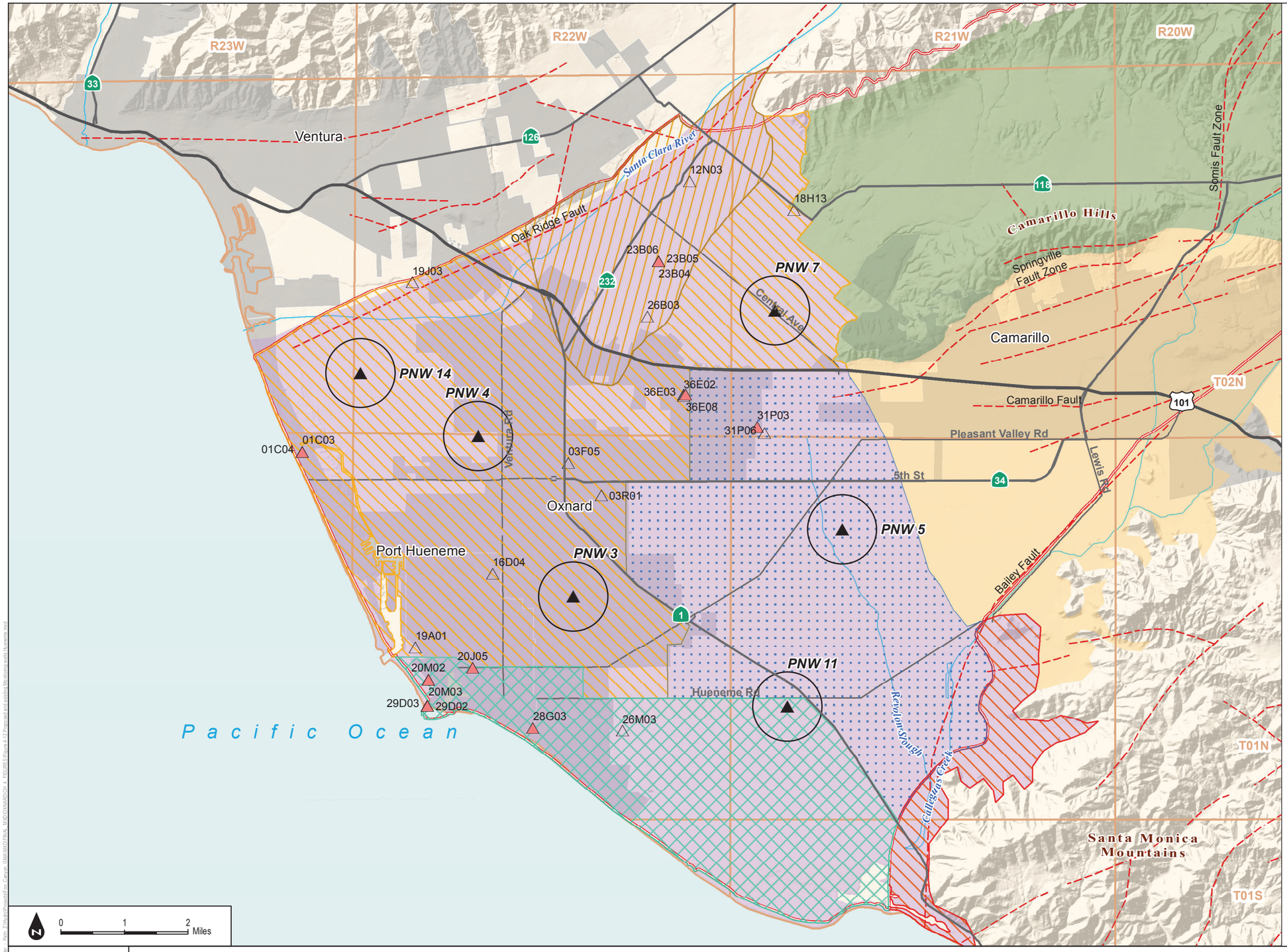
SOURCE: DWR; County of Ventura; UWCD; CMWD

FIGURE 4-11

Existing and Potential New Wells For Monitoring Groundwater Conditions in the Mugu Aquifer

DUDEK

INTENTIONALLY LEFT BLANK



Legend

Installation target for potential well screened in the Hueneme Aquifer

Monitoring well screened in the Hueneme Aquifer

Non-monitoring well screened in the Hueneme Aquifer

15P01 Abbreviated State Well Number (see notes)

PNW 1 Potential New Well and location number

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (County of Ventura 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

Las Posas Valley (4-008)

Pleasant Valley (4-006)

Oxnard (4-004.02)

Oxnard Subbasin Management Areas

East Oxnard Plain Management Area (EOPMA)

Forebay Management Area

West Oxnard Plain Management Area (WOPMA)

Oxnard Pumping Depression Management Area

Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

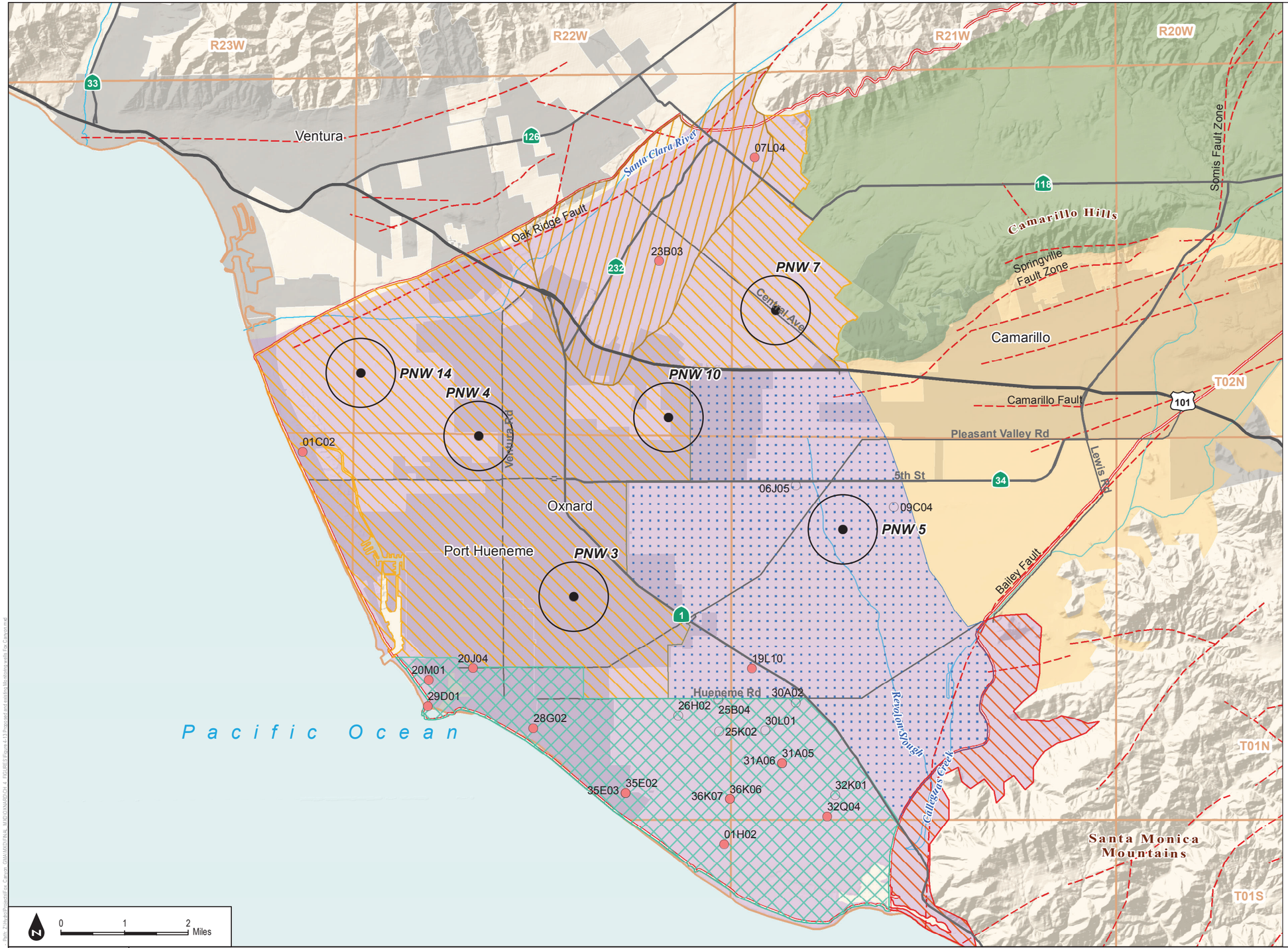
SOURCE: DWR; County of Ventura; UWCD; CMWD

FIGURE 4-12

Existing and Potential New Wells For Monitoring Groundwater Conditions in the Hueneme Aquifer

DUDEK

INTENTIONALLY LEFT BLANK



Legend

Installation target for potential well screened in the Fox Canyon Aquifer

Monitoring well screened in the Fox Canyon Aquifer

Non-monitoring well screened in the Fox Canyon Aquifer

15P01 Abbreviated State Well Number (see notes)

PNW 1 Potential New Well and location number

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (County of Ventura 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

Las Posas Valley (4-008)

Pleasant Valley (4-006)

Oxnard (4-004.02)

Oxnard Subbasin Management Areas

East Oxnard Plain Management Area (EOPMA)

Forebay Management Area

West Oxnard Plain Management Area (WOPMA)

Oxnard Pumping Depression Management Area

Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

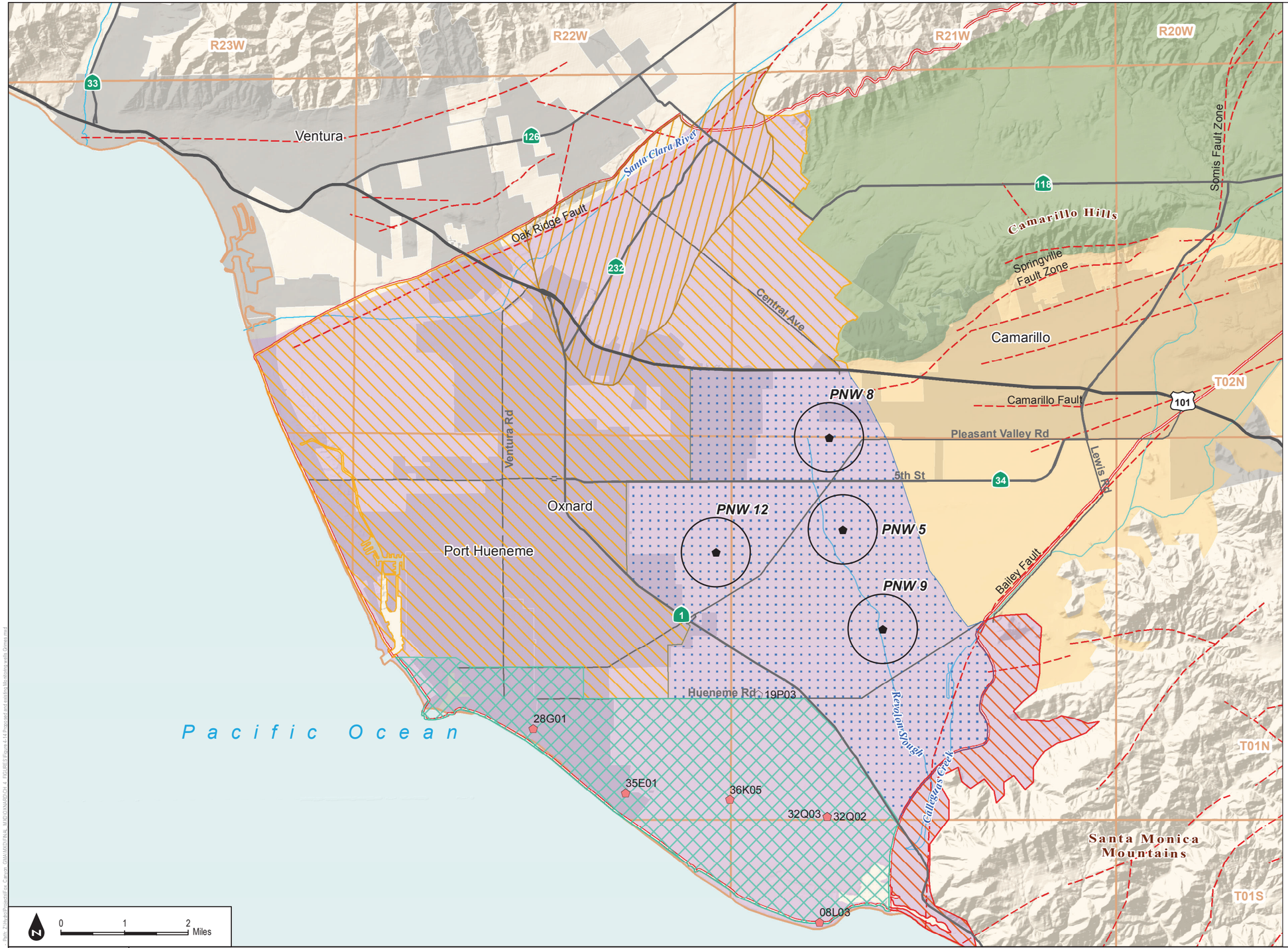
FIGURE 4-13

Existing and Potential New Wells For Monitoring Groundwater Conditions in the Fox Canyon Aquifer

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK



Legend

Potential installation target for proposed well screened in the Grimes Canyon Aquifer

Monitoring well screened in the Grimes Canyon Aquifer

Non-monitoring well screened in the Grimes Canyon Aquifer

15P01 Abbreviated State Well Number (see notes)

PNW 1 Potential New Well and location number

Fox Canyon Groundwater Management Agency Boundary (FCGMA 2016)

Faults (County of Ventura 2016)

Township (North-South) and Range (East-West)

Revised Bulletin 118 Groundwater Basins and Subbasins (DWR 2016c)

Las Posas Valley (4-008)

Pleasant Valley (4-006)

Oxnard (4-004.02)

Oxnard Subbasin Management Areas

East Oxnard Plain Management Area (EOPMA)

Forebay Management Area

West Oxnard Plain Management Area (WOPMA)

Oxnard Pumping Depression Management Area

Saline Intrusion Management Area

Notes:
1) Well labels consist of an abbreviated State Well Number (SWN). SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD.

SOURCE: DWR; County of Ventura; UWCD; CMWD

FIGURE 4-14

Existing and Potential New Wells For Monitoring Groundwater Conditions in the Grimes Canyon Aquifer

DUDEK

Groundwater Sustainability Plan for the Oxnard Subbasin

INTENTIONALLY LEFT BLANK

CHAPTER 5
PROJECTS AND MANAGEMENT ACTIONS

5.1 INTRODUCTION TO PROJECTS AND MANAGEMENT ACTIONS

Projects and management actions have been developed to meet the sustainability goal, measurable objectives, and undesirable results identified for the Oxnard Subbasin (Subbasin) in Chapter 3, Sustainability Management Criteria, of this Groundwater Sustainability Plan (GSP). Seawater intrusion in the aquifers of the Upper Aquifer System (UAS) and Lower Aquifer System (LAS) has been identified as the undesirable result that will impact beneficial uses of groundwater in the Subbasin.

To address potential impacts to beneficial uses and users of groundwater in the Subbasin resulting from groundwater production in excess of the current sustainable yield, several projects were developed for the Subbasin. The projects listed below were suggested by stakeholders, selected for inclusion in the GSP through a process by the Operations Committee of the Fox Canyon Groundwater Management Agency (FCGMA) Board of Directors (Board), and approved for inclusion in the GSP by the FCGMA Board. The criteria for including a project in the GSP included the following:

- Sufficient project information is available for evaluation and modeling.
- Project increases sustainable yield, or reduces groundwater demand.
- Project implementation is planned within 20 years.
- Project meets GSP Emergency Regulations Section 354.44 criteria.
- There is an agency proponent for the project.
- Funding for the project is identified.

In the Oxnard Subbasin, five projects were determined by the Operations Committee to meet the above criteria. These five projects were incorporated into the future model scenarios to the extent possible (see Section 2.4.5, Projected Future Water Budget and Sustainable Yield). The inclusion of these projects does not constitute a commitment by the FCGMA Board to construct or fund the projects, but rather signals that these projects were sufficiently detailed to be included in groundwater modeling efforts that examined the quantitative impacts of the projects on groundwater elevations and the sustainable yield of the Subbasin. As currently envisioned, the projects in this GSP would be implemented by the project proponent or sponsoring agency. However, FCGMA may opt to implement projects in the future as necessary to achieve sustainability in the Subbasin. Additionally, all projects undertaken in the Subbasin will need to be approved and permitted by all relevant regulatory agencies. These agencies may include, but are not limited to, the Regional Water Quality Control Board and the State Water Resources Control Board.

In addition to the projects discussed in this chapter, the FCGMA Board has the authority to implement management actions to ensure that the Subbasin does not experience undesirable results. The primary management action that can be implemented by the FCGMA Board is restrictions on groundwater production. This authority was granted to the FCGMA Board in the enabling legislation that formed the FCGMA, and this action has been undertaken in the past to eliminate overdraft.

As discussed in Chapter 2, Basin Setting, groundwater modeling was used to evaluate projected water budget conditions and potential impacts to beneficial uses and users of groundwater in the basin. Without the type of projects described below, substantially greater reductions in groundwater production will be needed to meet the sustainability goal for the basin, which would lead to significant economic disruption and prevent groundwater in the basin from being put to beneficial use to the fullest extent possible. It is anticipated, and recommended, that FCGMA will evaluate, model, and conduct feasibility studies of other projects for achieving sustainable groundwater management for the 5-year update to this GSP to optimize basin management and minimize extraction restrictions.

5.2 PROJECT NO. 1 – GREAT PROGRAM ADVANCED WATER PURIFICATION FACILITY

5.2.1 Description of Project No. 1

The Groundwater Recovery Enhancement and Treatment (GREAT) Program's Advanced Water Purification Facility (AWPF) is part of the City of Oxnard's GREAT Program, which focuses on using existing water resources more efficiently. The AWPF provides the City of Oxnard with a source of reclaimed water 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 and produce 6.25 mgd of product water for reclaimed water uses. This is equivalent to 7,000 acre-feet per year (AFY) of product water that can be delivered through existing infrastructure. The AWPF is currently producing up to 4,600 AFY. Advanced purified water was first delivered to agricultural operators in 2016. The portion of the project that is being considered for inclusion in GSP is the additional water that is being purchased by FCGMA to reduce groundwater extractions for which no Recycled Water Pumping Allocation is issued.

5.2.2 Relationship of Project No. 1 to Sustainability Criteria

GREAT Program AWPF Project water was included in future groundwater modeling scenarios to examine the impact that the project may have on the sustainability criteria. This project was incorporated in the modeling along with the expansion of the GREAT Program AWPF (see Section 5.3, Project No. 2 – GREAT Program Advanced Water Purification Facility Expansion Project)

and the temporary fallowing of agricultural land (see Section 5.6, Project No. 5 – Temporary Agricultural Land Fallowing Project). Therefore, the relationship between the impact of this project alone and the sustainability indicators has not been quantified. Rather, the potential effect of this project in the context of all three of these projects is presented in this discussion.

Relationship to Minimum Thresholds

The minimum thresholds for both the UAS and the LAS in the Oxnard Subbasin are higher than the historical low water levels and the spring 2015 water levels (see Chapter 3). In the UAS, the minimum thresholds are approximately 41 feet higher than historical low water levels and 25 feet higher than spring 2015 water levels. In the LAS, the minimum thresholds are approximately 70 feet higher than historical low water levels, and 38 feet higher than spring 2015 water levels.

The numerical groundwater model simulation of the Future Baseline With Projects scenario, which incorporates potential future projects including the GREAT Program AWPF Project, results in higher groundwater elevations than the Future Baseline scenario, which does not incorporate projects (see Section 2.4). Incorporation of the projects resulted in groundwater elevations at the end of the 50-year model simulation that were, on average, approximately 2 feet higher in the UAS and approximately 8 feet higher in the LAS. This suggests that the projects will assist with water level recovery in the Subbasin, a necessary first step to avoid exceedance of the minimum thresholds. Although implementation of the projects increases water levels in the Subbasin, these projects alone did not provide sufficient recycled water or redistribution of groundwater production to avoid exceedance of the minimum thresholds.

As modeled, the GREAT Program AWPF Project supplied approximately 4,600 AFY of recycled water to farmers in the vicinity of Hueneme Road (Chapter 2). This accounts for approximately half of the water delivered in the Future Baseline With Projects scenario. Because groundwater elevations were higher in the Future Baseline With Projects scenario than they were in the Future Baseline scenario, and because the GREAT Program AWPF Project supplied approximately half of the project water modeled this project is anticipated to result in measurably higher groundwater elevations in the Oxnard Subbasin. Therefore, the GREAT Program AWPF Project is anticipated to benefit the Subbasin and assist with raising groundwater elevations above the minimum thresholds in the future.

Relationship to Measurable Objectives

The relationship of the GREAT Program AWPF Project to the measurable objectives is similar to the relationship with the minimum thresholds. By measurably increasing water levels in the Subbasin, the GREAT Program AWPF Project water will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.2.3 Expected Benefits of Project No. 1

The AWPF product water that will be put to use in the Oxnard Subbasin is secondary wastewater effluent that is currently discharged to the Pacific Ocean. Therefore, this project provides a new source of water for use in the Subbasin. This additional water is expected to benefit the Oxnard Subbasin by providing water that would otherwise be pumped from the Subbasin to farmers in the vicinity of Hueneme Road, an area that is currently threatened by the inland migration of the saline water impact front (see Section 2.3, Groundwater Conditions).

5.2.4 Timetable for Implementation of Project No. 1

Phase 1 of the GREAT Program AWPF Project has already been permitted and constructed, and the AWPF Project is currently operating in the Subbasin. Under the current program, AWPF water is being delivered to farmers. The City of Oxnard receives a Recycled Water Pumping Allocation for delivered water used by farmers in lieu of groundwater production. Implementation of the project relative to the GSP will depend on the timetable necessary to deliver the GREAT Program AWPF water to farmers for in-lieu groundwater production for which no allocation or credits are provided to the City of Oxnard. Therefore, if the GREAT Program AWPF Project is incorporated into management of the Oxnard Subbasin for the purpose of increasing groundwater elevations to meet the sustainability criteria, the time for implementing the GREAT Program AWPF Project will depend on acquiring the necessary agreements between FCGMA and the City of Oxnard. This is anticipated to require less than 1 year.

5.2.5 Metrics for Evaluation of Project No. 1

Evaluation of the GREAT Program AWPF Project will be based on the quantity of water delivered to farmers in the vicinity of Hueneme Road and the associated reduction in groundwater production from this area. Groundwater producers in the Oxnard Subbasin have been required to report groundwater production to FCGMA since 1983. The GREAT Program AWPF water delivered to farmers will also have to be reported to FCGMA if this project is implemented as part of the GSP.

5.2.6 Economic Factors and Funding Sources for Project No. 1

The capital to construct the GREAT Program AWPF Project facilities has already been funded by City of Oxnard bonds and federal grant money (FCGMA 2018). Ongoing operations and maintenance are anticipated to equal approximately $300 per acre-foot (AF) of water generated by the project (FCGMA 2018). Funding for operations and maintenance has not been identified; however, as proposed, funding may come from a replenishment fee implemented by the FCGMA Board.

Any action taken by the FCGMA Board, acting as the Groundwater Sustainability Agency for the portion of the Oxnard Subbasin in its jurisdiction, to impose or increase a fee shall be taken by ordinance or resolution. Should the FCGMA Board decide to fund a project through imposition of a replenishment fee, FCGMA will hold at least one public meeting, at which oral or written presentations may be made. Notice of the meeting will include an explanation of the fee to be considered and the notice shall be published pursuant to Section 6066 of the Government Code.[1] At least 20 days prior to the meeting, the Groundwater Sustainability Agency will make the data on which the proposed fee is based available to the public.

5.3 PROJECT NO. 2 – GREAT PROGRAM ADVANCED WATER PURIFICATION FACILITY EXPANSION PROJECT

5.3.1 Description of Project No. 2

The GREAT Program's AWPF is part of the City of Oxnard's GREAT Program, which focuses on using existing water resources more efficiently. The purpose of the GREAT Program AWPF Expansion Project is to increase the production of high-quality recycled water within the City of Oxnard, the Oxnard Subbasin, and the Pleasant Valley Basin. This project will provide additional reclaimed water for Subbasin recharge. The AWPF Expansion Project is predicated on the availability of secondary effluent from the Oxnard Wastewater Treatment Plant or other available and appropriate source water. The main project components include purchase and installation of additional microfiltration, reverse osmosis, and ultraviolet/advanced oxidation equipment. Additionally, the project will require construction of influent flow equalization facilities. The AWPF Expansion Project could occur in phases, which would be dictated by the availability of source water, recycled water uses and needs, and project funding.

5.3.2 Relationship of Project No. 2 to Sustainability Criteria

GREAT Program AWPF Expansion Project water was included in future groundwater modeling scenarios to examine the impact that the project will have on the sustainability criteria. This project was incorporated in the modeling along with the GREAT Program AWPF Project (see Section 5.2, Project No. 1 – GREAT Program Advanced Water Purification Facility) and the temporary fallowing of agricultural land (see Section 5.6). Therefore, the relationship between the impact of this project alone and the sustainability indicators has not been quantified. Rather, the potential effect of this project in the context of all of three of these projects is presented in this discussion.

[1] Publication of notice pursuant to Section 6066 of the Government Code: "shall be once a week for two successive weeks. Two publications in a newspaper, published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates are sufficient."

Relationship to Minimum Thresholds

The numerical groundwater model simulation of the Future Baseline With Projects scenario, which incorporates potential future projects including the GREAT Program AWPF Expansion Project, results in higher groundwater elevations than the Future Baseline scenario, which does not incorporate projects (see Section 2.4, Water Budget). Incorporation of the projects resulted in groundwater elevations at the end of the 50-year model simulation that were, on average, approximately 2 feet higher in the UAS and approximately 8 feet higher in the LAS. This suggests that the projects will assist with water level recovery in the Subbasin, a necessary first step to avoid exceedance of the minimum thresholds. Although implementation of the projects increases water levels in the basin, these projects alone did not provide sufficient recycled water or redistribution of groundwater production to meet the minimum thresholds.

The AWPF Expansion Project water accounts for approximately half of the water delivered in the Future Baseline With Projects scenario. Because groundwater elevations were higher in the Future Baseline With Projects scenario compared to the Future Baseline scenario, and because the AWPF Expansion Project supplied approximately half of the project water modeled, the AWPF Expansion Project is anticipated to result in measurably higher groundwater elevations in the Oxnard Subbasin. Therefore, this project is anticipated to benefit the Subbasin and assist with raising groundwater elevations above the minimum thresholds in the future.

As modeled, the GREAT Program AWPF Expansion Project supplied approximately 4,500 AFY of recycled water to the United Water Conservation District (UWCD) Saticoy Spreading Grounds (see Section 2.4.5). This would be a recharge, rather than an in-lieu, program. However, the exact use of the AWPF Expansion Project water is not currently specified. It can be used for groundwater recharge, but it can also be used as part of an in-lieu program or for indirect potable reuse.

Relationship to Measurable Objectives

The relationship of the GREAT Program AWPF Expansion Project to the measurable objectives is similar to the relationship with the minimum thresholds. By measurably increasing water levels, the GREAT Program AWPF Expansion Project will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.3.3 Expected Benefits of Project No. 2

The AWPF Expansion Project product water that will be put to use in the Oxnard Subbasin is secondary wastewater effluent that is currently discharged to the Pacific Ocean. Therefore, this project provides a new source of water for use in the Subbasin. This additional water is expected to benefit the Oxnard Subbasin by providing additional recharge via the Saticoy Spreading Grounds (see Section 2.3).

5.3.4 Timetable for Implementation of Project No. 2

The City of Oxnard has already constructed and already operates the GREAT Program AWPF. As discussed in Section 5.3.1, Description of Project No. 2, the AWPF Expansion Project will require purchase and installation of additional equipment, as well as construction of influent flow equalization facilities. The expansion can occur in phases; therefore, the timetable for implementing the project is not fixed at this time. The implementation timetable for expansion of the AWPF is not dependent on permits or completion of California Environmental Quality Act (CEQA) documentation, which has already been obtained. The City of Oxnard estimates that the construction timetable for implementation of the AWPF Expansion Project is approximately 1 year.

The timetable for incorporating the GREAT Program AWPF Expansion Project water into sustainable management programs will also depend on how the water will be used. If, for example, the water will be conveyed to the Saticoy Spreading Grounds, the necessary infrastructure to convey the water will need to be constructed, in addition to construction of the expanded facility. Depending on the permitting required and construction time frames, it is anticipated that the timetable for incorporation of the AWPF Expansion Project water in sustainable management programs may take an additional 1 to 5 years beyond what was estimated by the City of Oxnard for construction of the expanded AWPF alone.

5.3.5 Metrics for Evaluation of Project No. 2

Evaluation of the GREAT Program AWPF Expansion Project will be based on the quantity of water delivered by the project. This water will be metered and the quantity of water delivered will be reported to FCGMA annually.

5.3.6 Economic Factors and Funding Sources for Project No. 2

Expansion of the AWPF can occur in phases, and the degree to which the AWPF is expanded will depend on the quantity of water available and the demand for the water produced. Therefore, the exact cost of expanding the GREAT Program AWPF is not currently known. Under one potential expansion scenario, the facility upgrades are anticipated to cost approximately $16,600,000 (FCGMA 2018). Under this scenario, the water produced by the facility would cost approximately $1,900 per AF. Operations and maintenance costs for the expanded AWPF would be approximately $440 per AF. Funding sources have not yet been identified for this project, although a portion of the project may be funded by replenishment fees implemented by the FCGMA Board. Any action taken by the FCGMA Board to impose or increase a fee shall be taken by ordinance or resolution, and notice shall be provided of any meeting at which imposition of the ordinance or resolution will be discussed (see Section 5.2.6, Economic Factors and Funding Sources for Project No. 1).

5.4 PROJECT NO. 3 – RIVERPARK–SATICOY GRRP RECYCLED WATER PROJECT

5.4.1 Description of Project No. 3

The RiverPark–Saticoy Groundwater Replenishment and Reuse Project (GRRP) Recycled Water Project will convey water produced by the GREAT Program AWPF Expansion Project (see Section 5.3) to the Saticoy Groundwater Recharge Facility and El Rio Groundwater Recharge Facility operated by UWCD (FCGMA 2018). In 2016, the City of Oxnard completed the northernmost portion of its 9.5-mile north–south Recycled Water Backbone Pipeline, which terminates at the RiverPark development adjacent to the Santa Clara River, north of Highway 101. This pipeline does not currently reach UWCD's groundwater recharge facilities. Under the GRRP Recycled Water Project, the Recycled Water Backbone Pipeline will be extended by 3 miles to convey water from the AWPF Expansion Project to UWCD groundwater recharge facilities. The 3-mile pipeline extension is called the RiverPark–Saticoy Pipeline. Up to 4,800 AFY of water will be conveyed to the UWCD recharge facilities via the Recycled Water Backbone and RiverPark–Saticoy Pipelines. It should be noted that this project does not provide water in addition to Project No. 2; rather, it provides the infrastructure to deliver the GREAT AWPF expansion water to the Saticoy Spreading Grounds.

5.4.2 Relationship of Project No. 3 to Sustainability Criteria

The RiverPark–Saticoy GRRP Recycled Water Project, using the AWPF Expansion Project product water to recharge groundwater in the Oxnard Forebay, was included in future groundwater modeling scenarios to examine the impact that the project will have on the sustainability criteria. The RiverPark–Saticoy GRRP Recycled Water Project is the same as the GREAT Program AWPF Expansion Project, as incorporated into the numerical groundwater model simulations, because the RiverPark–Saticoy GRRP Recycled Water Project simply provides the infrastructure to convey the water. It does not provide additional water to the Subbasin beyond what was modeled for the GREAT Program AWPF project. As discussed in Section 5.2.2, Relationship of Project No. 1 to Sustainability Criteria, and Section 5.3.2, Relationship of Project No. 2 to Sustainability Criteria, the relationship between the impact of this project alone and the sustainability indicators has not been quantified. Rather, the potential effect of this project in the context of all three of these projects is presented in this discussion.

Relationship to Minimum Thresholds

As modeled, the RiverPark–Saticoy GRRP Recycled Water Project provided the infrastructure to supply approximately 4,500 AFY of recycled water to the UWCD Saticoy Spreading Grounds (see Section 2.4.5). This would be a recharge, rather than an in-lieu, program. The numerical groundwater model simulation of the Future Baseline With Projects scenario, which incorporates

potential future projects including the RiverPark–Saticoy GRRP Recycled Water Project, results in higher groundwater elevations than the Future Baseline scenario, which does not incorporate projects (see Section 2.4). This suggests that the projects will assist with water level recovery in the Subbasin, a necessary first step to avoid exceedance of the minimum thresholds. Although implementation of the projects increases water levels in the basin, these projects alone did not provide sufficient recycled water or redistribution of groundwater production to avoid the exceedance of the minimum thresholds.

The AWPF Expansion Project water, delivered via the RiverPark–Saticoy GRRP Recycled Water Project, accounts for approximately half of the water delivered in the Future Baseline With Projects scenario. Because groundwater elevations were higher in the Future Baseline With Projects scenario than they were in the Future Baseline scenario, and because the RiverPark–Saticoy GRRP Recycled Water Project supplied approximately half of the project water modeled, the RiverPark–Saticoy GRRP Recycled Water Project is anticipated to result in measurably higher groundwater elevations in the Oxnard Subbasin. Therefore, the RiverPark–Saticoy GRRP Recycled Water Project is anticipated to benefit the Subbasin and assist with raising groundwater elevations above the minimum thresholds in the future.

Relationship to Measurable Objectives

The relationship of the RiverPark–Saticoy GRRP Recycled Water Project to the measurable objectives is similar to the relationship with the minimum thresholds. By measurably increasing water levels, the RiverPark–Saticoy GRRP Recycled Water Project will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.4.3 Expected Benefits of Project No. 3

The RiverPark–Saticoy GRRP Recycled Water Project is expected to benefit the Oxnard Subbasin by providing the infrastructure to take secondary treated wastewater from the Oxnard Water Treatment Plant and using it for groundwater recharge (FCGMA 2018). Currently, this water is being discharged to the Pacific Ocean. The RiverPark–Saticoy Pipeline and the GRRP will help ensure that excess flows from the AWPF will be used for groundwater recharge. In addition, the product water from the AWPF Expansion Project is of higher quality than groundwater in the Oxnard Forebay. Therefore, by using this water to recharge groundwater in the Forebay, implementation of the GRRP Recycled Water Project is expected to improve groundwater quality in the Forebay (FCGMA 2018).

5.4.4 Timetable for Implementation of Project No. 3

UWCD estimates that the RiverPark–Saticoy GRRP Recycled Water Project could be implemented in 18 to 24 months. The project is already in the preliminary design phase and a draft

initial study/mitigated negative declaration has been prepared. The required project permits (a groundwater replenishment reuse permit and a California Department of Transportation (Caltrans) permit) are anticipated to take 12 to 18 months to obtain, and the likelihood of obtaining these permits is anticipated to be high (FCGMA 2018).

5.4.5 Metrics for Evaluation of Project No. 3

The metric for evaluation of the RiverPark–Saticoy GRRP Recycled Water Project will be the quantity of water delivered to UWCD's groundwater recharge facilities. UWCD will meter the deliveries and will report these to FCGMA for incorporation in the annual and periodic GSP evaluation process.

5.4.6 Economic Factors and Funding Sources for Project No. 3

Funding sources for the RiverPark–Saticoy GRRP Recycled Water Project is proposed to come from either UWCD Zone B or FCGMA funds (FCGMA 2018). UWCD proposes funding assistance from FCGMA for the capital cost of the project, which is estimated to be $6.4 million, with an annual operations and maintenance cost of approximately $5 million to $7.5 million. The resulting water cost would be approximately $1,000 to $1,500 per AF. These operating costs are anticipated to be provided by a pump charge administered by FCGMA. The timeline necessary to secure funding for the project is anticipated to be the same as the construction timeline.

Any action taken by the FCGMA Board to impose or increase a fee shall be taken by ordinance or resolution, and notice shall be provided of any meeting at which imposition of the ordinance or resolution will be discussed (see Section 5.2.6).

5.5 PROJECT NO. 4 – FREEMAN EXPANSION PROJECT

5.5.1 Description of Project No. 4

UWCD currently operates the Freeman Diversion on the Santa Clara River, which diverts surface water flows from the river into recharge facilities for the purpose of providing additional recharge to the Oxnard Subbasin, and for direct delivery to growers via UWCD pipelines. Through time, more restrictive environmental regulatory requirements have lessened the amount of Santa Clara River surface water available to be diverted at the Freeman Diversion. The Freeman Expansion Project proposes constructing facilities capable of diverting surface water at higher flow rates and with higher sediment loads than the currently diverted flows (FCGMA 2018). Using the higher flows, which are less conducive to fish migration, has been encouraged by both regulatory agencies and non-governmental organizations (FCGMA 2018).

The Freeman Expansion Project would expand the recharge facilities, using two former gravel mines located adjacent to UWCD's Noble Basin recharge facility that have not previously been used for groundwater recharge, and would increase the capacity of UWCD's diversion system (FCGMA 2018). The project would also include modification and expansion of existing fish screens, modifications to the existing desilting basin, and construction of a high-capacity conveyance to the former Ferro aggregate mining pit. Although the exact capacity of the project is not currently known, UWCD anticipates that at full project build-out, the expanded facility could provide an additional 7,400 AF of diversions relative to the current diversion capacity (FCGMA 2018).

5.5.2 Relationship of Project No. 4 to Sustainability Criteria

Historically UWCD has diverted over 62,000 AFY from the Freeman Diversion (see Table 2-8). The Freeman Expansion Project would provide up to an additional 7,400 AF. Although expansion of UWCD's diversion capabilities at the Freeman Diversion was not explicitly modeled in the GSP future projects scenarios, historical groundwater elevations are strongly and positively correlated with the quantity of surface water diverted by UWCD. Therefore, increased surface water diversions that will be delivered directly to agricultural users, thereby offsetting groundwater production, or that will be recharged via UWCD's recharge facilities will help increase water levels in the Subbasin.

Relationship to Minimum Thresholds

Groundwater elevations in the Oxnard Subbasin are currently below the minimum thresholds proposed in Chapter 3 of this GSP. Increased recharge of surface water that currently flows to the Pacific Ocean will help water levels recover to elevations above the proposed minimum thresholds. The magnitude of the groundwater level rise will depend on the quantity of additional recharge available via the expanded diversion facilities.

Relationship to Measurable Objectives

The relationship of the Freeman Expansion Project to the measurable objectives is the same as the relationship with the minimum thresholds. By increasing water levels in the Subbasin, the Freeman Diversion Project will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.5.3 Expected Benefits of Project No. 4

The Freeman Expansion Project will provide an additional source of water to the Oxnard Subbasin by diverting high flows, which are not as suitable for fish migration, from the Santa Clara River and using those flows to provide additional groundwater recharge. The surface water flows in the Santa Clara River are lower in total dissolved solids and nitrate concentration compared to the

groundwater in the Oxnard Forebay. Therefore, this project will reduce the concentrations of these constituents in the groundwater. Additionally, replenishing the groundwater will reduce pump lift, and therefore energy consumption, for municipal and agricultural pumpers (FCGMA 2018).

5.5.4 Timetable for Implementation of Project No. 4

The timetable for implementation of the Freeman Expansion Project is estimated to be between 2 and 10 years (FCGMA 2018). The required modifications to the conveyance system needed to deliver turbid water have been analyzed, and this project was included in the UWCD Habitat Conservation Plan (FCGMA 2018). However, the project has not yet undergone environmental review, engineering design, or permitting.

5.5.5 Metrics for Evaluation of Project No. 4

The metric for evaluation of the Freeman Expansion Project would be the quantity of surface water diverted at flow rates that are higher than the current maximum flow rate that can be diverted. UWCD meters diversions from the Santa Clara River and would report these to FCGMA.

5.5.6 Economic Factors and Funding Sources for Project No. 4

Improvements to the conveyance system, fish screens, and desilting basin inlet are estimated to cost $31 million (FCGMA 2018). The annual operations and maintenance cost is estimated to be $700,000. The combined capital and operations and maintenance cost of the water is estimated to be approximately $4,300 AFY. Funding sources for the project are anticipated to include grant money, UWCD rate payers, and replenishment fees from FCGMA.

Any action taken by the FCGMA Board to impose or increase a fee shall be taken by ordinance or resolution, and notice shall be provided of any meeting at which imposition of the ordinance or resolution will be discussed (see Section 5.2.6).

5.6 PROJECT NO. 5 – TEMPORARY AGRICULTURAL LAND FALLOWING PROJECT

5.6.1 Description of Project No. 5

The Temporary Agricultural Land Fallowing Project would use replenishment fees to lease and temporarily fallow agricultural land (FCGMA 2018). This would result in decreased groundwater production on the parcels or ranches that are fallowed, and an overall reduction in groundwater demand in the Subbasin. Parcels or ranches in areas susceptible to seawater intrusion would be targeted with this project (FCGMA 2018).

5.6.2 Relationship of Project No. 5 to Sustainability Criteria

Temporary fallowing of agricultural land was included in future groundwater modeling scenarios to examine the impact that the project will have on the sustainability criteria (see Section 2.4.5). As discussed in Sections 5.2.2 and 5.3.2, the relationship between the impact of this project alone and the sustainability indicators has not been quantified. Rather, the potential effect of this project in the context of all three of these projects is presented in this discussion.

Relationship to Minimum Thresholds

As modeled, the Temporary Agricultural Land Fallowing Project reduced production from the Subbasin by approximately 500 AFY (see Section 2.4.5). The numerical groundwater model simulation of the Future Baseline With Projects scenario, which incorporates potential future projects including the Temporary Agricultural Land Fallowing Project, results in higher groundwater elevations than the Future Baseline scenario, which does not incorporate projects (see Section 2.4). This suggests that the projects will assist with water level recovery in the Subbasin, a necessary first step to meet the minimum threshold. Although implementation of the projects increases water levels in the basin, these projects alone did not provide sufficient supplemental water or redistribution of groundwater production to meet the minimum thresholds. Additionally, the Temporary Agricultural Land Fallowing Project accounted for approximately 7% of the total volume of water delivered or saved by all of the projects in the Oxnard Subbasin that were incorporated into the future groundwater model scenarios. The effect of this project on groundwater elevations is likely smaller than that of other projects incorporated into the future model scenarios. However, the value of this project is more directly connected with the location of the land that would be fallowed. If the project can target areas that are prone to seawater intrusion, the impact of this project will be greater than would be indicated by a comparison of the volume of water supplied.

Relationship to Measurable Objectives

The relationship of the Temporary Agricultural Land Fallowing Project to the measurable objectives is similar to the relationship with the minimum thresholds. By increasing water levels and fallowing agricultural land prone to seawater intrusion, the Temporary Agricultural Land Fallowing Project will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.6.3 Expected Benefits of Project No. 5

Temporary fallowing is a quick way to reduce demand with no capital costs or infrastructure needed. Because it is inexpensive, it is envisioned that temporary fallowing could be implemented early, while other long-term solutions are investigated and implemented. The Temporary

Agricultural Land Fallowing Project will benefit the Oxnard Subbasin by mitigating seawater intrusion in the Subbasin. This project would complement a water market that is currently being developed for the Subbasin by providing an alternative method for landowners to monetize pumping allocations (FCGMA 2018).

5.6.4 Timetable for Implementation of Project No. 5

The project is currently in the planning phase but does not require construction of new facilities and is unlikely to require permitting. CEQA compliance has not yet been initiated but the project proponents anticipate that a negative declaration or a mitigated negative declaration may be sufficient (FCGMA 2018). The project could be implemented when FCGMA is able to collect replenishment fees, and willing lessors are found to participate.

5.6.5 Metrics for Evaluation of Project No. 5

The metric for evaluation of the Temporary Agricultural Land Fallowing Program will be the volume of groundwater that is not produced from wells that supply the fallowed acreage. FCGMA has required groundwater production reporting since 1983. Groundwater production rates from before the project is implemented will be compared to groundwater production rates when the parcel or ranch has been fallowed. If the project is implemented, the historical production rates and associated base period for calculating those rates will be determined.

5.6.6 Economic Factors and Funding Sources for Project No. 5

The funding source for this project is anticipated to be replenishment fees collected by FCGMA. The cost of water under this project is estimated to be $1,200 to $1,800 per acre-foot. Any action taken by the FCGMA Board to impose or increase a fee shall be taken by ordinance or resolution, and notice shall be provided of any meeting at which imposition of the ordinance or resolution will be discussed (see Section 5.2.6)

5.7 MANAGEMENT ACTION NO. 1 – REDUCTION IN GROUNDWATER PRODUCTION

5.7.1 Description of Management Action No. 1

The primary management action proposed under this GSP is a Reduction in Groundwater Production from the Oxnard Subbasin. FCGMA has had the authority to monitor and regulate groundwater production in the Oxnard Subbasin since 1983. The FCGMA Board has used its authority to reduce groundwater production from the Subbasin in the past, and will continue to exert its authority over groundwater production as the Groundwater Sustainability Agency for the Subbasin.

The estimated long-term rate of groundwater production in the UAS that will prevent net seawater intrusion after 2040 is approximately 32,000 AFY ± 4,100 to 6,000 AFY (see Section 2.4.5). The estimated long-term rate of groundwater production in the LAS that will prevent net seawater intrusion after 2040 is approximately 7,000 AFY ± 2,300 to 3,600 AFY (see Section 2.4.5). Reductions in groundwater production were modeled as a linear decrease from the 2015–2017 production rates. The exact reductions that will be implemented in the Subbasin over the next 5 years will be determined by the FCGMA Board based on the data collected and analyzed for this GSP. These reductions will be evaluated based on the potential paths to reaching sustainability discussed in Chapter 3.

5.7.2 Relationship of Management Action No. 1 to Sustainability Criteria

Reducing groundwater production in the Oxnard Subbasin has a measurable impact on groundwater elevations. Groundwater elevations, in turn, control seawater intrusion. Seawater intrusion occurs in the Subbasin when groundwater elevations fall below threshold elevations that maintain sufficient hydrostatic pressure to keep seawater from moving landward. The relationship between seawater intrusion and groundwater elevation is impacted by groundwater production throughout the Subbasin, but is strongest in wells adjacent to the coast.

The effect of Reduction in Groundwater Production on groundwater level elevations was simulated using a numerical groundwater model (see Section 2.4.5). The results of the model and the relationship between Reduction in Groundwater Production and the sustainability criteria is discussed below.

Relationship to Minimum Thresholds

In the absence of additional projects, purchase of imported water, and shifting groundwater production locations, Reduction in Groundwater Production in the Subbasin is a critical component of achieving sustainability. When groundwater production was reduced from the 2015–2017 average production rates, simulated future groundwater elevations in the Subbasin recovered to elevations that remained above the minimum threshold after 2040 (see Section 2.4.5). The long-term production rate necessary to maintain groundwater elevations above the minimum threshold depended on several factors, including the simulated future climate, the quantity of surface water available to recharge the Subbasin, and the number of projects undertaken. Therefore, the numerical groundwater simulation results suggest a range of potential reductions in groundwater production that will maintain groundwater elevations above the minimum thresholds. This range is anticipated to change as additional data are collected and additional projects are implemented over the next 5 years. Therefore, any reductions implemented by the FCGMA Board over the initial 5-year period after the GSP is adopted will be evaluated and may be changed as warranted by future conditions in the Subbasin.

Relationship to Measurable Objectives

The relationship between Reduction in Groundwater Production and the measurable objectives is similar to the relationship between Reduction in Groundwater Production and the minimum thresholds. Numerical groundwater model simulations suggest a range of potential groundwater production rates that would result in groundwater elevations that are higher than the measurable objective half of the time and lower than the measurable objective half of the time (see Section 3.5, Measurable Objectives). As discussed previously, this range is anticipated to change as additional data are collected and additional projects are implemented over the next 5 years. Therefore, any reductions implemented by the FCGMA Board over the initial 5-year period after the GSP is adopted will be evaluated and may be changed as warranted by future conditions in the Subbasin.

5.7.3 Expected Benefits of Management Action No. 1

The primary benefit related to Reduction in Groundwater Production is recovery of groundwater elevations that have historically allowed for seawater intrusion in the Oxnard Subbasin. Reduction in Groundwater Production can be used to close any differential between groundwater elevations that can be obtained through implementation of projects and the groundwater elevations necessary to prevent future net seawater intrusion in the UAS and the LAS.

5.7.4 Timetable for Implementation of Management Action No. 1

The FCGMA Board already has the authority to reduce groundwater production in the Subbasin. Therefore, reductions can be implemented within months of GSP adoption, once the proposed reductions have gone through the FCGMA Board approval process.

5.7.5 Metrics for Evaluation of Management Action No. 1

The metric for evaluation of Reduction in Groundwater Production will be groundwater elevations in the UAS and the LAS. As groundwater elevations recover, additional projects are developed, and basin management is optimized, groundwater production rates will continue to be evaluated and adjusted accordingly.

5.7.6 Economic Factors and Funding Sources for Management Action No. 1

Program administration, investigations, inspections, compliance assistance, and enforcement of the Reduction in Groundwater Production management action will rely on funding from pumping fees imposed by FCGMA. Economic factors that will affect Reduction in Groundwater Production include impacts to the users of groundwater in the Subbasin. Potential economic impacts to stakeholders will be considered in the decision process for selecting future groundwater production rates and reductions necessary to meet the sustainability goal for the Subbasin.

5.7.7 Management Action No. 1 Uncertainty

Groundwater production from the Oxnard Subbasin has resulted in historical seawater intrusion, and groundwater model simulations indicate that sustainable groundwater production rates will need to be lower than historical rates to prevent net seawater intrusion in each aquifer system after 2040. Nevertheless, uncertainty remains regarding the exact reductions in groundwater production required to achieve the sustainability goals for the Subbasin. Uncertainty in the hydrogeologic conceptual model and the numerical groundwater model is discussed in Chapter 2 of this GSP. Uncertainty in the minimum thresholds and measurable objectives is discussed in Chapter 3. Chapters 2 and 3 also discuss uncertainty associated with the future location of groundwater production and impacts of projects that will optimize management of the Subbasin.

Because of the existing uncertainty associated with future conditions in the Subbasin, a plan for exact reductions and groundwater elevation triggers for those reductions has not been developed as part of this GSP. Instead, FCGMA will work to develop this plan over next 20 years, as the level of uncertainty is reduced. FCGMA recognizes that a specific long-term plan that incorporates stakeholder feedback and the need for flexibility in groundwater management will have to be adopted by 2040 to provide users of groundwater in the Subbasin with the tools necessary to plan for sustainable groundwater production into the future.

5.8 MANAGEMENT ACTION NO. 2 – WATER MARKET PILOT PROGRAM

A Water Market Pilot Program is currently being conducted by the FCGMA as a means of increasing operational management of groundwater in the Subbasin. The pilot program will run through July 2019 and may be extended to October 2019 (FCGMA 2019). The program is open to agricultural operators in the Oxnard Subbasin who are authorized by FCGMA to participate. Participants are able to submit anonymous bids and offers to an electronic trading desk that matches potential buyers and sellers. Matching takes place at 4:00 p.m. on Friday each week of the pilot program (FCGMA 2019). Transfer of extraction allocation will be reported to FCGMA by the Exchange Administrator.

Trades are limited by both geography and quantity. Transfers that result in a net increase in the total market allocation for participants in the Saline Water Intrusion Management Area or Pumping Depression Management Areas are not allowed. Additionally, participants with a well located in the Saline Water Intrusion Management Area may receive a transfer of market allocation only from another participant with a well in the Saline Water Intrusion Management Area. The same is true for participants in the Pumping Depression Management Areas.

Analysis of the Water Market Pilot Program will be conducted and its suitability for incorporation as a management action for the Subbasin will be determined after the pilot program is completed in July 2019.

5.9 REFERENCES CITED

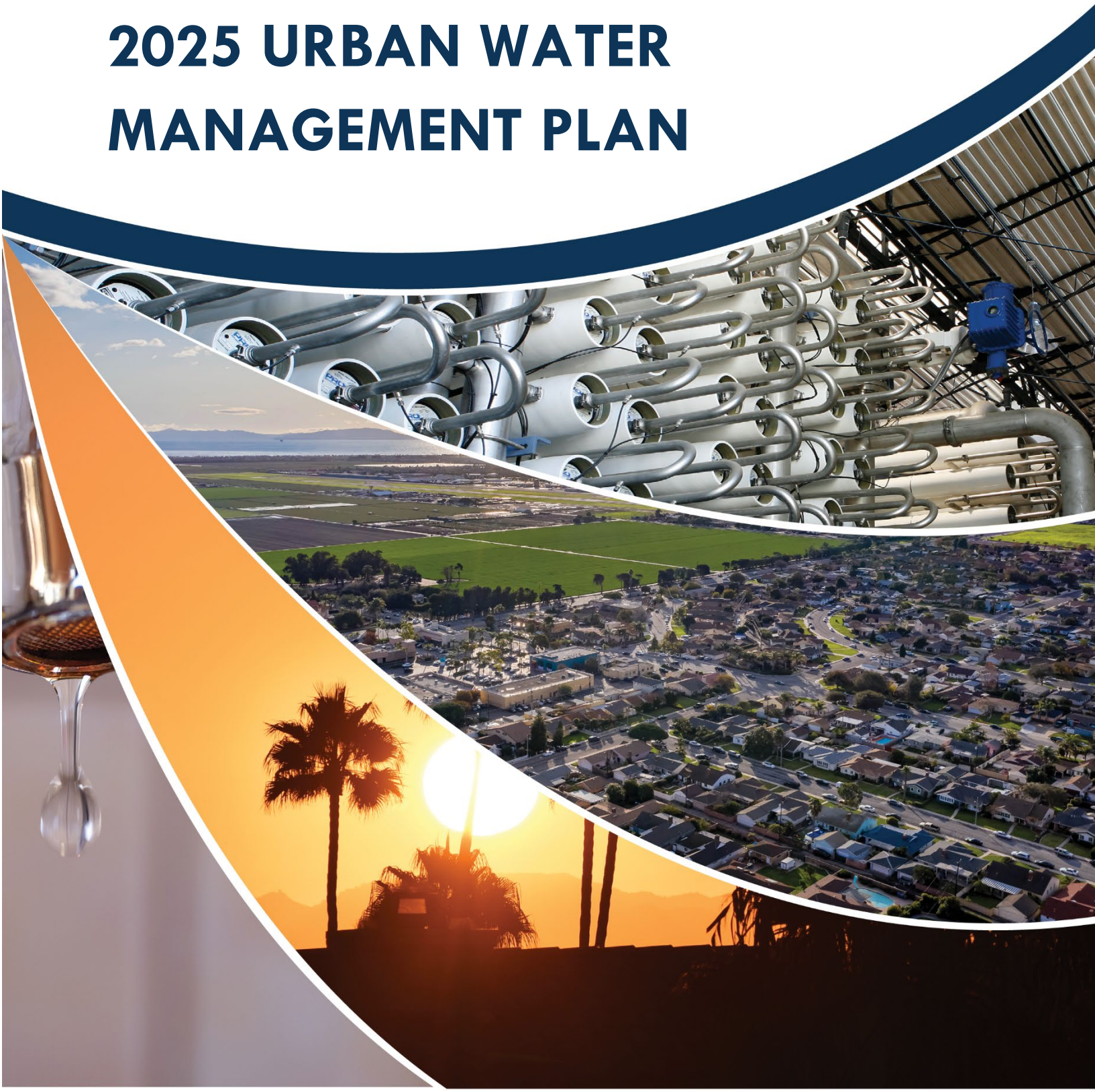
FCGMA. 2018. "Full Agenda Package: Special Board Meeting of August 29, 2018." Meeting agenda, minutes, and preliminary project descriptions for GSPs currently in progress. August 29, 2018 Accessed May 10, 2019. https://ventura.granicus.com/MetaViewer.php?view_id=45&clip_id=5067&meta_id=661400.

FCGMA. 2019. "Rules and Regulations Phase 2 (Extended Water Market Pilot Program)." Accessed May 15, 2019. http://www.fcgma.org/images/WMPilot-RulesRegs-Phase2ext.pdf.

CITY OF OXNARD CALIFORNIA

PUBLIC DRAFT

2025 URBAN WATER MANAGEMENT PLAN



CITY OF OXNARD | MAY 2026

WSC

CITY OF OXNARD

2025 Urban Water Management Plan- Draft

MAY 2026

Prepared by Water Systems Consulting, Inc

ACKNOWLEDGEMENTS

The 2025 Urban Water Management Plan- Draft was prepared by Water Systems Consulting, Inc. The primary authors are listed below.

David Williams, EIT

Spencer Waterman

Water Systems Consulting, Inc. would like to acknowledge the significant contributions of City of Oxnard. The primary contributors are listed below.

Abraham Maldonado

Brenda Heredia

Chris Peyton

Michael Wolfe, PE

TABLE OF CONTENTS

1 Introduction and Lay Description 1-1
1.1 Introduction for City 1-2
1.2 California Water Code 1-2
1.3 UWMP Organization 1-3
1.4 UWMPs in Relation to Other Efforts 1-4
1.5 UWMPs and Grant or Loan Eligibility 1-5
1.6 Demonstration of Consistency with the Delta Plan 1-5
2 Plan Preparation 2-1
2.1 Basis for Preparing a Plan 2-2
2.2 Coordination and Outreach 2-2
2.3 Completed Steps for UWMP and WSCP 2-6
3 System Description 3-1
3.1 General Description 3-2
3.2 Service Area Boundary Maps 3-2
3.3 Service Area Climate 3-4
3.4 Service Area Population, Demographics, and Socioeconomics 3-5
3.5 Land Uses within Service Area 3-6
4 Water Use Characterization 4-1
4.1 Past, Current, and Projected Water Use by Sector 4-2
4.2 Climate Change Considerations 4-14
5 SB X7-7 Baselines, Targets, and 2025 Compliance 5-1
5.1 Compliance and Future Water Use Efficiency Requirements 5-2
6 Water Supply Characterization 6-1
6.1 Water Supply Analysis Overview 6-2
6.2 Water Supply Characterization 6-4
6.3 Energy Intensity 6-28
7 Water Service Reliability and Drought Risk Assessment 7-1
7.1 Introduction 7-2
7.2 Water Service Reliability Assessment 7-2
7.3 Drought Risk Assessment 7-10
8 Water Shortage Contingency Plan 8-1
8.1 Introduction 8-2

8.2 Overview of WSCP Components 8-2
9 Demand Management Measures 9-1
9.1 Introduction 9-2
9.2 Existing Demand Management Measures 9-3
9.3 Reporting Implementation 9-6
9.4 Water Use Objectives (Future Requirements) 9-11
10 Plan Adoption, Submittal, and Implementation 10-1
10.1 Completed Steps for UWMP and WSCP 10-2
References REF-1
Appendix A Water Shortage Contingency Plan ....A
Appendix B Reduced Delta Reliance ....B
Appendix C DWR Checklist C
Appendix D Notification Letters and Outreach ....D
Appendix E Public Hearing Notices ....E
Appendix F Resolution of UWMP and WSCP Adoption ....F
Appendix G Standard DWR Tables ....G

LIST OF FIGURES

Figure 3-1. City of Oxnard Service Area 3-3
Figure 3-2. City of Oxnard General Plan Designation Areas 3-8
Figure 4-1. Historic Water Consumption 4-3
Figure 4-2. UWUO Projections by Component, AFY 4-11
Figure 4-3. Historic and Projected Demand Scenarios 4-12
Figure 5-1. Historic Gross Water Use and Per Capita Water Use 5-3
Figure 6-1. Supply Schematic 6-3
Figure 6-2. Local Groundwater Basins 6-9
Figure 6-3. Oxnard Subbasin Profile 6-10
Figure 7-1. Normal Year Potable Supply and Demand Comparison 7-8

LIST OF TABLES

Table 2-1: DWR 2-1R Public Water Systems 2-2
Table 2-2: DWR 2-2 Plan Identification....2-2
Table 2-3: DWR 2-3 Agency Identification....2-2
Table 2-4. Agency Coordination 2-4
Table 2-5: DWR 2-4 Water Supplier Information Exchange 2-6
Table 3-1. Average Monthly Climate Data, 2010-2024....3-4
Table 3-2: Historical, Current, and Projected Population....3-6
Table 4-1. DWR 4-1R Actual Demands for Water, 2025, AFY 4-4
Table 4-2: DWR 4-5R Month Water Loss Audit Reporting 4-4
Table 4-3: DWR 4-6R Progress Towards 2028 Water Loss Standard 4-6
Table 4-4. Water Efficiency Standard by Reporting Period 4-7
Table 4-5. UWUO Components Growth Comparison 4-8
Table 4-6. UWUO Projections by Component, AFY 4-10
Table 4-7. DWR 4-2R Projected Demands for Water 4-13
Table 4-8. Projected Demands for Water, Transferred Water 4-14
Table 4-9. DWR 4-3R Inclusion in Water Use Projections....4-14
Table 5-1. SB X7-7 2020 Target Progress....5-2
Table 6-1: DWR 6-8R Actual Water Supplies 6-3
Table 6-2. Oxnard Subbasin GSP & First Periodic Evaluation Sustainable Yield Scenarios....6-6
Table 6-3: Key FCGMA Ordinances and Resolutions 6-11
Table 6-4: DWR 6-1R Groundwater Volume Pumped, AFY 6-15
Table 6-5: DWR 6-2R Wastewater Collected within Service Area in 2025....6-17
Table 6-6: DWR 6-3R Wastewater Treatment and Outcomes within Service Area in 2025, AFY 6-18
Table 6-7: DWR 6-4R Recycled Water Direct Beneficial Uses Within Service Area, AFY 6-21
Table 6-8: DWR 6-5R 2020 Recycled Water Use Projection Compared to 2025 Actual....6-22
Table 6-9: DWR 6-6R Methods to Expand Future Recycled Water....6-23

Table 6-10: DWR 6-8DS Source Water Desalination 6-24
Table 6-11: DWR 6-7R Expected Future Water Supply Projects or Programs.....6-26
Table 6-12: DWR 6-9R Projected Water Supplies.....6-27
Table 6-13: DWR O-1B: Recommended Energy Intensity Total Utility Approach.....6-28
Table 7-1: Factors Resulting in Inconsistency of Supply 7-3
Table 7-2: Consecutive Dry Year Percent Reductions by Source. 7-4
Table 7-3: DWR 7-1R Basis for Water Year Data (Reliability Assessment) 7-7
Table 7-4: DWR 7-2R Normal Year Potable Supply and Demand Comparison 7-7
Table 7-5. DWR 7-3R Single Dry Year Potable Water Supply and Demand Comparison 7-8
Table 7-6: DWR 7-4R Multiple Dry Years Supply and Demand Comparison 7-9
Table 7-7: DWR 7-5 Five-Year Drought Risk Assessment.....7-11
Table 9-1: Public Water Conservation Education 2021 - 2025 9-7
Table 9-2. Public Outreach 2021-2025 9-7
Table 9-3: Water Waste Tracking Summary 2021 - 2025.....9-8
Table 9-4: Device Retrofits 2021-2025 9-9
Table 9-5. Rebate Program Implementation, Participation Counts.....9-9
Table 9-6. Rebate Program Implementation, Total Rebate Values[1] 9-10

ACRONYMS & ABBREVIATIONS

°C	Degrees Celsius
°F	Degrees Fahrenheit
AB	Assembly Bill
AF	Acre Foot
AFY	Acre Feet per Year
AHHG	Area of Historic High Groundwater
AMR	Automatic Meter Reading
APA	Administrative Procedures Act
AWWA	American Water Works Association
BMP	Best Management Practice
CALWARN	California Water/Wastewater Agency Response Network
CAT	Climate Action Team
CCF	Hundred Cubic Feet
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
DCR	DWR SWP Delivery Capacity Report
DDW	SWRCB Division of Drinking Water
DFW	California Department of Fish and Wildlife
DIP	Ductile Iron Pipe
DMM	Demand Management Measure
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EPA	United States Environmental Protection Agency
ERNIE	Emergency Response Network of the Inland Empire
ESA	Endangered Species Act
ET	Evapotranspiration
ETO	Reference Evapotranspiration

GAC	Granulated Activated Carbon
GIS	Geographic Information System
GPCD	Gallons per Capita per Day
GPM	Gallons per Minute
HECW	High Efficiency Clothes Washer
HET	High Efficiency Toilet
IX	Ion Exchange
KAF	Thousand Acre Feet
KAFY	Thousand Acre Feet per Year
LAFCO	Local Agency Formation Commission
MAF	Million Acre-Feet
MCL	Maximum Contaminant Level
MF	Multi-family
MG	Million Gallons
MGD	Million Gallons per Day
MSL	Mean Sea Level
MTBE	Methyl Tertiary Butyl Ether
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
O-H	Oxnard-Hueneme
PCE	Perchloroethylene
PVC	Polyvinyl Chloride
QWEZ	Qualified Water Efficient Landscaper
RIX	Rapid Infiltration and Extraction
RPA	Reasonable and Prudent Alternative
RUWMP	Regional Urban Water Management Plan
RWQCB	Regional Water Quality Control Board
SBX7-7	Senate Bill 7 of Special Extended Session 7
SF	Single Family
SOC	Synthetic Organic Chemicals

SOI	Sphere of Influence
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TCE	Trichloroethylene
ULFT	Ultra-Low Flush Toilet
UV	Ultraviolet
UWMP	Urban Water Management Plan
UWMP ACT	Urban Water Management Planning Act
VOC	Volatile Organic Compound
WBIC	Weather Based Irrigation Controller
WSCP	Water Shortage Contingency Plan
WFF	Water Filtration Facility
WSS	Water Sense Specification
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

1 Introduction and Lay Description

This chapter provides a brief overview of the City of Oxnard (City) and the purpose of this Urban Water Management Plan (UWMP). It also describes how the UWMP is organized and how it relates to other local and regional planning efforts that the City is involved in.

IN THIS SECTION

- Introduction for City
- California Water Code
- UWMP Organization
- UWMPs in Relation to Other Efforts
- Funding Eligibility

1.1 Introduction for City

The City of Oxnard is a retail urban water supplier located in Ventura County on the Oxnard Plain. Through its Public Works Department, the City provides potable water service to residential, commercial, industrial, institutional, irrigation, and other customer classes within its water service area. The City also manages recycled water and wastewater systems that support broader water resource planning efforts.

The City's water service area is not identical to the City limits, and this Urban Water Management Plan evaluates water demands, supplies, and reliability based on the water service area served by the City. In 2025, the City served approximately 206,822 people through 44,621 metered potable connections and supplied approximately 22,977 acre-feet of potable water.

Oxnard relies on a diverse water supply portfolio that includes local groundwater, imported water, treated groundwater, and recycled water resources. This UWMP describes the City's existing water system and planning assumptions and evaluates long-term water supply reliability under normal, single-dry-year, and multiple dry-year conditions.

The City operates under a council-manager form of government, with policy direction provided by the City Council and water system operations managed through the City's Public Works Department.

1.2 California Water Code

In 1983, the State of California Legislature (Legislature) enacted the Urban Water Management Planning Act (UWMP Act). The law required an urban water supplier providing water for municipal purposes to more than 3,000 customers or serving more than 3,000 acre-feet per year (AFY) to adopt a UWMP every five years. This UWMP must demonstrate water supply reliability under both normal and drought conditions. The UWMP Act applies to wholesale and retail water suppliers.

Since the original UWMP Act was passed, it has undergone significant expansion. Prolonged droughts, groundwater overdraft, regulatory revisions, and changing climatic conditions affect the reliability of each water supplier as well as statewide water reliability overseen by California Department of Water Resources (DWR), the State Water Resources Control Board (SWRCB), and the Legislature. Accordingly, the UWMP Act has grown to address changing conditions. The current requirements are found in Sections 10610-10656 and 10608 of the California Water Code (CWC).

DWR provides guidance for urban water suppliers by preparing an Urban Water Management Plan Guidebook 2025 (Guidebook) (California Department of Water Resources, 2026) , conducting workshops, developing tools, and providing program staff to help water suppliers prepare comprehensive and useful water management plans, implement water conservation programs, and understand the requirements of the CWC. Suppliers prepare their own UWMPs and submit them to DWR. DWR then reviews the plans to make sure they have addressed the

requirements; they submit a report to the Legislature summarizing the status of the plans for each five-year cycle. The Guidebook was used to complete this 2025 UWMP.

The purpose of this UWMP is for the City to evaluate long-term resource planning and establish management measures to ensure adequate water supplies are available to meet existing and future demands. The UWMP provides a framework to help water suppliers maintain efficient use of urban water supplies, promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a response mechanism during drought conditions or other water supply shortages.

The UWMP is a valuable planning tool used for multiple purposes, including:

- Providing a standardized methodology for water utilities to assess their water resource needs and availability.
- Serving as a resource to the community and other interested parties regarding water supply and demand, conservation, and other water-related information.
- Providing a key source of information for cities and counties when evaluating proposed new developments and preparing regional long-range planning documents, such as city and county General Plans.
- Informing other regional and Statewide water planning efforts, such as Integrated Regional Water Management Plans and the California Water Plan.

CWC 10632 also includes requirements for suppliers to prepare a Water Shortage Contingency Plan (WSCP). The WSCP documents a supplier's plans to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies. The WSCP is a standalone document that can be updated independently of the UWMP but is referenced and attached to the 2025 UWMP. The WSCP is summarized in Section 8 and provided in Appendix A.

1.3 UWMP Organization

The 2025 UWMP is organized as follows:

Section 1 – Introduction and Lay Description

This section provides background information on the UWMP process, new regulatory requirements, and an overview of the information covered throughout the remaining sections.

Section 2 – Plan Preparation

This section provides information on the processes used to develop the UWMP, including coordination and outreach efforts, the steps taken to prepare City's 2025 UWMP, hold a public hearing, adopt, submit, and implement the 2025 UWMP.

Section 3 – System Description

This section describes the City's water system, service area, population demographics, local climate, and land uses.

Section 4 – Water Use Characterization

This section describes and quantifies the current and projected water uses through 2050 within the water service area.

Section 5 – SBX7-7 Baselines, Targets, and 2025 Compliance

This section describes compliance with the Water Conservation Act of 2009, also known as Senate Bill 7 of Special Extended Session 7 (SBX7-7).

Section 6 – Water Supply Characterization

This section describes and quantifies the current and projected potable and non-potable water supplies.

Section 7 – Water Service Reliability and Drought Risk Assessment

This section describes the water service reliability through 2050 and includes the Drought Risk Assessment (DRA) for the next five years.

Section 8 – Water Shortage Contingency Plan

This section includes an overview of the standalone WSCP. The complete WSCP is included as Appendix A.

Section 9 – Demand Management Measures

This section describes City's efforts to promote conservation and reduce water demand, including discussions of specific demand management measures.

1.4 UWMPs in Relation to Other Efforts

This UWMP characterizes water use, estimates future demands and supply sources, and evaluates supply reliability for normal, single-dry, and five consecutive dry years. The UWMP also requires a standalone WSCP, which is summarized in Section 8.

The City is organized into many departments that provide a variety of services. The Water Division of Public Works led development of this UWMP and coordination efforts with other departments within the City, such as the Community Development Department. As such, the UWMP coordinated with or utilized information from a variety of local or regional sources that are summarized in Section 2.2.

Previous planning efforts that heavily influenced the development of this UWMP include:

Water Resource Management Plan

At the time of development of the 2020 UWMP, a Water Resource Management Plan was prepared to address strategic options for reliable long-term water supply planning (Gannett Fleming for the City of Oxnard, May 2021). The 2025 UWMP considers the Water Resource Management Plan for supply and demand information in conjunction with other resources and information from City staff for consistency across City planning efforts. Considering this information, future expansion of the City's Advanced Water Purification Facility (AWPF) and

development of the Aquifer Storage and Recovery (ASR) program are key components to provide a reliable, resilient supply in the future. The expanded AWPF and ASR together will help to offset reduced groundwater allocations, should that occur with the current groundwater adjudication legal process, and is planned to be used for indirect potable reuse.

Climate Action and Adaptation Plan (CAAP)

The CAAP was adopted by the City in December 2022. The CAAP was developed by Environmental Science Associates (ESA), Inc. and the City's Planning Department to address and align with Senate Bill 32 and other legislative mandates. The CAAP provides a roadmap for how the City will reduce greenhouse gas emissions for the impacts of climate change on public health, infrastructure, ecosystems, equity, and public spaces in the community.

Water Shortage Contingency Plan

The UWMP characterizes water use, estimates future demands and supply sources, and evaluates supply reliability for normal, single-dry, and consecutive dry years. The UWMP Act also requires reevaluation of the City's WSCP. A summary of the various components of the WSCP is provided in Chapter 8, while the complete, standalone WSCP is available in Appendix A.

1.5 UWMPs and Grant or Loan Eligibility

For a water supplier to be eligible for a grant or loan administered by DWR, the supplier must have a current UWMP on file that meets the requirements set forth by the CWC. A current UWMP must also be maintained by the supplier throughout the term of any grants or loans received. The City has prepared the 2025 UWMP under guidance from DWR's 2025 UWMP Guidebook (California Department of Water Resources, 2026).

1.6 Demonstration of Consistency with the Delta Plan

The Delta Plan is a comprehensive, long-term, legally enforceable plan guiding how federal, state, and local agencies manage the Sacramento–San Joaquin Delta's (Delta's) water and environmental resources. The Delta Plan was adopted in 2013 by the Delta Stewardship Council. Delta Plan Policy WR P1 identifies UWMPs as the tool to demonstrate consistency with state policy to reduce reliance on the Delta for a supplier that carries out or takes part in a covered action. A covered action may include activities such as a multiyear water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta. As a supplier that receives imported water from the Delta through its wholesale supplier, the City will submit information as outlined in Appendix C of the UWMP Guidebook (State of California Department of Water Resources, 2026).

To document and quantify supplies contributing to reduced reliance on the Delta watershed and improved regional self-reliance, a number of steps must be taken, including:

- Setting a baseline
- Change in delivery of Delta water

- UWMP WR P1 consistency reporting

DWR does not review this analysis as part of the UWMP approval process; therefore, this information is attached as Appendix B.

2 Plan Preparation

This plan was prepared using guidance from the DWR 2025 UWMP Guidebook. This chapter provides details regarding the City's UWMP preparation, and the coordination and outreach efforts conducted.

IN THIS SECTION

- Basis for Preparing a Plan
- Regional Planning
- Coordination and Outreach

2.1 Basis for Preparing a Plan

As mentioned in Section 1, the CWC requires suppliers with 3,000 or more service connections, or those supplying 3,000 AFY or more to prepare a UWMP. Suppliers are required to update UWMPs at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update. The City's 2025 UWMP must be submitted to DWR by July 1, 2026.

The City is preparing an individual UWMP and is not a member of a Regional Alliance. In 2025, the City served approximately 206,822 people in its service area, through 44,621 metered potable connections and supplied approximately 22,977 AFY of potable water to customers. The City has included all mandatory 2025 data in the development of this UWMP. The City does not sell or purchase water from other suppliers, though it wheels water from Calleguas Municipal Water District (Calleguas) to Port Hueneme Water Agency (PHWA).

Throughout this UWMP, water volume is represented in units of AFY, unless otherwise noted, and data is presented on a calendar year basis.

Table 2-1: DWR 2-1R Public Water Systems

PUBLIC WATER SYSTEM NUMBER	PUBLIC WATER SYSTEM NAME	NUMBER OF MUNICIPAL CONNECTIONS 2025	VOLUME OF POTABLE WATER SUPPLIED 2025, AFY
CA5610007	OXNARD WATER DEPT	44,621	22,977

Table 2-2: DWR 2-2 Plan Identification

TYPE OF PLAN	MEMBER OF RUWMP	MEMBER OF REGIONAL ALLIANCE	NAME OF RUWMP OR REGIONAL ALLIANCE
Individual UWMP	No	No	N/A

Table 2-3: DWR 2-3 Agency Identification

TYPE OF SUPPLIER	YEAR TYPE	FIRST DAY OF YEAR		UNIT TYPE
Retailer	Calendar Years	**01**	**01**	Acre Feet (AF)

2.2 Coordination and Outreach

The UWMP Act requires a water purveyor to coordinate the preparation of its UWMP with other appropriate agencies in and around its service area. This includes other water suppliers that

share a common source, water management agencies, and relevant public agencies. The City has prepared this UWMP in coordination with its State Water Project wholesale provider, Calleguas. The City has also reached out to nearby water agencies for input and regional consistency, including United Water Conservation District (United), and the Port Hueneme Water Agency (PHWA).

All relevant entities, including the County of Ventura, were sent 60-day notices of preparation and consideration for adoption at a public hearing prior to the adoption of the 2025 UWMP. Copies of the letters and other outreach correspondence are provided in Appendix D. Organizations notified of the City's effort to update this UWMP are summarized Table 2-5: DWR 2-4 Water Supplier Information Exchange Table 2-5. Public hearing notices are provided in Appendix E.

In 2025, the City received approximately 33% of its supply from imported water from Calleguas and 36% from United. Calleguas is a regional wholesaler that obtains their water from the Metropolitan Water District of Southern California (Metropolitan) and other local sources. United obtains their water from the Oxnard groundwater subbasin.

Table 2-4. Agency Coordination

AGENCY/ORGANIZATION	PARTICIPATED IN PLAN DEVELOPMENT	COMMENTED ON DRAFT	ATTENDED PUBLIC MEETINGS	WAS CONTACTED FOR ASSISTANCE	WAS NOTIFIED OF PLAN AVAILABILITY[1]	WAS SENT A NOTICE OF INTENTION TO ADOPT 60 DAYS PRIOR TO PUBLIC HEARING
WATER SUPPLIERS						
Calleguas Municipal Water District				X		X
United Water Conservation District						X
Port Hueneme Water Agency				X		X
Metropolitan Water District						X
PUBLIC AGENCIES						
Ventura County Watershed Protection District						X
Ventura Local Agency Formation Commission						X
Ventura County Resource Management Agency						X
City of Camarillo						X
City of Ventura						X
County of Ventura						X
City of Port Hueneme						X
OTHER						
Naval Base Ventura County						X

AGENCY/ORGANIZATION	PARTICIPATED IN PLAN DEVELOPMENT	COMMENTED ON DRAFT	ATTENDED PUBLIC MEETINGS	WAS CONTACTED FOR ASSISTANCE	WAS NOTIFIED OF PLAN AVAILABILITY[1]	WAS SENT A NOTICE OF INTENTION TO ADOPT 60 DAYS PRIOR TO PUBLIC HEARING
Fox Canyon Groundwater Management Agency						X
Channel Islands Beach Community Services District						X

* This table will be updated after public review and adoption.

As mentioned, the City held several stakeholder outreach meetings to provide opportunities to review development of the UWMP and WSCP.

Important dates for outreach and engagement are listed below:

- Public Draft UWMP released for review – May 2026
- Published Public Hearing Notices - Vida Newspaper published on May 28, 2026, and June 4, 2026
- City Public Works and Transportation Committee reviews– May 26, 2026
- Council Meeting conducts Public Hearing and adopts Final UWMP and WSCP – Jun 16, 2026

Table 2-5: DWR 2-4 Water Supplier Information Exchange

WHOLESALE WATER SUPPLIER NAME
Calleguas Municipal Water District
United Water Conservation District

2.3 Completed Steps for UWMP and WSCP

The City adopted the 2025 UWMP with the WSCP. Both were made available for public review in May/June 2026 and a public hearing was held on June 16, 2026 to receive public input on the draft documents. The public hearing notices are attached as Appendix E.

The City Council adopted the 2025 UWMP and the WSCP at a public meeting on June 16, 2026. The resolution of adoption is included in Appendix F.

This WSCP was submitted to DWR through the WUEData portal before the deadline of July 1, 2026. This WSCP will be available to the public on the City website.

If the City identifies the need to amend this UWMP or WSCP, it will follow the same procedures used previously for notification to cities, counties, and the public and for initial adoption.

3 System Description

This section describes the City's water system, service area, population demographics, local climate, and land uses.

IN THIS SECTION

- General Description
- Service Area Boundary Map
- Service Area Climate, Demographics, and Socioeconomics
- Land Uses

3.1 General Description

The Public Works Department manages the potable water, recycled water and wastewater systems for the City. The water system includes a mix of residential, commercial and industrial customers. The surrounding area, the Oxnard Plain, is distinctive for its year-round agricultural production.

3.2 Service Area Boundary Maps

Figure 3-1 shows the City service area boundary map and surrounding area. The service area has changed slightly since the 2020 UWMP.

Figure 3-1. City of Oxnard Service Area



3.3 Service Area Climate

Oxnard's climate is characterized as a dry, sub-tropical climate, mainly due to its proximity to the Pacific Ocean. Table 3-2 presents average climate data for the service area, including temperature, precipitation, and reference evapotranspiration (ETo). As shown in Table 3-2, the warmest month of the year is August with an average temperature of 66.6 degrees Fahrenheit (°F), while the coldest month of the year is December with an average temperature of 54.3°F.

The annual average precipitation within Oxnard's service area is about 10 inches. As shown in Table 3-2, the majority of rainfall occurs in November through March. December is typically the wettest month with an average rainfall of approximately 2.3 inches.

Table 3-1. Average Monthly Climate Data, 2010-2024

MONTH	AVERAGE PRECIPITATION (INCHES)	AVERAGE ETO (INCHES)	AVERAGE AIR TEMPERATURE (°F)
January	1.6	2.5	55.8
February	1.2	2.9	54.5
March	1.9	3.9	55.8
April	0.59	4.8	58.0
May	0.21	5.3	59.5
June	0.14	5.4	62.9
July	0.26	6.1	66.2
August	0.49	5.7	66.6
September	0.28	4.5	65.7
October	0.48	3.7	63.3
November	0.85	2.8	58.2
December	2.3	2.2	54.3
ANNUAL AVERAGE TOTAL:	**10.3**	**49.7**	**60.1**

[1]CIMIS weather station 152 in Camarillo; https://cimis.water.ca.gov/.

3.4 Service Area Population, Demographics, and Socioeconomics

3.4.1 Population and Housing

The City's water service area boundary differs from the City limits boundary. Projections of the population within the City's water service area are based on estimates from the 2020 U.S. Census Bureau and the Southern California Association of Governments (SCAG). A geographic information systems (GIS) analysis of 2020 Census data was used to determine the City's 2020 service area population and derive a 2020 persons per connection factor (4.72). This factor was then multiplied by the number of connections in 2021-2025 to estimate the water service area population. To project the population served by the City from 2030 to 2050, average annual population growth rates from SCAG projections were applied to the 2025 estimate. SCAG projected a slight increase in population from 2019 to 2035 (averaging 0.64% per year) and a slight increase in population from 2035 to 2050 (averaging 0.12% per year).

SCAG also estimated future households considering the Regional Housing Needs Assessment (RHNA). RHNA establishes housing needs for each jurisdiction over the applicable planning period. SCAG adopted the 6th Cycle RHNA Allocation Plan, which covers the planning period from October 2021 through October 2029 (Southern California Association of Governments (SCAG), March 2021). SCAG's population and household projections inform the RHNA Allocation Plan and are used in the determination and allocation of housing needs, including lower income housing, for individual jurisdictions. The growth projections in this UWMP are based on SCAG projections for the service area and therefore also incorporate the lower income housing projections.

The City's Water Department coordinated with the City's Community Development Department to ensure the population projections provided in this UWMP align with SCAG and other City planning efforts. SCAG describes a recent increase in accessory dwelling units (ADUs). As reported in the City's General Plan Annual Report (City of Oxnard, 2025) in 2025, 244 ADUs were issued a building permit, and 174 were constructed and occupied. The City's Housing Element projects the development of 283 ADUs during the 2021 - 2029 cycle. To date, over 800 permits have been issued for the construction of ADUs and 469 ADUs have been constructed. Therefore, the City has met its Housing Element projections and will significantly exceed that projection.

Estimated current and projected future population and households for the City's service area are included in Table 3-2.

Table 3-2: Historical, Current, and Projected Population

YEAR	TOTAL CITY POPULATION[1]	POPULATION SERVED BY THE CITY	SCAG HOUSEHOLDS ESTIMATE
2015	205,512	198,207	-
2020	202,063	198,563	54,471
2021	203,405	198,945	55,544
2022	204,746	199,426	56,616
2023	206,088	197,464	57,689
2024	207,430	197,879	58,761
2025	208,771	206,822	59,834
2030	215,479	213,585	65,196
2035	222,188	220,348	70,559
2040	223,556	221,728	70,592
2045	224,925	223,108	70,626
2050	226,294	224,488	70,660

[1] Total City population was estimated by applying the SCAG population growth rate (described in text above) (Southern California Association of Governments (SCAG), March 2021) to the 2020 US Census population estimate for the City (US Census Bureau, 2024).

3.4.2 Other Social, Economic, and Demographic Factors

According to the US Census Bureau, the estimated median income of City residents in 2024 was $96,212 (in 2024 dollars) (US Census Bureau). The estimated poverty rate was 11.0%. An estimated 68.9% of persons aged 25 or higher hold a high school degree or higher (US Census Bureau). Only 12.2% of the population of the City of Oxnard was estimated to be aged 65 or over according to the US Census Bureau's 2024 QuickFacts (US Census Bureau). The owner-occupied housing rate (2020-2024) was estimated to be 54.4% and the median value of owner-occupied housing units was estimated to be $652,700 (US Census Bureau).

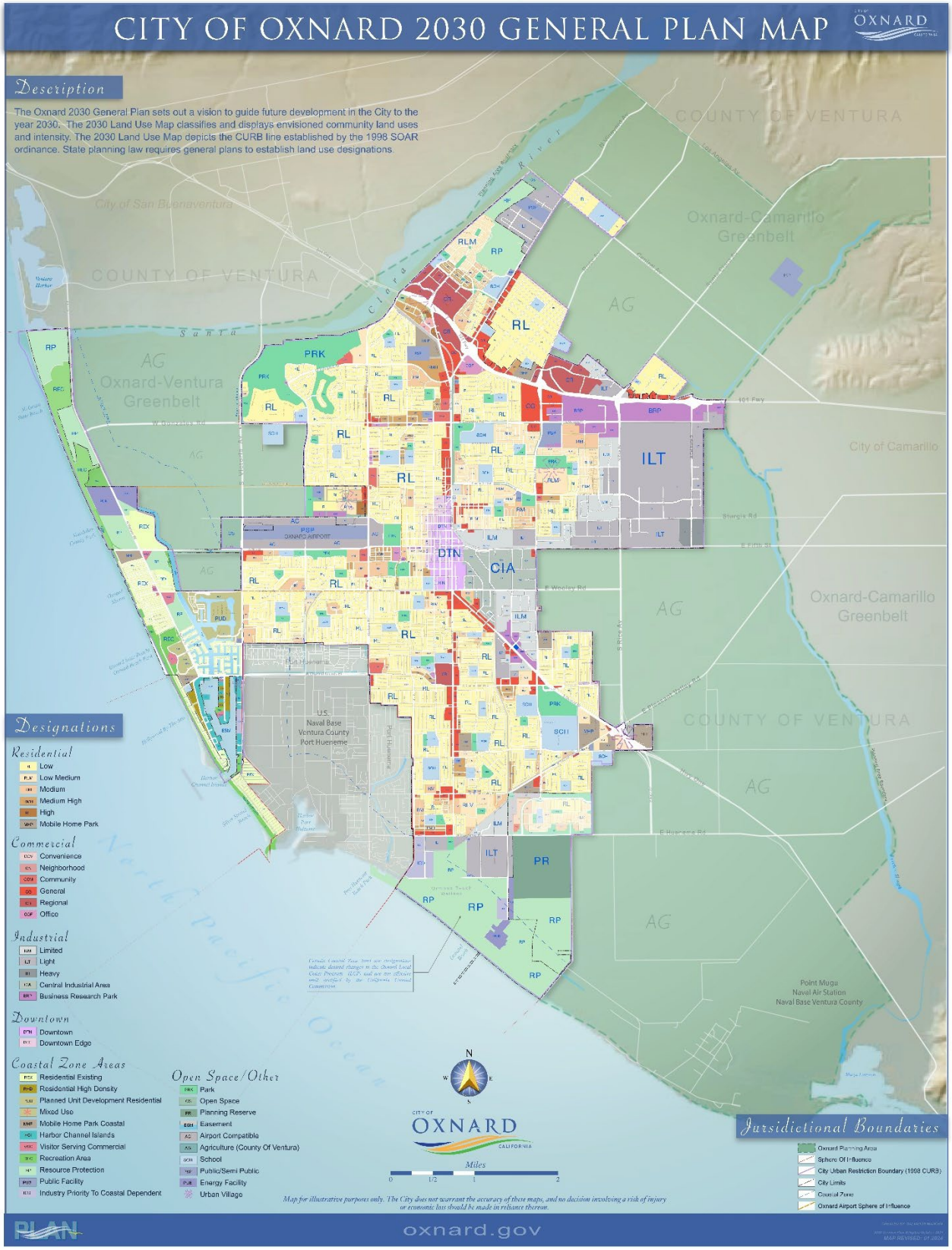
3.5 Land Uses within Service Area

The City serves many different types of users, mainly single-family residences. Other land uses include multi-family residential, commercial, and institutional, industrial, landscape irrigation, and agricultural irrigation. The City's 2030 General Plan summarizes anticipated land uses. These are shown in Figure 3-2 (City of Oxnard, 2014). As described previously, the City prepared population projections based on 2020 Census and SCAG projections.

SCAG prepares demographic forecasts based on land use data through an extensive process that emphasizes input from local planners in coordination with local or regional land use authorities, including the City, incorporating essential information to reflect anticipated future populations and land uses. SCAG's projections undergo extensive local review, incorporate zoning information from city and county general plans, and are supported by Environmental Impact Reports. In advance of publication of SCAG's latest estimates (as part of SoCal Connect

2024), SCAG met with each jurisdiction individually, including the City, to review the demographic forecasts. This review process incorporated feedback from the City Community Development Department, to help align the demographic forecasts with current land use and anticipated land use changes.

Figure 3-2. City of Oxnard General Plan Designation Areas



4 Water Use Characterization

This section describes and quantifies the City's past, current, and future water use through 2050. The City provides potable and recycled water to nearly 43,000 service connections. In 2025, the City delivered approximately 21,000 AFY of potable water to its customers (excluding water losses). In the past five years, the City has delivered as much as 25,000 AFY to its customers in any single calendar year (excluding water losses).

IN THIS SECTION

- Non-Potable Versus Potable Water Use
- Worksheets and Reporting Tables
- Water Use for Lower Income Households
- Climate Change Considerations

4.1 Past, Current, and Projected Water Use by Sector

4.1.1 Water Use Sectors Listed in Water Code

Water suppliers are required to identify water uses for each of the applicable water use sectors identified in CWC 10631(d). The City primarily serves potable water to customers, though it does supply a small amount of recycled water. Recycled water uses are described in Section 6.2.7.

The City serves the following water uses:

Single Family Residential

Single family residential customers are typically on a lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling.

Multi-Family Residential

Multi-family residential customers are typically multiple dwelling units within one building or several buildings within one complex.

Commercial/Institutional

The City tracks commercial and institutional customer water uses as one. Commercial customers typically provide or distribute a product or service and institutional water customers are typically public services, such as higher-education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

Landscape Irrigation

The City tracks the water use for landscape irrigation.

Industrial

The City tracks the water used by industrial customers.

Agricultural Irrigation

This consists of irrigation used for agriculture.

Other – Fire Hydrants

This consists of metered water from fire hydrants.

Sales/Transfers/Exchanges to Other Agencies

The City transfers State Water Project (SWP) water from Calleguas to PHWA.

Losses

Distribution system water losses are the water losses from the point of water entry to the distribution system to the delivery point to the customer's system. Water losses are discussed in Section 4.1.3.

4.1.2 Past and Current Water Use

The average annual potable water consumption by the City's customers over the last five years is approximately 23,000 AFY. Approximately 37% of Oxnard's total potable deliveries were to single family residences, followed by 21% to commercial and institutional customers and 15% to multi-family residences from 2021 to 2025. These percentages do not consider potable water transferred by the City from Calleguas to PHWA. Figure 4-1 and Table 4-1 summarize historical water consumption by customer class. Over the last five years, the City has provided an average of approximately 400 AF to PHWA annually.

Figure 4-1. Historic Water Consumption

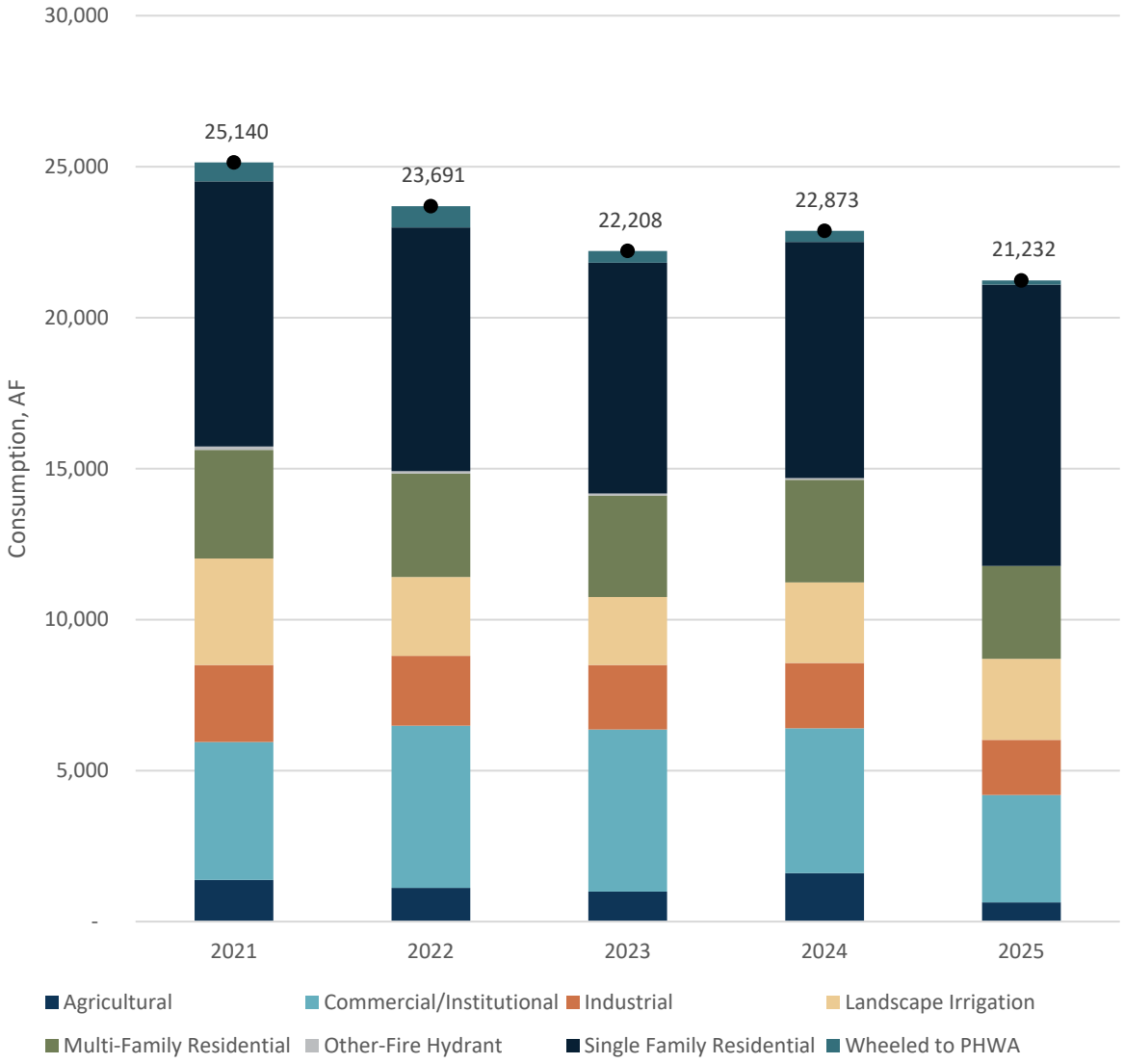


Table 4-1. DWR 4-1R Actual Demands for Water, 2025, AFY

USE TYPE	ADDITIONAL DESCRIPTION	LEVEL OF TREATMENT WHEN DELIVERED	2025 VOLUME, AFY
Single Family		Potable	9,315
Multi-Family		Potable	3,080
Commercial		Potable	3,554
Industrial		Potable	1,826
Landscape		Potable	2,684
Other	Fire Hydrant	Potable	0
Agricultural irrigation		Potable	635
Losses		Potable	1,745
Sales/Transfers/Exchanges to Other Agencies	Wheeled to PHWA	Potable	138
		TOTAL:	**22,977**

4.1.3 Distribution System Water Losses

Distribution system water losses are the physical potable water losses from the point of water entry to the distribution system to the point of delivery to the customer's system. Water loss can result from aging infrastructure, leaks, seepage, theft, metering inaccuracies, data handling errors, and other causes. Addressing water losses can increase water supplies and recover revenue. The City monitors its water loss and prepares an annual AWWA Water Audit to estimate the volume of water loss. The City has submitted all required water loss audits to the State, as shown in Table 4-2

Table 4-2: DWR 4-5R Month Water Loss Audit Reporting

Public Water System ID #	Reporting Period	Submitted to DWR
CA5610007	2020	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes

DWR NOTES:

2020 AWWA: **View Spreadsheet**

2021 AWWA: **View Spreadsheet**

2022 AWWA: **View Spreadsheet**

2023 AWWA: **View Spreadsheet**

2024 AWWA: **View Spreadsheet**

CWC Section 10608.34 required the SWRCB to develop water loss performance standards for urban retail water suppliers to minimize water waste through system leaks. Water loss performance standards were developed through a rulemaking that became effective in 2023. Under the regulations, each supplier will be required to comply, by 2028, with an individualized volumetric water loss standard based on real loss, using the economic model developed by the SWRCB and the supplier's own unique data. Real loss is the physical loss of water from water distribution systems, as opposed to apparent losses, which are revenue losses due to meter inaccuracies, billing errors or unauthorized consumption. A supplier's baseline water loss is calculated as the average water loss from at least 3 of the 4 water loss audits from 2017 – 2020. The real water loss performance standard is based on gallons per service connection per day (gpscd), or gallons per mile of pipe per day (gpmd), depending on how the supplier reports real loss. Post-2028 compliance with volumetric water loss standards will be assessed every three years based on the average of the supplier's real loss from the preceding three years, with an allowed variation of 5 gallons per connection per day above the supplier's water loss standard. Apparent loss standards are equal to the baseline apparent loss and compliance is evaluated at the same time as compliance with the Real Water Loss Performance Standard.

Although the compliance period has not yet started, CWC Section 10631 (d)(3)(C) requires water suppliers to provide data in the UWMP to show whether the supplier met its SWRCB water loss performance standard.

Based on data released by the State on January 30, 2026, the City's baseline real water loss is 26.6 gpscd and the real water loss standard is 18.0 gpscd, and the apparent loss standard is the baseline of 12.1 gpscd. As shown in Table 4-3, based on the most recent water loss audit from 2024, the City has not yet met the real water loss performance standard, but is working toward that goal by 2028 (see Section 9.2.5). Section 9 discusses the City's programs to assess and manage distribution system real loss.

Table 4-3: DWR 4-6R Progress Towards 2028 Water Loss Standard

Public System ID # Reported in Submittal Table 2-1R	Did the Water Board Calculate a Water Loss Standard for this Public System?	2028 Real Water Loss Standard per Unit per day	Units for Real Water Loss Standard	Number of Units	Volume of Total Real Water Loss (from AWWA Water Loss Audit)	2025 or Most Recent Year Real Water Loss per Unit per Day	2028 Apparent Water Loss Standard per Unit per Day	Units for Apparent Water Loss	Number of Connections	Volume of Total Apparent Loss (from AWWA Water Loss Audit)	2025 or Most Recent Year Apparent Water Loss per Unit per Day
CA5610007	Yes	18.0	gpscd	44,621	1,004	20.1	12.1	gpscd	44,621	528	10.6

4.1.4 Projected Water Use

The "Making Conservation a California Way of Life" Regulation (CWOL Regulation) establishes unique water budget-based Urban Water Use Objectives (UWUO) for each urban retail water supplier in the State. The CWOL Regulation requires suppliers to calculate an annual UWUO consisting of these core components:

> UWUO = Residential Indoor Water Use Budget + Residential Outdoor Water Use Budget + Commercial, Industrial, and Institutional (CII) Dedicated Irrigation Meters (DIM) Outdoor Water Use Budget + Real Water Loss Budget

Each component has associated water efficiency standards that become increasingly stringent through 2040 as shown in Table 4-4. The key standards are residential indoor GPCD, Landscape Efficiency Factors (LEF), and real water loss measured in gpscd. Annually updated supplier-specific input data is also required for population, climate, landscapes, and real water losses. The UWUO does not include some uses, such as CII indoor use or other uses that are considered "Excluded Demands".

Table 4-4. Water Efficiency Standard by Reporting Period

Year	Residential Indoor GPCD	Residential Outdoor LEF	CII DIMs	Real Water Loss Budget[1]
FY 23/24	55	0.8	Actual Reported "Landscape" Volume	Actual Reported or Budget
FY 25/26	47	0.8	Actual Reported "Landscape" Volume	Actual Reported or Budget
FY 30/31	42	0.8	0.8 LEF (starts July 1, 2028)	Budget (starts July 1, 2027)
FY 35/36	42	0.63	0.63 LEF	Budget
FY 40/41	42	0.55	0.45 LEF	Budget

[1] Budget = Supplier standard for real water loss (gallons per service connection per day) applied to total service connections.

DWR and the SWRCB have developed an annual reporting framework, tools, and guidance for calculating the UWUO and comparing it to the actual use for that year. The SWRCB's "Water Use Objective Exploration Tool" allows users to enter varying efficiency standards and baseline year(s) of input data to calculate and visualize a comparison of historic demand to the UWUO

with selected standards. The SWRCB 's "Annual UWUO and Water Use Report" tool pre-populates input data and standards for the given reporting year. To project demands for this UWMP, a demand tool that aligns with the framework, data, and calculations of the SWRCB's tools was used and expanded to allow for forecasting future years' demand considering future efficiency standards, supplier input data, and growth assumptions.

Supplier input data and growth assumptions used in this UWMP for future years are shown in Table 4-5. Projected growth for residential indoor usage is associated with population projections described in Section 3.4. Residential landscape area growth is associated with connections growth scaled with SCAG's housing projections described in Section 3.4. The historic landscape area provided by the State in its UWUO tools was divided by the 2025 residential service connections to create a landscape area per connection factor that was applied to future connections to account for growth. All non-residential connections were assumed to scale with historic connections growth rates. Excluded Demand growth was assumed to scale with the ratio of historic Excluded Demand to the UWUO applied to future UWUO estimates. The Real water loss standard is applied to the sum of all projected future connections.

Table 4-5. UWUO Components Growth Comparison

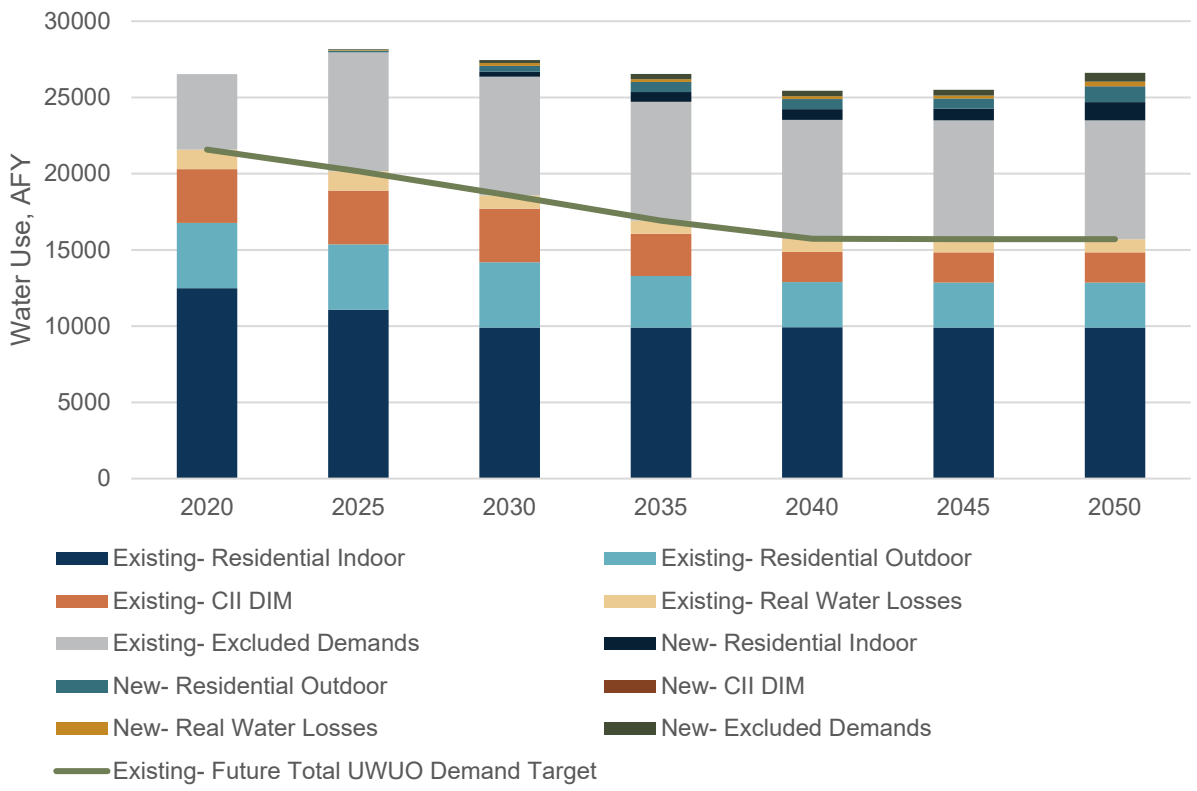
UWUO Component	Supplier Input Data	Input Data for Growth	Associated Assumption
Residential Indoor	Population	2025-2050 population	See Section 3.4
Residential Landscape	Landscape area & annual climate data	2025 Irrigable Irrigated Residential Landscape Area per Service Connection scaled to future connections.	SCAG household projections growth rate applied to connections. Historic average climate data from the State is used for future years.
CII DIM Landscape	Water use	Historic Landscape water use per service connection scaled to future connections.	
Real Water Loss	Connections	Supplier standard for Real Water Loss (gallons per service connection per day) applied to future total connections.	Sum of future connections including UWUO & Excluded Demand categories connections.
Excluded Demand (not included in UWUO but included in total demand)	Water use		Ratio of historic Excluded Demand to UWUO applied to future UWUO estimates.

Future efficiency standards (see Table 4-4) were applied to existing customer residential population, residential landscaped area, CII landscape usage, and total connections. These demand components for existing customers are shown to reduce over time as the standards become more stringent. Excluded demands were assumed to grow at the ratio of historic Excluded Demand to the UWUO. The most stringent standards in Table 4-4 for FY 40/41 were applied to all new growth connections for all time periods, recognizing that new construction will comply with efficient building codes. The resulting projected UWUO, excluded demands, and total demands for both existing and new growth connections are shown in Table 4-6 and Figure 4-2.

Table 4-6. UWUO Projections by Component, AFY

	2030	2035	2040	2045	2050
Existing- Residential Indoor	9,902	9,902	9,929	9,902	9,902
Existing- Residential Outdoor	4,283	3,380	2,956	2,956	2,956
Existing- CII DIM	3,523	2,775	1,982	1,982	1,982
Existing- Real Water Losses	864	864	866	864	864
Existing- Future Total UWUO Demand Target	***18,571***	***16,921***	***15,733***	***15,703***	***15,703***
Existing- Excluded Demands	*7,793*	*7,793*	*7,793*	*7,793*	*7,793*
Existing- Total Demand	***26,365***	***24,714***	***23,526***	***23,497***	***23,497***
New- Residential Indoor	318	636	703	766	1,194
New- Residential Outdoor	389	661	662	664	1,035
New- CII DIM	2	4	6	7	11
New- Real Water Losses	178	181	185	188	294
New- Total UWUO Demand	***886***	***1,481***	***1,556***	***1,626***	***2,535***
New- Excluded Demands	*203*	*340*	*357*	*373*	581
New- Total Demand	***1,090***	***1,821***	***1,913***	***1,999***	***3,116***
Existing & New- Total UWUO Demand	***19,458***	***18,402***	***17,289***	***17,329***	***18,238***
Existing & New- Excluded Demands	*7,997*	*8,133*	*8,150*	*8,166*	*8,375*
Existing & New- Total Demand	***27,454***	***26,535***	***25,439***	***25,496***	***26,613***

Figure 4-2. UWUO Projections by Component, AFY



While the City intends to meet the UWUO, it was also considered that demands may continue in alignment with historic patterns initially and take more time than anticipated to reach direct alignment with the UWUO. Therefore, demands used for the purposes of supply reliability planning are assumed to trend from a historic baseline pattern downward to the UWUO by 2050.

A historic baseline demand per connection per customer type is used to approximate current "normal" demand patterns representative of a range of conditions for influential factors impacting demand, known as "demand drivers". A key demand driver is rainfall. Ideal baseline years incorporate impacts of dry and wet years since demand typically fluctuates with rainfall due to the need for more irrigation in dry years and less in wet years. For this UWMP, a baseline period of 2021-2024 is used, which captures two wet years and two dry years. Using demands in these years, a baseline water use was established for each connection type, then reduced at a constant rate to meet the UWUO water use for that connection type by 2050.

Figure 4-3 shows the UWUO and the baseline trend to the UWUO projection scenarios and Table 4-7 presents the projected demand by customer type through 2050 for this UWMP.

Figure 4-3. Historic and Projected Demand Scenarios

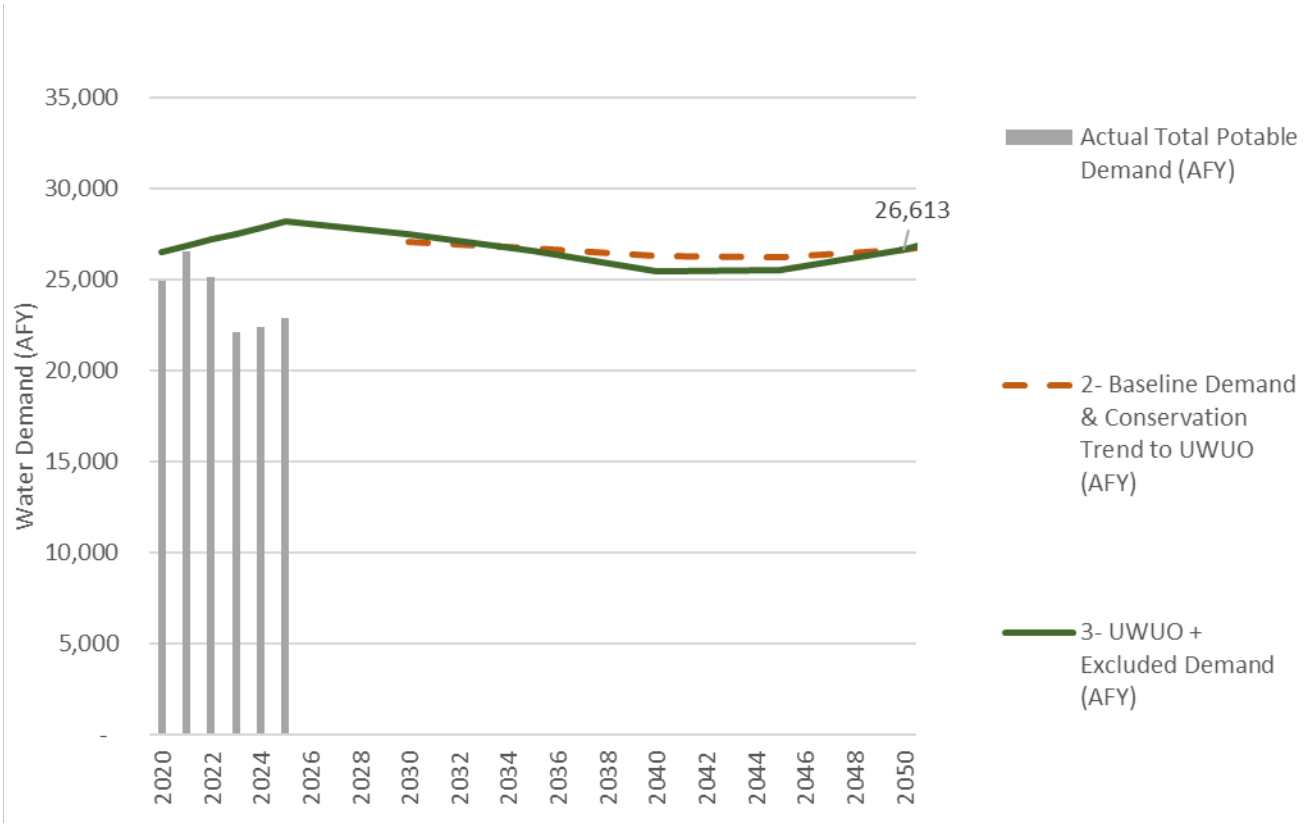


Table 4-7. DWR 4-2R Projected Demands for Water

			Projected Water Use				
Use Type	Additional Description	Level of Treatment When Delivered	2030	2035	2040	2045	2050
Single Family		Potable	8,727	8,158	7,392	6,700	6,075
Multi-Family		Potable	3,859	3,607	3,269	2,963	2,686
Commercial		Potable	5,372	5,372	5,372	5,372	5,372
Industrial		Potable	3,042	3,870	4,897	6,174	7,766
Landscape		Potable	2,750	2,476	2,230	2,007	1,807
Other	Fire Hydrants	Potable	82	85	87	90	93
Agricultural irrigation		Potable	1,107	927	777	655	554
Losses		Potable	2,084	2,238	2,244	2,252	2,260
Total			**27,024**	**26,732**	**26,268**	**26,212**	**26,613**

The City transfers water from Calleguas to PHWA through the Oxnard-Hueneme (O-H) Pipeline. This occurs through the Three-Party Agreement, which will expire in 2036, although PHWA demands are anticipated to continue past this date. Projected PHWA demands used in the 2020 UWMP were developed as part of the City's Water Resources Master Plan, which was being finalized circa the time of the writing of the 2020 UWMP. The projections included in Table 4-8 were developed by reducing the projections from the 2020 UWMP to account for reductions in groundwater pumping and an associated reliance on imported water.

Table 4-8. Projected Demands for Water, Transferred Water

			Projected Water Use				
Use Type	Additional Description	Level of Treatment When Delivered	2030	2035	2040	2045	2050
Sales/Transfers/ Exchanges to Other Suppliers	Transferred to PHWA	Potable	492	521	563	589	604

Table 4-6, Table 4-7, and Table 4-9 satisfy the requirement to include anticipated water conservation savings when developing future demand projections since they account for water efficiency standards set by the State for the UWUO. Conservation savings were considered and included in developing demand estimates for the next 25 years. However, the City considers projected demand to plan for supply reliability if demands continue in alignment with historic patterns rather than in direct alignment with the UWUO. The City is complying with and planning for UWUO standards as described in Sections 5 and 9.

Senate Bill 1087 requires that water use projections in a UWMP include projected water use associated with single family and multi-family residential housing for lower income households, as identified in the housing elements of any city, county, or city and county within the supplier's service area. As described in Section 3.4, SCAG's population and household projections inform the RHNA Allocation Plan and are used in the determination and allocation of housing needs, including lower income housing, for individual jurisdictions. The growth projections in this UWMP are based on SCAG projections for the service area and therefore also incorporate lower income housing projections.

Table 4-9. DWR 4-3R Inclusion in Water Use Projections

Are Future Water Savings Included in Projections?	Yes
Are Lower Income Residential Demands Included in Projections?	Yes

4.2 Climate Change Considerations

Oxnard is an active participant in the Watersheds Coalition of Ventura County (WCVC) Integrated Regional Water Management Plan (IRWMP) (amended in 2019) and references Appendix K of the WCVC IRWMP. The WCVC IRWMP includes a future climate analysis for Ventura County, completed in 2019, by a partnership between WCVC and the Western Regional Climate Center, Desert Research Institute. The report analyzed 32 Global Climate Models that had been statistically downscaled using the Localized Construction Analogs

(LOCA) method to examine projected changes in temperature, precipitation, and evapotranspiration for 2021-2040 compared to a baseline period of 1950-2005. The results of the analysis concluded that coastal areas (like Oxnard) will see an average increase in temperature of 2-3°F and a projected 5-10% increase in evapotranspiration. The climate models estimate average annual precipitation to remain relatively the same, but the pattern of rainfall will likely change. The climate analysis estimates that the number of dry days will increase, and precipitation will be reduced by 7% in the winter, 11% in the spring, and 20% in the fall. Since average annual precipitation is not expected to change very much but the number of dry days is expected to increase, precipitation will likely fall in shorter durations but at greater intensities. This slight shift in precipitation patterns may impact groundwater recharge and how surface water is conveyed, captured, and stored within Ventura County. Additional impacts of climate change will likely extend wildfire season, increase post-fire flash floods and debris flow, increase maximum temperature and overnight minimum temperatures, and increase evaporative demand and affect agricultural production, such as which crops are economical, alter ecosystem functionality, and increase drought susceptibility (N.S. Oakley, B.J. Hatchett, D. McEvoy, and L. Rodriguez, June 2019).

5 SB X7-7 Baselines, Targets, and 2025 Compliance

This section describes compliance with the Water Conservation Act of 2009, also known as Senate Bill 7 of Special Extended Session 7 (SBX7-7). The section demonstrates compliance with the 2020 SBX7-7 target and discusses future water use efficiency requirements.

IN THIS SECTION

- SBX7-7 Forms and Tables
- 2020 Compliance

5.1 Compliance and Future Water Use Efficiency Requirements

SBX7-7 was incorporated into the UWMP Act in 2009 and required that all water suppliers increase water use efficiency with the overall goal to decrease per-capita water consumption within the state by 20 percent by the year 2020.

SBX7-7 required DWR to develop certain criteria, methods, and standard reporting forms through a public process that water suppliers could use to establish their baseline water use and determine their water conservation targets. SBX7-7 and DWR's *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (State of California Department of Water Resources, 2021) specify methodologies for determining the baseline water demand, 2015 interim urban water use target and the 2020 urban water use target for the City as described in the 2020 UWMP. This section also demonstrates that the City achieved its 2020 water use target.

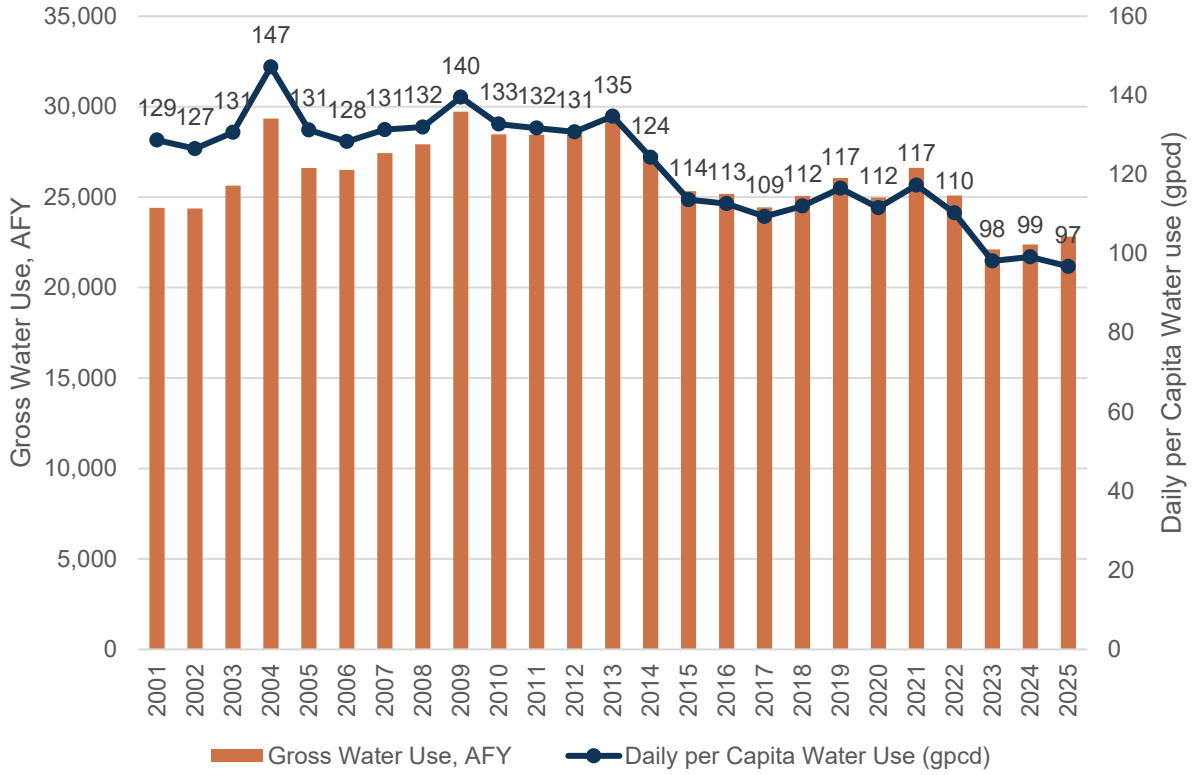
Table 5-1 below establishes the City's 2020 actual and 2020 target GPCD. As shown, the City met its 2020 target. Most recently, in 2025, the water use was 97 GPCD, which is well below the 2020 target of 140 GPCD.

Table 5-1. SB X7-7 2020 Target Progress

2020 Target GPCD	2020 Actual GPCD	Did Supplier Achieve Target?
140	116	Yes

Figure 5-1 below shows gross water use and daily per capita water use from 2001 to 2025. This includes water received from Calleguas which is ultimately sent to PHWA.

Figure 5-1. Historic Gross Water Use and Per Capita Water Use



New water use efficiency standards from CWOL Regulation supersede SBX7-7 standards. In 2018, two policy bills were enacted by the California Legislature, Assembly Bill 1668 (AB1668, Friedman) and Senate Bill 606 (SB606, Hertzberg), collectively referred to as the "2018 Water Conservation Legislation." Based on the 2018 Water Conservation Legislation, related legislation, and subsequent adoption of the CWOL Regulation, each urban retail water supplier must comply with its UWUO. DWR and the SWRCB have developed a reporting framework for calculating the UWUO and compliance annually with efficiency standards becoming increasingly stringent through 2040.

The demand projections in this UWMP are based on the City meeting its estimated future UWUO, as described in Section 4.1.4. The City will plan and implement necessary demand management measures (described in Section 9) to support meeting the UWUO. DMMs and UWUO compliance planning enhance resiliency for drought and other water shortage conditions as described in Sections 7, 8, and 9.

6 Water Supply Characterization

This section describes and quantifies the City's current and projected potable and non-potable water supplies. It provides a narrative description of each supply source and quantifies the supply availability for each supply source identified. The City's water supply consists of three sources: imported surface water from Calleguas, local groundwater from United, and local groundwater from City wells.

IN THIS SECTION

- Water Supply Analysis Overview
- Water Supply Characterization
- Energy Intensity

6.1 Water Supply Analysis Overview

The City obtains water supplies from several sources: City groundwater, United groundwater, and imported Calleguas water. Additionally, Oxnard produces recycled water at its Advanced Water Purification Facility (AWPF). A simple schematic of the various supply sources for the City is shown in Figure 6-1.

The City extracts groundwater from the Oxnard Plain Groundwater Basin (Oxnard Basin) using their own wells and through an agreement with United. United extracts additional groundwater , on behalf of the City, which helps mitigate seawater intrusion. The City then imports water from Calleguas that is blended with the groundwater to conserve costs and to meet the City's demands. All three of these sources are utilized in normal and dry years.

The City is also working with neighboring agencies and the Fox Canyon Groundwater Management Agency (FCGMA) to ensure the sustainability and reliability of the groundwater basin in the future. Copies of the Groundwater Sustainability Plan (GSP) and a Periodic Evaluation of the GSP are available on the websites shown below:

- GSP: https://fcgma.org/oxnard-subbasin-gsp-files/ (Dudek, December 2019)
- Revised First Periodic Evaluation Groundwater Sustainability Plan for the Oxnard Subbasin (Dudek, January 2025): https://fcgma.org/gsp-periodic-evaluations/

The volume of water utilized from each source in 2025 is summarized in Table 6-1.

Figure 6-1. Supply Schematic

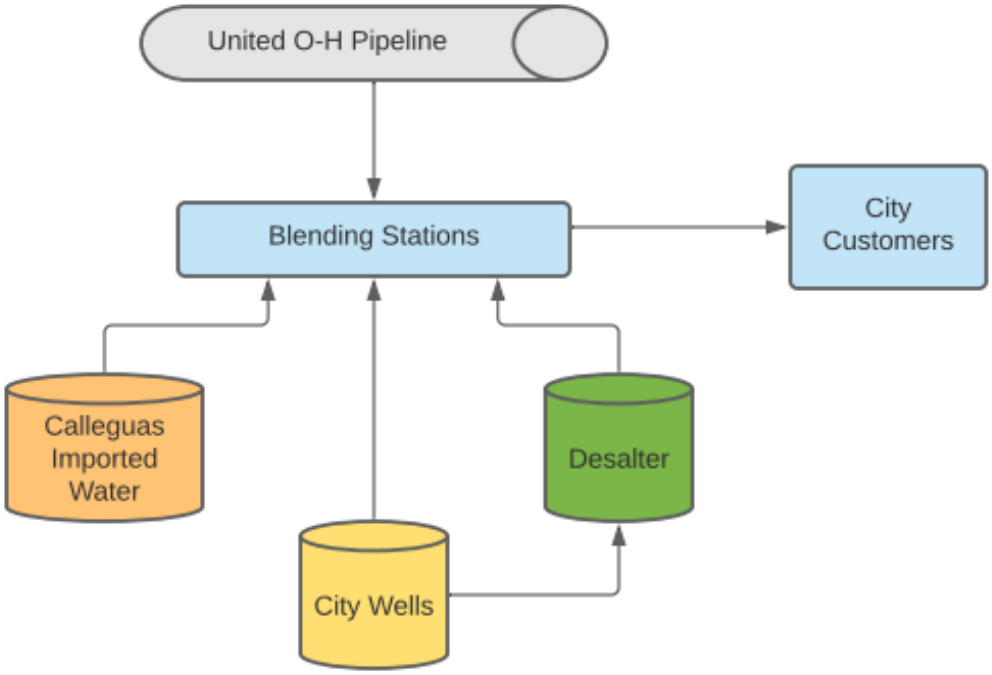


Table 6-1: DWR 6-8R Actual Water Supplies

		2025	
WATER SUPPLY	ADDITIONAL DETAIL ON WATER SUPPLY	ACTUAL VOLUME, AFY	WATER QUALITY
Groundwater (not desalinated)	City	7,077	Drinking Water
Groundwater (not desalinated)	United	8,278	Drinking Water
Purchased or Imported Water	Calleguas	7,485	Drinking Water
Purchased or Imported Water	Wheeled to PHWA	138	Drinking Water
	TOTAL:	**22,977**	

6.2 Water Supply Characterization

This section provides further guidance on the water supply availability and narrative required under the Water Code.

6.2.1 Purchased or Imported Water

The City has imported an average of 8,065 AFY from Calleguas in the last five years. The City purchases imported water from Calleguas, a regional wholesale agency. Calleguas obtains State Water Project (SWP) water from Metropolitan. The City tries to minimize the amount of imported water from Calleguas to minimize costs and water rates. Until recently, Calleguas employed a tiered water rate structure, and the City operated to remain below the Tier 1 threshold to conserve costs. Since the 2020 UWMP, Calleguas has effectively eliminated their tiered rate structure. The City continues to try to minimize use of this supply source. Water from Calleguas is blended with other sources by the City to help improve water quality. For this reason and to meet hydraulic objectives, there is a minimum amount of water that the City uses and plans to use from Calleguas.

Historically, SWP supplies met Calleguas' imported water needs, but drought and low snowpack have reduced allocations. In 2022, consecutive 5% allocations led Metropolitan to implement emergency conservation measures, limiting outdoor watering in Calleguas' service area until early 2023 when rainfall improved conditions. SWP reliability is expected to decline and become more variable due to climate change (Water Systems Consulting, Inc., 2026). In 2022, the City's monthly allocation from Calleguas was 1,304.9 AF, or 15,660 AFY. For reference, the City used 8,479 AFY of Calleguas supply in 2022.

Metropolitan's 2025 UWMP water reliability assessment anticipates reliable supplies in all year types. However, for more conservative planning, Calleguas' water reliability assessment incorporates the rapid onset of climate change impacts that are expected to increase the variability of future SWP supply, including increased frequency and duration of drought periods (Water Systems Consulting, Inc., 2026).

In years one through four of a five-year drought, Calleguas projects sufficient supplies to meet demand. In the fifth consecutive drought year, Calleguas supplies are projected to be insufficient to meet the projected unconstrained demand. Therefore, Calleguas assumes a 15% reduction to match supply availability (Water Systems Consulting, Inc., 2026).

As a result, the City is focused on additional supply sources and anticipates that in a water shortage emergency, it is possible that Calleguas would supply water to customers 100% reliant on them prior to serving water to the City. Calleguas' planned options to address emergency allocations are described in Calleguas' 2025 UWMP (Water Systems Consulting, Inc., May 2026) and 2025 WSCP (Water Systems Consulting, Inc., May 2026) as described in more detail in Section 7.2. Calleguas is subject to Metropolitan's supply reliability as discussed in the next section. Calleguas is also working to improve reliability of its supplies and system resilience, including its Water Supply Alternatives Study and Water Resources Implementation Strategy

that recommended multiple new local supply projects. Oxnard participated in both regional studies and is implementing multiple projects to increase its groundwater supply, as described in the remainder of this chapter, that were included in these planning studies.

6.2.1.1 Metropolitan Water District of Southern California

Metropolitan faces several challenges in providing adequate, reliable, and high-quality supplemental water supplies for southern California, including dry hydrologic conditions and Sacramento-San Joaquin River Delta issues. Metropolitan's 2025 UWMP indicates that supply reliability is increasingly challenged by growing dependence on climate-stressed imported supplies (Colorado River and SWP), compounded by hydrologic variability, regulatory and infrastructure risks, and the need to actively manage shortages under prolonged drought conditions. As described in Metropolitan's draft 2025 UWMP, it is investing in multiple projects and programs to mitigate against these vulnerabilities (Metropolitan Water District of Southern California, 2025). This includes recent investments in the planning and design of the Delta Conveyance Project to mitigate risks in the Sacramento-San Joaquin Delta, investments in drought action projects to improve system constraints, and core supply and storage projects to improve reliability.

6.2.2 Groundwater

The City extracts groundwater from the Oxnard Basin during normal and dry years and currently has access to groundwater supplies through both City production wells and groundwater produced by United on the City's behalf. Over the last five years, City pumping and groundwater from United from the basin averaged approximately 7,500 AFY and 8,200 AFY, respectively, totaling 15,700 AFY. The City has a current total groundwater allocation of 17,464 AFY. Groundwater remains an important component of the City's supply portfolio; however, future groundwater availability is subject to basin management requirements, regulatory actions, legal determinations, operational constraints, and water quality considerations.

The FCGMA, acting as the basin management agency under the Sustainable Groundwater Management Act (SGMA) and related authorities, has adopted basin management measures intended to achieve long-term sustainability and address seawater intrusion risk. Details regarding FCGMA and basin management are provided in Section 6.2.3. The groundwater allocation to the City via governances from the FCGMA may change and/or be impacted by active groundwater adjudication or requirements pursuant to SGMA. As such, the volume of groundwater availability may change but specific estimates of future allocation for Oxnard are unknown at the time this UWMP was prepared.

The GSP and subsequent First Periodic Evaluation of the GSP evaluated multiple future groundwater pumping and sustainable yield scenarios using updated groundwater flow modeling. The evaluation does not assign City-specific groundwater production estimates or allocations. Future groundwater availability for the City remains uncertain and is subject to basin-wide management actions and future FCGMA regulatory decisions. Therefore, for

planning purposes, it is assumed that the City's groundwater allocation will change at a rate commensurate with basin-wide historic baseline pumping and sustainable yield scenario estimates.

The GSP identifies approximately 69,000 AFY of groundwater pumping during the 2015–2017 baseline period and describes that continuation of this pumping level would result in ongoing seawater intrusion, indicating that the baseline condition is unsustainable. The First Periodic Evaluation refines the GSP's long-term sustainable yield estimates under four future condition groundwater flow modeling scenarios, including "Projects", "Basin Optimization", "Future Baseline with EBB" (United's Extraction Barrier and Brackish (EBB) Water Treatment project), and "Future Projects with EBB", with a wide range of estimated sustainable yields. Oxnard Basin potential sustainable yield scenarios and estimated percentage reductions from a 2015-2017 baseline are shown in Table 6-2.

Table 6-2. Oxnard Subbasin GSP & First Periodic Evaluation Sustainable Yield Scenarios

	2019 GSP	First Periodic GSP Evaluation			
Historic pumping (2015–2017 avg)	Sustainable Yield	No New Projects	Basin Optimization	Projects	EBB*
69,000	39,000	44,700	52,300	49,400	68,200
Reduction from 2015-2017	-43%	-35%	-24%	-28%	-1%

* United's Extraction Barrier and Brackish (EBB) Water Treatment project

The "Projects" scenario in Table 6-2 incorporates plans for projects to improve and expand the City's AWPF, so it was chosen to represent the future scenario aligned closest with the City's supply planning assumptions described in this UWMP. For planning purposes, it is assumed that the City's groundwater availability under the "Projects" scenario's sustainable yield will result in an approximate 28% reduction from baseline conditions to 9,540 AFY by 2040. This approach is consistent with the GSP's basin-wide framework and the absence of assigned agency-specific sustainable yield allocations. However, it is important to note that there are a wide range of potential future scenarios in which the city may be subject to higher or lower allocation reductions. For UWMP planning purposes, the 28% reduction assumption strikes a balance between worst- and best-case scenarios.

Because the magnitude, timing, and implementation of future allocation reductions may be affected by future FCGMA actions, basin conditions, administrative decisions, and ongoing legal or regulatory proceedings, the groundwater reduction assumptions used in this UWMP should be understood as planning assumptions rather than fixed entitlements or guaranteed future pumping levels. For the same reason, this UWMP does not assume that any additional drought-year reduction would automatically apply on top of long-term basin reductions unless and until such reductions are formally established. Likewise, use of groundwater storage allocations,

carryover amounts, or similar credits is assumed only to the extent authorized under then-current FCGMA rules, resolutions, orders, or other applicable actions in effect at the time of use. Where future access to such amounts depends on agency approval or changing basin conditions, that access remains uncertain for planning purposes.

Groundwater supply reliability is also influenced by water quality and operational factors. The City currently operates a desalter and blends local groundwater with imported water to manage total dissolved solids (TDS) and ensures drinking water quality objectives. Future groundwater quality may be affected by salinity, basin conditions, regulatory requirements, treatment performance, and related operational considerations. In addition, certain groundwater management requirements and related matters are currently subject to dispute and litigation, the outcome of which is uncertain. Accordingly, the City will continue to monitor basin management developments, water quality conditions, and legal and regulatory actions and will adapt operations and future planning assumptions as needed.

6.2.2.1 United Groundwater

As mentioned in the previous section, approximately 8,200 AFY has been extracted from the basin on average in the last five years by United on behalf of the City and delivered through the O-H pipeline. This agreement helps the City and other coastal agencies mitigate seawater intrusion. Rather than pump near the coast, the City obtains water from the O-H pipeline that conveys groundwater extracted from wells further inland. The O-H Pipeline Agreement between United and the City provides the City with 50.47% of the total pipeline capacity (26.75 cfs) (AECOM for the City of Oxnard, 2015).

The groundwater extracted by United and delivered to the City via the O-H Pipeline is also subject to FCGMA and uncertainty about future groundwater supply conditions and sustainable yield as described above for City groundwater. This source also requires blending for desired levels of TDS. It is important to note that United's Draft 2025 UWMP assumes "United's future supply estimates for the Oxnard-Hueneme (OH) System are based on the scenarios that include EBB, which will not require allocation reductions" (United Water Conservation District, April 2026). While the City recognizes that this could be a potential future groundwater condition, the City's UWMP as described in the previous section, assumes a more conservative supply planning approach for reliability, resiliency, and cost efficiency planning purposes.

6.2.2.2 Basin Description

The Oxnard Basin underlies the City of Oxnard and the Point Mugu Naval Air Station in southern Ventura County. The Oxnard Basin is bounded by the Mound and Santa Paula subbasins and the Oak Ridge fault line to the north, the Las Posas Valley Basin to the north east, the Pleasant Valley Basin to the east and the Pacific Ocean to the west. The basin is of alluvium with semi-permeable rocks from the Santa Monica Mountains (California Department of Water Resources). The extent of the Oxnard Basin and surrounding local basins is shown in Figure 6-2. The Oxnard Basin is an alluvial basin containing a collection of interconnected aquifers separated by layers of clay strata. The Oxnard Plain Groundwater Basin can be

generally categorized into three parts: the Oxnard Forebay, the Upper Aquifer System and the Lower Aquifer System. Figure 6-3 provides a schematic profile view of the Oxnard Basin.

The Oxnard Forebay is the unconfined portion of the Oxnard Basin and is generally located along the Santa Clarita River northeast of where Oxnard Boulevard intersects with U.S. Highway 101 in the City of Oxnard. The Oxnard Forebay is the primary means by which the Oxnard Basin is recharged. The Oxnard Forebay is recharged by infiltration from the riverbed of the Santa Clarita River and spreading basins constructed for that purpose. From the Oxnard Forebay, located in the upper most portion of the Oxnard Basin, groundwater is able to seep into the Upper and Lower Aquifer Systems because the clay layers which separate the aquifers are not continuous at this location.

The Upper Aquifer System (UAS) comprises of the upper 500 feet of the confined portions of the Oxnard Basin which includes a semi-perched zone and the Oxnard and Mugu aquifers. The Upper Aquifer system is hydraulically connected to the Pacific Ocean through the Oxnard and Mugu aquifers and is how seawater intrusion enters the Oxnard Basin in periods of overdraft.

The Lower Aquifer System (LAS) includes the deeper confined aquifers including the Hueneme, Fox Canyon, and Grimes Canyon aquifers. The Lower Aquifer System is separated by an approximately 80-foot-thick layer of silty clay which is continuous except near the Oxnard Forebay.

Figure 6-2. Local Groundwater Basins

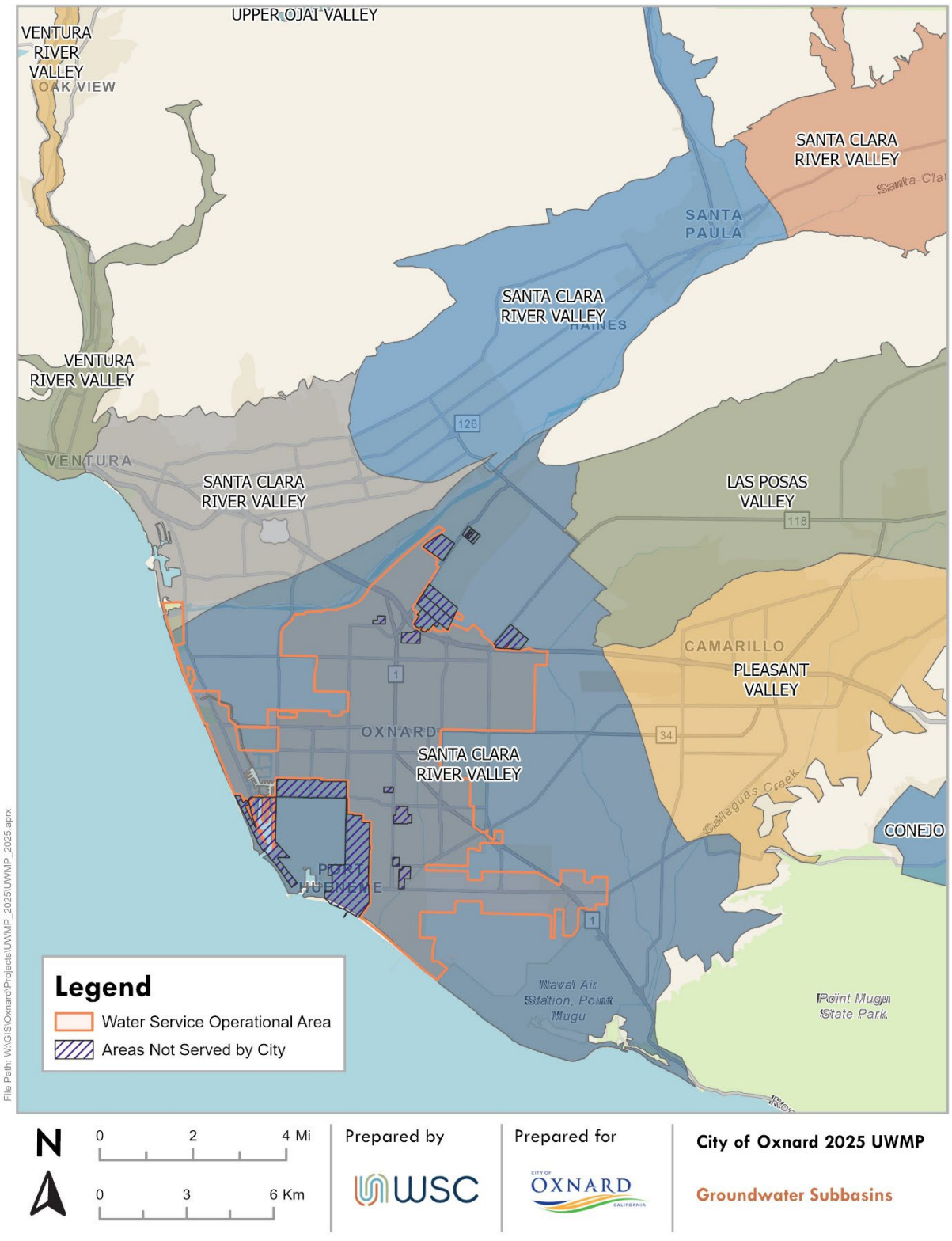
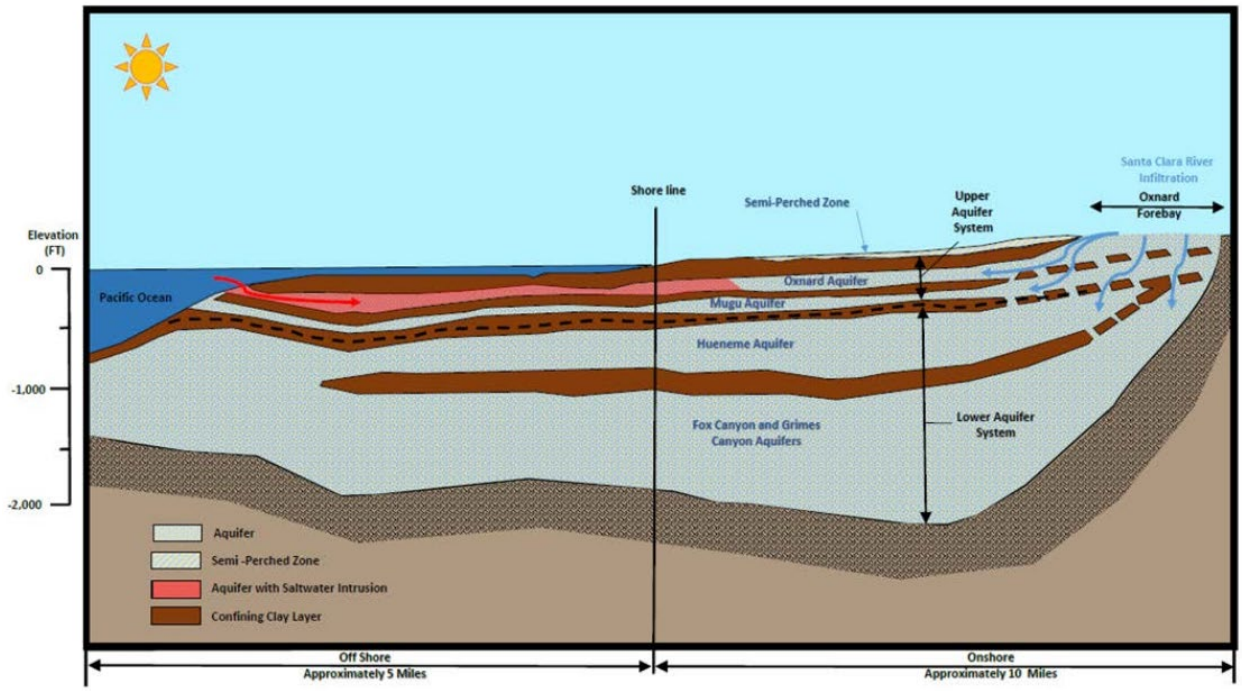


Figure 6-3. Oxnard Subbasin Profile



Source: (MNS Engineers, Inc. for the City of Oxnard, January 2018)

6.2.3 Groundwater Management

The FCGMA has established a comprehensive groundwater allocation program for the Oxnard and Pleasant Valley Basins, which was initially adopted in 2019 and subsequently amended (2020, 2021, and most recently in 2024) to maintain consistency with legal requirements and to support sustainable groundwater management under SGMA.

The FCGMA has also implemented additional regulatory and management actions in recent years, including the adoption of annual groundwater allocations, basin assessments, and policies to support groundwater sustainability and program funding. In 2023, the Agency adopted provisions related to the accrual, extraction, and transfer of recycled water pumping allocation, which provide additional flexibility for groundwater extraction for the City.

In accordance with SGMA, the FCGMA adopted GSPs for the Oxnard, Pleasant Valley, and Las Posas Valley Basins on December 13, 2019. Since adoption, the FCGMA has continued to implement the GSPs through annual reporting, periodic evaluations, and ongoing refinement of management actions to achieve long-term basin sustainability. The FCGMA Board approved the First Periodic Evaluation of the GSP in December 2024, which was subsequently submitted to DWR in January 2025. Implementation of the GSPs along with associated capital projects and allocation programs is expected to continue to influence groundwater availability within the City's service area.

6.2.3.1 FCGMA Ordinances and Resolutions

The FCGMA has established ordinances and resolutions aimed at protecting the groundwater basins which impact groundwater use and pumping and thus, the City. As mentioned previously, the FCGMA adopted a GSP for the Oxnard Basin in December 2019 to comply with the SGMA, signed into law in 2014, and approved the First Periodic Evaluation of the GSP in January 2025. The GSP and Periodic Evaluation establish groundwater sustainability goals and identify projects and management actions to achieve the goals by 2040.

Key FCGMA ordinances and resolutions which impact groundwater pumping for municipal and industrial water supply are described in Table 6-1. In addition, several resolutions direct groundwater management related to the City's use of recycled water in lieu of pumping groundwater.

Table 6-3: Key FCGMA Ordinances and Resolutions

ORDINANCE /RESOLUTION	PARTIES	KEY FEATURES
Fox Canyon Groundwater Management Agency Ordinance Code	FCGMA and all GW users within FCGMA jurisdiction	The ordinance describes FCGMA policy associated with: Registration of Wells and Levying Charges, Installation and use of Flowmeters for groundwater (GW) Extraction, Protection of the Los Posas Basin Management Area, Reduction of GW Extractions, Appeals, Severability and Penalties. Last Amendment January 9, 2015.
Emergency Ordinance E	FCGMA and all GW users within FCGMA jurisdiction	Ordinance E temporarily replaced in-use allocation systems (Historical Allocation (HA) and Baseline Allocation (BA)) for municipal and industrial well operators with a Temporary Extraction Allocation (TEA) that uses average annual extractions from the base period 2003 to 2012. The ordinance sets a series of allocation reductions from the base amount to take effect beginning July 1, 2014, with a 10% reduction. The ordinance required an additional 5% reduction every 6 months through January 2016, resulting in a total of 20%. Ordinance E also required all agricultural well operators to apply for a 25% reduced Efficiency Allocation. An Efficiency Allocation is based on a well operator demonstrating that water used for agriculturally developed land is at least 80% efficient (FCGMA 2011, Resolution No. 2011-04). Ordinance E also contains provisions for the FCGMA Board to undertake additional adjustments to irrigation allowances by resolution. Emergency Ordinance E is still in effect, but the original allocations were replaced by an Ordinance to Establish a New Pumping Allocation System for the Oxnard and Pleasant Valley Basins, effective October 1, 2020.
Resolution 01-03	FCGMA	Establishes formal support to the City GREAT Program that will provide recycled water for injection, direct use, wetland restoration, etc.

ORDINANCE /RESOLUTION	PARTIES	KEY FEATURES
Resolution 03-04	FCGMA and Oxnard	Grants one-acre foot credit to City for each acre foot of recycled water injected.
Resolution 03-05	FCGMA and Oxnard	Grants one-acre foot credit to City for each acre foot of recycled water used in lieu of groundwater.
Resolution 13-02	FCGMA and all Oxnard Recycled Water users within FCGMA jurisdiction	Allows the City to accrue a Recycled Water Pumping Allocation (RWPA) up to 5,200 AFY which allows the City to obtain groundwater in a volume and subject to the conditions of the resolution. Key conditions include: • City receives one AF of RWPA for each AF decrease in groundwater pumping by recycled water users. The City shall pump RWPA from City owned wells and UWCD's O-H system. *Groundwater conditions in the Forebay determine when RWPA's can be pumped.*
Resolution 16-06	FCGMA and all GW users within FCGMA jurisdiction	Establishes policy for brackish groundwater pumping projects.
Resolution 17-02	FCGMA and all GW users within FCGMA jurisdiction	Sets Tiered groundwater extraction surcharge rates: Tier I – Surcharge rate of $1,461.00 per AF on all GW extractions that exceed the combined allocation for all water wells within the Agency by 25-AF or less. Tier II – Surcharge rate of $250.00 per AF on all GW extractions that exceed the combined allocation for all water wells within the Agency by more than 25-AF but less than 100 AF. Tier III – Surcharge rate of $500.00 per AF on all GW extractions that exceed the combined allocation for all water wells within the Agency by 100 AF or more. This Resolution was replaced by Resolution 20-07.
Resolution 19-03	FCGMA and all GW users within FCGMA jurisdiction	Sets groundwater sustainability fee at $11 per AF effective July 1, 2019 and at $14 per AF effective July 1, 2020 to fund the Groundwater Sustainability Program.
Ordinance to Establish a New Pumping Allocation System for the Oxnard and Pleasant Valley Basins	FCGMA and all GW users within Oxnard and Pleasant Valley Basins	Adopted October 23, 2019, this ordinance establishes a new pumping allocation system for the Oxnard and Pleasant Valley Basins, replacing Emergency Ordinance E and Agency Ordinance Code. Effective October 1, 2020, initial extraction allocations were set based on the average annual extractions per well during the 2005 through 2014 base period.

ORDINANCE /RESOLUTION	PARTIES	KEY FEATURES
Resolution 20-05	FCGMA and all GW users within FCGMA jurisdiction	Effective January 1, 2021, this resolution established a fee on groundwater extractions to establish a reserve fund. The reserve fund is planned to be used to cover costs associated with implementing FCGMA's Groundwater Sustainability Program.
Resolution 20-07	FCGMA and all GW users within FCGMA jurisdiction	Effective January 1, 2021, this resolution increased the tiered groundwater extraction surcharge rates. It is anticipated that extraction surcharges will help to discourage the use of groundwater above allocations and assist with ensuring the Oxnard Basin is sustainable.
Resolution 2023-02	FCGMA and all GW users within FCGMA jurisdiction	Establishes groundwater pumping allocations and associated requirements to support implementation of the Oxnard Subbasin Groundwater Sustainability Plan (GSP) and progress toward achieving groundwater sustainability by 2040. The resolution is a regulatory action intended to manage groundwater extraction, reduce overdraft, and protect basin conditions consistent with the Sustainable Groundwater Management Act (SGMA).

6.2.3.2 Groundwater Sustainability Plan

The City has long relied on groundwater from the Oxnard Basin, which provides about 50% to 60% of the City's drinking water. In 1982, in response to the growing threat of seawater intrusion into the coastal groundwater basins, the FCGMA was established by the State Legislature to manage groundwater within the areas or lands overlying the Fox Canyon aquifer for the common benefit of the public and all agricultural, domestic, and municipal and industrial users. Over the following decades, groundwater pumpers under FCGMA's jurisdiction continued to work to prevent further seawater intrusion into these shared groundwater basins.

In 2015, in accordance with the SGMA, FCGMA was identified as the Groundwater Sustainability Agency (GSA) for the basins within its boundaries. Also, as required by SGMA, DWR released a list of critically overdrafted basins throughout the state. When a basin is over-pumped, there are negative effects, such as groundwater depletion, land subsidence and seawater intrusion. Locally, the Oxnard Basin and the adjacent Pleasant Valley Basin qualified as "critically overdrafted," having one or more of the negative effects.

To fulfill its GSA responsibilities, FCGMA adopted GSPs for the Oxnard and Pleasant Valley Basins in December 2019 with the goal of bringing the basins into sustainable groundwater management by 2040. Sustainable groundwater management means avoiding undesirable results related to one or more of the six sustainability indicators:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of groundwater supply.
- Significant and unreasonable reduction of groundwater storage.
- Significant and unreasonable seawater intrusion.

- Significant and unreasonable degraded water quality.
- Significant and unreasonable land subsidence.
- Depletions of interconnected surface water that have significant and unreasonable impacts on the beneficial uses of the surface water.

The GSPs set minimum thresholds for each basin to identify when undesirable results are occurring. The minimum thresholds are groundwater levels measured at key wells. Measurable objectives are also identified in the GSPs. The measurable objectives are the ideal average water levels that should be maintained to protect against dropping below the minimum thresholds during periods of drought. Seawater intrusion is the controlling sustainability indicator; that is, if groundwater levels are maintained to control seawater intrusion, then other undesirable results do not occur.

Sustainable yield is the amount of groundwater that can be extracted from the basins annually without causing undesirable results. The combined sustainable yield of the Oxnard and Pleasant Valley Basins was estimated using a numerical groundwater model for the GSPs. For the Oxnard Basin, sustainable yield was estimated for both the Upper and Lower Aquifer Systems. In recognition of the uncertainties associated with the model as well as the need for more data and time to plan for supply projects, the sustainable yield estimate in the GSP was quantified with a range: 32,000 AFY (+/- 6,000 AFY) for the Upper Aquifer System and 7,000 AFY (+/- 3,600 AFY) for the Lower Aquifer System for a total 39,000 AFY (+/- 9,600 AFY) (Fox Canyon Groundwater Management Agency, 2019).

As described previously, the First Periodic Evaluation of the GSP evaluated basin-wide future groundwater pumping scenarios and updated sustainable yield scenarios using updated groundwater modeling. Future groundwater availability for the City remains subject to basin-wide management actions and future FCGMA regulatory decisions. Therefore, for planning purposes, it is assumed that the City's groundwater allocation will reduce at a rate commensurate with basin-wide historic baseline pumping and the "Projects" scenario's sustainable yield resulting in an approximate 28% reduction from baseline conditions to 9,540 AFY by 2040. However, under SGMA, GSPs must be evaluated at least every five years and amended or revised as appropriate, including incorporating new data and results of updated numerical model scenarios. Minimum thresholds, measurable objectives, and sustainable yield will be revised in future GSP updates based on feasible projects that are ultimately selected for funding and implementation as well as updated or new information including closing of data gaps and uncertainty. Future UWMPs will incorporate these expected updates accordingly.

6.2.4 Past Five Years

Table 6-4 summarizes total groundwater pumped by the City. This does not include groundwater pumped and purchased from United. All or part of the groundwater described below is desalinated.

Table 6-4: DWR 6-1R Groundwater Volume Pumped, AFY

GROUNDWATER TYPE	LOCATION OR BASIN NAME	2021	2022	2023	2024	2025
Alluvial Basin	Oxnard	6,050	8,899	7,540	7,989	7,077
	TOTAL:	**6,050**	**8,899**	**7,540**	**7,989**	**7,077**

6.2.5 Surface Water

Oxnard does not currently utilize any surface water sources.

6.2.6 Stormwater

Oxnard does not currently utilize any stormwater sources.

6.2.7 Wastewater and Recycled Water

Currently, the City sells recycled water to local farmers for irrigation use and receives a one for one groundwater pumping allocation for each acre-feet sold the FCGMA Recycled Water Pumping Allocation (RWPA). The City plans to maximize recycled water as a groundwater recharge supply source to ensure future reliability and supply of high-quality water through the Groundwater Recharge Enhancement and Treatment (GREAT) Program (Carollo for the City of Oxnard, 2017). The GREAT program, when originally developed, aimed to increase reliability of water supply, reduce the costs of water supply (imported sources), improve the dependability in accommodating existing needs and meeting planned growth and demands, and enhance stewardship of the local water supply through recycling and reusing a substantial portion of the region's wastewater. These are still viable objectives for the GREAT program. Additionally, as the groundwater regulatory climate has changed since the original development of the GREAT program, the inclusion of addressing potential groundwater pumping reductions now becomes a key factor that the GREAT program aims to mitigate.

The City constructed an AWPF utilizing microfiltration (MF), reverse osmosis (RO), and an advanced oxidation process (AOP). A summary of these process is provided below:

- **Microfiltration (MF):** The MF system is used to remove particulate and microbial contaminants and reduces the concentration of bacteria through a low-pressure filtration system which consists of MF feed strainers, MF feed water ORP, pH, turbidity and total chlorine residual analyzers. The current MF system has six treatment trains with additional space to build six more if needed. The MF system can maintain a production flow of 6.25 mgd of Reverse Osmosis permeate even with one train out of service.

- **Reverse Osmosis (RO):** The RO system has two parallel skids running with production capacities of 3.125 mgd (additional space is available for 3 RO skids of 6.25 mgd).
- **Advanced Oxidation Process (AOP):** The AOP uses an ultraviolet light and is recognized as the Ultraviolet/Advanced Oxidation and Reduction (UV/AOX) system. The UV/AOX system consists of three Trojan UV Phox D72AL75 reactors to provide an additional barrier and disinfection of the RO permeate. This allows room for expansion for future UV system needs.

The City has outlined future projects to improve and expand the AWPF and create a reliable recycled water supply for indirect potable reuse (IPR). The use of AWPF water as a potable water supply must be demonstrated to water regulatory authorities (California Division of Drinking Water and Los Angeles Regional Water Quality Control Board (RWQCB)) before adding it as a potable source. It is anticipated that the AWPF may provide up to 11,900 AFY of recycled water for IPR. Six aquifer storage recovery (ASR) wells are planned for construction.

6.2.7.1 Recycled Water Coordination

The City of Oxnard is the wastewater provider and has constructed the AWPF to make use of the flow from their wastewater treatment plant for recycled water. The City has coordinated and continues to coordinate with the Pleasant Valley County Water District, PHWA, and United to discuss potential uses of recycled water in their service areas.

6.2.7.2 Wastewater Collection, Treatment, and Disposal

The City of Oxnard collects, treats and disposes of wastewater within its service area. Its service area includes most of the City as well as the City of Port Hueneme, Naval Bases Ventura County, and some unincorporated areas of Ventura County. The wastewater collection system includes 384 miles of gravity sewer pipelines, 4.7 miles of pressurized pipelines and 15 lift stations. Further information on the City's wastewater collection system can be found in the Public Works Integrated Master Plan (PWIMP) Wastewater Project Memorandum 3.1 Background Summary.

Table 6-5: DWR 6-2R Wastewater Collected within Service Area in 2025

WASTEWATER COLLECTION			RECIPIENT OF COLLECTED WASTEWATER	
NAME OF WASTEWATER COLLECTION AGENCY	WASTEWATER VOLUME METERED OR ESTIMATED	WASTEWATER VOLUME COLLECTED FROM UWMP SERVICE AREA IN 2025, AFY	WASTEWATER TREATMENT PLANT NAME	WASTEWATER TREATMENT PLANT LOCATED WITHIN UWMP AREA
City of Oxnard	Metered	22,805	Oxnard WWTP, Place ID 246946	Yes
	TOTAL:	**22,805**		

Table 6-6: DWR 6-3R Wastewater Treatment and Outcomes within Service Area in 2025, AFY

				2025 END USES OF WASTEWATER IN SERVICE AREA										
				RECYCLED WATER WITHIN UWMP SERVICE AREA		RECYCLED WATER OUTSIDE OF UWMP SERVICE AREA		WASTEWATER DISCHARGED		INSTREAM FLOW PERMIT REQUIREMENTS		WASTEWATER DELIVERED TO ANOTHER ENTITY		
WASTEWATER TREATMENT PLANT NAME	DOES THIS PLANT TREAT WASTEWATER GENERATED OUTSIDE SERVICE AREA	2025 VOLUME OF WASTEWATER RECEIVED FROM UWMP SERVICE AREA	TOTAL 2025 VOLUME OF WATER TREATED (AF)	RECYCLED WATER STANDARD OR TREATMENT LEVEL	VOLUME	RECYCLED WATER STANDARD OR TREATMENT LEVEL	VOLUME	RECYCLED WATER STANDARD OR TREATMENT LEVEL	VOLUME	RECYCLED WATER STANDARD OR TREATMENT LEVEL	VOLUME	RECYCLED WATER STANDARD OR TREATMENT	VOLUME	NAME OF OTHER ENTITY
Oxnard WWTP, Place ID 246946	Yes	22,805	25,969	n/a	0	Secondary, Disinfected - 2.2	125	Secondary, Disinfected - 2.2	22,680	n/a	0	n/a	0	n/a

6.2.7.3 Recycled Water System Description

The City's recycled water system consists of the AWPF which is designed to produce advanced treated recycled water with an ultimate design capacity of 12.5 million gallons per day (MGD) but is currently equipped to produce 6.25 MGD. Since operation, the AWPF has produced water for "unrestricted reuse," also referred to as "disinfected tertiary recycled water" or "Title 22 reclaimed water," as defined by the SWRCB Division of Drinking Water (DDW), and is to be used for non-potable supply such as landscape irrigation or industrial process water.

Recycled water is pumped from the AWPF into the distribution system by finished water pumps located at the AWPF. The existing recycled water distribution system consists of approximately 10 miles and delivers to the River Ridge Golf course and to various agricultural users. The AWPF facility operates to serve recycled water customers or for IPR. The recycled water distribution system currently does not include any system wide storage tanks; however, some recycled water users maintain their own on-site storage which reduces the peak demand on the AWPF.

For purposes of UWMP reporting, recycled water uses identified in Table 6-7 are limited to direct beneficial uses occurring within the City's UWMP service area. Recycled water deliveries to users located outside the UWMP service area are described separately in the narrative below and are not characterized as within-service-area uses. This distinction is important because some recycled water customers associated with the GREAT Program are located outside the City's UWMP service area.

As the City has received the Waste Discharge Requirement/Water Recycling Requirements (WDR/WRRs) to expand use of the advanced treated recycled water for IPR, the construction of the first ASR well project and demonstration required by the permit for IPR is planned to be completed by calendar year 2026 with State permitting to follow the construction phase for approximately 18-24 months. To utilize the recovered water from aquifer storage, this water must meet potable water standards as defined by DDW. The City's Capital Improvement Program (CIP) includes projects for the future improvements and expansion of the AWPF, addition of ASR well facilities, distribution pipelines, blending, and storage facilities to maximize the recycled water production capabilities as well as to support future demand conditions.

6.2.7.4 Potential, Current, and Projected Recycled Water Uses

In January of 2015, the City entered into a Full Advanced Treatment Recycled Water Management and Use Agreement with several entities: Pleasant Valley County Water District, Houweling Nurseries Oxnard, Southland Sod, Reiter Brothers, and Southern Pacific Farming, to provide recycled water for agricultural irrigation. These users are located in the Oxnard Plain, outside the City's service area. One of the stipulations in the agreement is that these users may receive recycled water at a lower priority than the City's customers. These agricultural customers grow several crops including sod, strawberries, celery, and other row crops.

Recycled water use is also planned for general groundwater recharge. The City expects to initially inject approximately 2.9 MGD of recycled water in 2027, and to ultimately increase recycled water injections for recharge up to 6.25 MGD (7,000 AFY).

Table 6-7: DWR 6-4R Recycled Water Direct Beneficial Uses Within Service Area, AFY

Name of Supplier Producing (Treating) the Recycled Water:	City of Oxnard
Name of Supplier Operating the Recycled Water Distribution System:	City of Oxnard
Supplemental Volume of Water Added in 2025:	
Source of 2025 Supplemental Water:	

USE TYPE	WATER TYPE	ADDITIONAL INFORMATION	2025	2030	2035	2040	2045	2050	POTENTIAL RECYCLED WATER VOLUME	POTENTIAL RECYCLED WATER NARRATIVE LOCATION
Agricultural Irrigation*			0	0	0	0	0	0	0	N/A
Groundwater recharge (IPR)		ASR Recovered	0	3,000	6,400	6,400	6,400	6,400	10,200	TABLE 6-8
Groundwater recharge (IPR)		Recycled Water Pumpback Allocation	0	200	250	1,250	1,250	1,250	0	N/A
		TOTAL:	**0**	**3,200**	**6,650**	**7,650**	**7,650**	**7,650**	**10,200**	**N/A**

* The City currently delivers recycled water to agricultural customers *outside of the water service area*, so 0 AFY is shown for agricultural irrigation. The City intends to increase deliveries of recycled water for which it receives a Recycled Water Pumpback Allocation, which is shown here to reflect that recycled water was delivered but is quantified as potable supply in Table 6-12.

Table 6-8: DWR 6-5R 2020 Recycled Water Use Projection Compared to 2025 Actual

USE TYPE	2020 PROJECTION FOR 2025, AFY	2025 ACTUAL USE, AFY*
Agricultural Irrigation	3,875	0
Landscape Irrigation (excludes golf courses)		
Golf Course Irrigation		
Commercial Use		
Industrial Use	780	0
Geothermal and Other Energy Production		
Seawater Intrusion Barrier		
Recreational Impoundment		
Wetlands or Wildlife Habitat		
Groundwater Recharge (IPR)	1,345	0
Surface Water Augmentation (IPR)		
Direct Potable Reuse		
TOTAL:	**6,000**	**0**

* The City currently delivers recycled water to agricultural customers outside of the water service area, so 0 AFY is shown for agricultural irrigation; however 125 AFY was delivered to agricultural irrigation customers.

6.2.7.5 Actions to Exchange and Optimize Future Recycled Water Use

City Ordinance No. 2728, also called the City of Oxnard Recycled Water Use Ordinance, promotes water conservation and recycled water use to ensure the maximum public benefit from the use of the City's water supplies. Ordinance No. 2728 established that recycled water shall be used for suitable, non-potable purposes whenever and wherever recycled water is available at a reasonable cost and of an adequate quality. Both existing and new customers may be eligible to use recycled water if it is available in their area (City of Oxnard, n.d.). Due to Waste Discharge Requirement/Water Recycling Requirements (WDR/WRRs), to expand use of the advanced treated recycled water for IPR, corresponding updates to City Ordinance No. 2728 will be needed to reflect this important change.

Also, once implemented, the IPR program will provide another benefit as this source will use the existing potable distribution system, avoiding future construction costs for distribution and long-term maintenance for separate recycled water distribution pipelines.

Table 6-9: DWR 6-6R Methods to Expand Future Recycled Water

NAME OF ACTION	DESCRIPTION	PLANNED IMPLEMENTATION YEAR	EXPECTED INCREASE OF RECYCLED WATER USE, AFY
Indirect Potable Reuse	Aquifer Storage Recovery (ASR) Injection Well #1	2027	3,200
Indirect Potable Reuse	AWPF Improvements/Upgrade	2029	TBD
Indirect Potable Reuse	AWPF Expansion	2031	7,000
Indirect Potable Reuse	AWPF Recycled Water Storage Construction	TBD	TBD
Indirect Potable Reuse	ASR Injection Well Field	2031	TBD
-		**TOTAL:**	**TBD**

6.2.8 Desalinated Water Opportunities

The City currently operates Desalter #1 at its Water Campus. Desalter #1 has a capacity of 8,400 AFY with room for future expansion to 16,800 AFY. The Desalter is one of the major components of the City's GREAT program; other components include recycled water system (wastewater treatment by the AWPF), groundwater injection of recycled water, and brine collection from the AWPF and Desalter for treatment. The Desalter treats groundwater for Total Dissolved Solids (TDS) and nitrate reduction.

Desalter #1 is used to treat local groundwater supplies that require TDS and nitrate reduction before delivery into the potable distribution system. While this provides an important local supply benefit, desalinated groundwater is more costly to produce than groundwater from wells that can be chloraminated and delivered directly into the distribution system. Desalter operation requires treatment, membrane operation, chemical use, energy, brine handling, maintenance, and operator oversight. Desalter production must be balanced against immediate system demand, which limits the ability to operate the facility continuously and to its full annual design capacity.

In addition to brackish groundwater desalination projects, the City has evaluated pursuing seawater desalination projects. Seawater desalination was reviewed as an alternative to future AWPF expansions during the 2012 study for the GREAT program and found to be not cost effective. The City again analyzed seawater desalination in 2015 as a comparative cost to AWPF expansion. The intake infrastructure required to take in seawater into a treatment facility would be both significant and difficult to get permitted, making this alternative even less attractive. However, if in the future the expansion capacity of the AWPF is limited by the secondary effluent available and/or new technologies reduce costs, seawater desalination could be evaluated again as a viable future alternative.

Table 6-10: DWR 6-8DS Source Water Desalination

-						VOLUME OF WATER DESALINATED, AFY				
PLANT NAME OR WELL ID	PLANT CAPACITY, AFY	INTAKE TYPE	SOURCE WATER TYPE	INFLUENT TDS	BRINE DISCHARGE	2021	2022	2023	2024	2025
City Desalter	8,400	Vertical Well	Groundwater		Brine Line	3,622	4,135	1,665	1,137	841
-					**TOTAL:**	**3,622**	**4,135**	**1,665**	**1,137**	**841**

6.2.9 Water Exchanges and Transfers

Oxnard, Calleguas and PHWA entered into a Three-Party Agreement in 2002, which provides PHWA with Calleguas water through Oxnard's Calleguas pipeline.

As part of the development process, when private property is developed that has authorized groundwater allocations, it is transferred to the City as part of the City's water neutrality program as described in more detail in Section 9.2.7. Historically, the transferred allocations were 2 AFY per acre. This amount was reduced by 25% per Ordinance No. 8 and again by 20% though Emergency Ordinance E in 2014. FCGMA adopted an "Ordinance to Establish a New Pumping Allocation System for the Oxnard and Pleasant Valley Basins", effective on October 1, 2020, which replaced Emergency Ordinance E. This reset the initial extraction allocations based on the average annual extractions per well during the 2005-2014 base period. As a result, when irrigated acreage changes to Municipal & Industrial (M&I) use through a development process, the extraction allocation used to irrigate the acreage shall be transferred from the agricultural operator to the M&I operator on a one-to-one basis (Ordinance Article 9. Allocation Transfer, 9.4)

In January of 2015, the City entered into a Full Advanced Treatment Recycled Water Management and Use Agreement with several entities: Pleasant Valley County Water District, Houweling Nurseries Oxnard, Southland Sod, Reiter Brothers, and Southern Pacific Farming, to provide recycled water for agricultural irrigation. By the terms of this agreement, agricultural pumpers are required to transfer groundwater allocations to the City on a one-to-one basis for delivered recycled water. FCGMA Resolution 2023-02 allows the City to accrue these "Recycled Water Pumpback Allocations" which can be redeemed by the City when favorable Oxnard Forebay groundwater levels are present.

6.2.9.1 Emergency Interties

Oxnard has interconnections with other water purveyors: one with PHWA, one with the City of Port Hueneme, two with Channel Islands Beach Community Services District, and two with Naval Base Ventura County.

6.2.10 Future Water Projects

The City is working on projects to supplement supply through an ASR project under the GREAT program. The supply obtained from ASR is expected to become operational by 2027.

Table 6-11: DWR 6-7R Expected Future Water Supply Projects or Programs

NAME OF FUTURE PROJECTS OR PROGRAMS	JOINT PROJECT WITH OTHER SUPPLIERS	AGENCY NAME	DESCRIPTION	PLANNED IMPLEMENTATION YEAR	PLANNED FOR USE IN YEAR TYPE	EXPECTED INCREASE IN WATER SUPPLY TO SUPPLIER, AFY
IPR	No		ASR/Injection Well #1	2027	All Year Types	3,200
IPR	No		AWPF Improvements/Upgrades	2029	All Year Types	TBD
IPR	No		AWPF Expansion	2031	All Year Types	7,000
IPR	No		AWPF Recycled Water Storage Construction	TBD	All Year Types	TBD
IPR	No		ASR/Injection Well Field	2031	All Year Types	TBD

Table 6-12: DWR 6-9R Projected Water Supplies

		PROJECTED WATER SUPPLY, AFY				
		2030	2035	2040	2045	2050
WATER SUPPLY	ADDITIONAL DETAIL ON WATER SUPPLY	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME
Groundwater (not desalinated)	City Groundwater	6,874	5,754	4,635	4,635	4,635
Groundwater (not desalinated)	United Groundwater	7,275	6,090	4,905	4,905	4,905
Purchased or Imported Water	Calleguas	12,666	12,033	11,431	11,431	11,431
Other	Calleguas - Transferred to PHWA	492	521	563	589	604
Other	IPR	3,000	6,400	6,400	6,400	6,400
Other	Recycled Water Pumpback Allocation	200	250	1,250	1,250	1,250
Other	Groundwater Allocation Used	0	0	0	0	0
	TOTAL:	**30,507**	**31,049**	**29,184**	**29,210**	**29,225**

6.3 Energy Intensity

The City has previously implemented energy efficiency initiatives, including an Energy Action Plan, to support reductions in water system energy use.

In 2025, the City consumed 2,864,350 kWh of electricity and produced 22,977 AF of potable water. This averages to approximately 125 kWh per AF as shown in Table 6-13.

Table 6-13: DWR O-1B: Recommended Energy Intensity Total Utility Approach

Water Delivery Product	Retail Potable Deliveries
Start Date for Reporting Period	January 1, 2025
End Date for Reporting Period	December 31, 2025

	URBAN WATER SUPPLIER OPERATIONAL CONTROL		
	SUM OF ALL WATER MANAGEMENT PROCESSES	NON-CONSEQUENTIAL HYDROPOWER	
	TOTAL UTILITY	HYDROPOWER	NET UTILITY
Volume of Water Entering Process (AF)	22,977		22,977
Energy Consumed (kWh)	2,864,350		2,864,350
Energy Intensity (kWh/AF)	125		125

DATA QUALITY	Metered Data

Total consumption of city operations and total potable water delivered is provided for the total utility. The energy consumed is for electricity use of the water system and includes lights, heating, cooling of any administrative water service facilities, etc.

7 Water Service Reliability and Drought Risk Assessment

This section describes water service reliability through 2050. As required by the UWMP Act, the assessment must compare total projected water supply and demands over the next 20 years in five-year increments under normal, single dry water years, and multiple dry water years. This section also includes the drought risk assessment (DRA), which provides a snapshot of the anticipated surplus or deficit if a drought were to occur in the next five years.

IN THIS SECTION

- Water Service Reliability Assessment
- Drought Risk Assessment

7.1 Introduction

Water service reliability is determined based on the security of water supply and water infrastructure security. The supply reliability assessment discusses factors (i.e., climatic, environmental, water quality and legal) that could potentially limit the expected quantity of water available from the City's current and projected sources of supply through 2050. Multiple drought scenarios are considered, and the quantitative impacts of the aforementioned factors on water supply and demand are discussed, as well as possible methods for addressing these issues.

Evaluating water service reliability is critical for water management as it can help identify potential problems before these happen. Water managers can then take proactive steps to mitigate shortages by encouraging water use efficiency, securing new water supplies and/or investing in infrastructure.

7.2 Water Service Reliability Assessment

The City's 2025 UWMP water service reliability assessment and DRA results indicate that no water shortages are anticipated within the next 25-years under normal, single dry water years, and multiple dry water years.

7.2.1 Service Reliability - Constraints on Water Sources

As described in Chapter 6, the City has various water supply sources available (local groundwater, purchased groundwater, imported water, and recycled water) to meet demands during normal, single-dry, and multiple-dry years.

- Groundwater: As described in Section 6.2.2, the local groundwater basin is subject to the jurisdiction of the FCGMA. As the region's Groundwater Sustainability Agency, FCGMA adopted a GSP for the Oxnard Subbasin in December 2019, in accordance with SGMA. The FCGMA Board approved the Oxnard Basin First Periodic Evaluation of the GSP in December 2024, which was submitted to DWR in January 2025. The groundwater allocation to the City via governances from the FCGMA may change and/or be impacted by active groundwater adjudication or requirements pursuant to SGMA .

  The GSP and subsequent updates address the long-term sustainability of the basin for municipal and agricultural pumpers and establish sustainable yield scenarios, which estimate the amount of pumping that will prevent undesirable results to the basin. By 2040, the goal is to bring the basin to a sustainable level and to achieve this, the GSP and First Periodic Evaluation identify multiple sustainable yield scenarios, which could result in a wide range of potential future supply availability for the City. For UWMP planning purposes, it is assumed groundwater availability will decline in proportion to basin-wide sustainable yield under the First Periodic Evaluation "Projects" scenario, resulting in an approximate 28% reduction from baseline conditions to 9,540 AFY by

2040. While future conditions may result in higher, lower, or no reductions to groundwater supply, the 28% estimate represents a mid-range value within the spectrum of potential sustainable yield scenarios that is aligned with the City's planned supply. See Section 6.2.2 for more details.

Another constraint is that high levels of TDS in the local groundwater requires blending with other sources to maintain TDS at desired levels. Additional reliability factors are discussed in Section 7.2.3.

- **Purchased Groundwater:** As described in Section 6.2.2, the groundwater extracted by United and delivered to the City is also subject to FCGMA and uncertainty about future groundwater supply conditions. This source also requires blending for desired levels of TDS. It is important to note that United's Draft 2025 UWMP assumes "United's future supply estimates for the OH System are based on the scenarios that include EBB, which will not require allocation reductions" (United Water Conservation District, April 2026). While the City recognizes that this could be a potential future groundwater condition, this UWMP assumes a more conservative supply planning approach for reliability, resiliency, and cost efficiency planning purposes.
- **Imported Water:** Imported surface water from Calleguas is potentially subject to cutbacks for climatic, legal, environmental and water quality reasons. Potential reductions in allocations are discussed in Section 7.2.3.
- **Recycled Water:** The City is expected to establish recycled water as part of their water supply portfolio within the next few years. Since the recycled water source is wastewater flows from indoor use, this supply is generally not impacted by climatic factors. For this reason, limited rainfall does not influence flows of the wastewater system and therefore does not affect the availability of recycled water. Recycled water is commonly viewed as a drought-proof supply and is assumed to be 100 percent reliable.

Factors impacting the reliability of the City's supply sources are shown in Table 7-1.

Table 7-1: Factors Resulting in Inconsistency of Supply

WATER SUPPLY SOURCE	CLIMATIC	LEGAL	ENVIRONMENTAL	WATER QUALITY
City Produced Groundwater	X	X	X	X
United Produced Groundwater	X	X	X	X
Calleguas Imported Water	X	X	X	X
Recycled Water		X		X

While the City has historically received enough supply to meet demand, the supply portfolio is dynamic and historical conditions may not accurately represent scenarios that may happen in

the future. Therefore, supply and demand were estimated during dry years considering the following priorities and constraints.

1. As described earlier in this section, for UWMP planning purposes, it is assumed groundwater availability for the City and groundwater from United will decline to 9,540 AFY by 2040. While future conditions may result in higher, lower, or no reductions to groundwater supply, this UWMP assumes a more conservative supply planning approach for reliability, resiliency, and cost efficiency planning purposes. See Section 6.2.2 for more details.
2. As described in Section 6.2.2, this UWMP does not assume that any additional drought-year reduction would automatically apply on top of long-term basin reductions unless and until such reductions are formally established.
3. The City assumes that groundwater storage allocations can be utilized in the future.
4. As described in Section 6.2.1, Calleguas water is used as minimally as possible to avoid high costs, but to meet operational needs and improve water quality blending for TDS targets, there is a minimum amount of water that the City must use from Calleguas. Imported water reliability in future dry-year conditions may be influenced by Metropolitan's and Calleguas' supply conditions, SWP and Colorado River conditions, infrastructure constraints, regulatory actions, water quality needs, and other operational factors. Calleguas' 2025 UWMP indicates it can provide 100% of demand in normal years, single dry years, and for four consecutive dry years. It will be able to provide 85% of unconstrained demand in a fifth consecutive dry year (Water Systems Consulting, Inc., May 2026).
5. Lastly, it is assumed that recycled water will become a larger part of the City's portfolio once fully implemented. This will provide flexibility on reducing demand from other sources of water like Calleguas and/or United water. Since recycled water is considered a drought-proof supply, it is not anticipated to be reduced in dry years and is therefore not included in Table 7-2.

Table 7-2: Consecutive Dry Year Percent Reductions by Source.

SUPPLY	CONSECUTIVE DRY YEAR 1ST YEAR REDUCTION	CONSECUTIVE DRY YEAR 2ND YEAR REDUCTION	CONSECUTIVE DRY YEAR 3RD YEAR REDUCTION	CONSECUTIVE DRY YEAR 4TH YEAR REDUCTION	CONSECUTIVE DRY YEAR 5TH YEAR REDUCTION
City Groundwater	0%	0%	0%	0%	0%
United Groundwater	0%	0%	0%	0%	0%
Calleguas Imported	0%	0%	0%	0%	15%

7.2.1.1 Climatic Factors

Consistent future use of the Oxnard Basin may be affected by climate change. Climate change forecasts indicate a decrease in the number of storms but an increase in their intensity, potentially leading to higher runoff and less recharge of rainfall into groundwater basins. Additionally, projected rises in sea level may increase the risk and extent of seawater intrusion. Climate change is considered within the GSP for the Oxnard Basin and in the Calleguas 2025 UWMP, which are both reflected in supply projections in this UWMP.

7.2.1.2 Environmental Factors

As a coastal community, the City and other local agencies continue to monitor the groundwater basin for undesirable results, especially seawater intrusion. This factor is the one most likely to seriously impact the reliability of the City's current groundwater supply. Environmental factors are considered within the GSP for the Oxnard Basin and in the Calleguas 2025 UWMP, which are both reflected in supply projections in this UWMP.

7.2.1.3 Water Quality Factors

Consistent future use of the Oxnard Basin may be affected by TDS. Currently, the City uses imported water and when necessary, the City desalter to maintain TDS at adequate levels. Water quality factors are reflected in supply projections in this UWMP.

7.2.1.4 Legal Factors

The City is subject to groundwater regulation by FCGMA. Any limitations to allocations or emergency ordinances implemented by FCGMA will affect the City's ability to extract groundwater. Calleguas supplies are subject to multiple legal factors. Legal factors are considered within the GSP for the Oxnard Basin and in the Calleguas 2025 UWMP, which are both reflected in supply projections in this UWMP.

7.2.1.5 Response to Factors

In response to the climatic, environmental, water quality, and legal factors mentioned above that could potentially impact the consistency of the City's supply in the future, the City is advocating continued conservation, active involvement in FCGMA, and completing the process to add recycled water as a supplemental supply.

7.2.2 Service Reliability – Year Type Characterization

In accordance with CWC Section 10635(a), every urban water supplier must provide their expected water service reliability for a normal year, single dry year, and five consecutive dry years for 2030, 2035, 2040, 2045, and optionally 2050.

7.2.2.1 Types of Years

DWR defines these years as:

- **Normal Year:** This condition represents a single year or an averaged range of years that most closely represents the average water supply available. An average was used for this analysis.
- **Single Dry Year:** The single dry year is recommended to be the year that represents the lowest water supply available.
- **Five-Consecutive Year Drought:** The driest five-year historical sequence for the supplier, which may be the lowest average water supply available for five years in a row.

7.2.2.2 Sources for Water Data

As described in Chapter 6, the City's water supply portfolio is dynamically managed depending on a variety of factors for each source, including but not limited to groundwater allocations, wholesale allocations, agreements with neighboring agencies, production capacity, and water quality standards. Table 6-12, in the previous chapter, presents the most likely "normal" supply conditions anticipated through 2050. Variables that existed in historical years for each source will likely be different in future normal and drought years and the supply portfolio will be managed to meet demand. While supply constraints vary by source depending on various factors, such as hydrology, rainfall, groundwater conditions, wholesale supply allocation reduction, statewide mandated water conservation, etc., the City can adaptively manage its water supply portfolio to meet demands. Demands tend to fluctuate in response to local rainfall conditions. Therefore, rainfall is used to determine normal and dry year demand scenarios. Historical rainfall from 2010-2025 was used to determine historical normal and dry years demand conditions that need to be met with a dynamic supply portfolio considering supply constraints at the given time. The normal, single dry, and five-consecutive year drought basis years are shown in Table 7-3. The year with the least rainfall from 2010-2025 was determined to be the single dry year, 2013, and the five-year consecutive drought corresponded to the period of 2013 - 2017. The normal year, 2011, was selected as the year with the second closest to average rainfall from 2010-2025. The year with the closest to average rainfall was 2024; however this was not selected for the purposes of this analysis because it is more appropriate to use years that are closer to each other within a normal period followed by a drought period.

The percent change for each dry year compared to a normal year corresponds to anticipated demand pattern changes during a drought cycle. In the first year, or a single dry year, demands are expected to increase, particularly outdoor demands. It is anticipated that demands will reduce if a drought continues as a result of conservation measures implementation and usage behavior changes due to social awareness of the drought.

Table 7-3: DWR 7-1R Basis for Water Year Data (Reliability Assessment)

YEAR TYPE	BASE YEAR	HISTORIC PRODUCTION	
		VOLUME AVAILABLE, AFY	PERCENT OF AVERAGE
Average Year	2011	28,189	100
Single-Dry Year	2013	30,454	108
Consecutive Dry Years 1st Year	2013	30,454	108
Consecutive Dry Years 2nd Year	2014	28,323	100
Consecutive Dry Years 3rd Year	2015	25,624	91
Consecutive Dry Years 4th Year	2016	25,638	91
Consecutive Dry Years 5th Year	2017	26,487	94

The City will meet 100% of demands that are assumed to fluctuate in dry years with adaptive management of its supply portfolio or WSCP actions.

7.2.3 Water Service Reliability – Supply and Demand Comparison

Results of the water supply and demand analysis for normal, single dry, and five-year consecutive drought are shown in the following sections. The City expects to meet demands under all water year scenarios and continue to promote conservation to ensure reliability throughout the future.

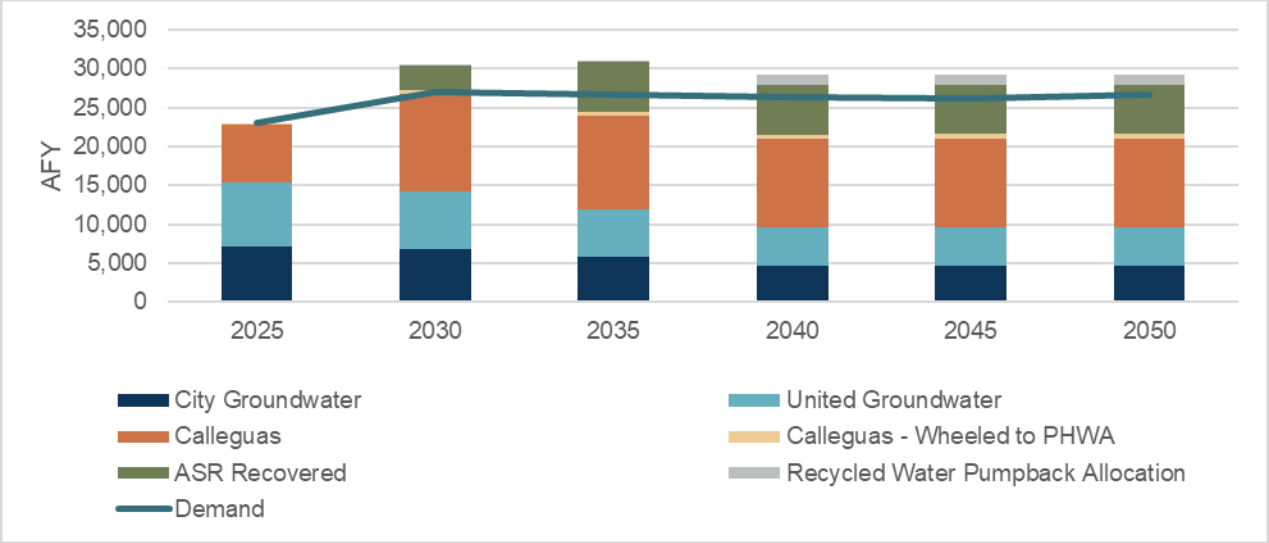
7.2.3.1 Water Service Reliability – Normal Year

As described previously, the City's supply portfolio will be managed to meet demand as shown Table 7-4 and Figure 7-1.

Table 7-4: DWR 7-2R Normal Year Potable Supply and Demand Comparison

	2030	2035	2040	2045	2050
Supply Totals (from Table 6-9R), AFY	30,507	31,049	29,184	29,210	29,403
Demand Totals (From Table 4-2R), AFY	27,516	27,253	26,831	26,801	27,217
DIFFERENCE:	**2,991**	**3,796**	**2,354**	**2,409**	**2,187**

Figure 7-1. Normal Year Potable Supply and Demand Comparison



7.2.3.2 Water Service Reliability – Single-Dry Year

Demand responses during a recent single dry year in 2013 resulted in an 8% increase from an average year demand in 2011. Therefore, the projected single dry year water demands through 2050 are assumed to increase by 8% under similar hydrologic conditions through 2050 as shown in Table 7-5 and are able to be met with the available supply.

Table 7-5. DWR 7-3R Single Dry Year Potable Water Supply and Demand Comparison

	2030	2035	2040	2045	2050
Supply Totals, AFY	30,507	31,049	29,184	29,210	29,403
Demand Totals, AFY	29,727	29,442	28,986	28,954	29,403
DIFFERENCE:	**780**	**1,606**	**198**	**256**	**0**

Note: Single dry year demands are expected to change based on actual demands in a single dry year in 2013 compared to an average year of 2011 (108%) per Table 7-3.

7.2.3.3 Water Service Reliability – Five Consecutive Dry Years

Demand responses during the 2013-2017 drought period were evaluated to inform potential changes in water use under extended dry conditions. During that period, demand initially increased in the first year of drought, followed by reductions in subsequent years as conservation measures and behavioral changes took effect. These historical trends were used as a reference in developing baseline multi-dry year demand projections.

However, under extended dry conditions, the City would implement demand reduction measures in accordance with its Water Shortage Contingency Plan (WSCP) including drought

rate structures and mandatory water use restrictions as approved by the City Council. These actions are expected to reduce water demands during prolonged drought conditions.

The demand projections presented are conservative in that they do not fully reflect the additional demand reductions that would occur under implemented WSCP actions. As a result, actual water demands during extended dry periods may be lower than those shown.

As shown in Table 7-6, available water supplies are sufficient to meet projected demands during multiple dry year conditions.

Table 7-6: DWR 7-4R Multiple Dry Years Supply and Demand Comparison

		2030	2035	2040	2045	2050
First Year	Supply Totals, AFY	30,507	31,049	29,184	29,210	29,403
	Demand Totals, AFY	29,727	29,442	28,986	28,954	29,403
	DIFFERENCE:	**780**	**1,606**	**198**	**256**	**0**
Second Year	Supply Totals, AFY	30,507	31,049	29,184	29,210	29,403
	Demand Totals, AFY	27,594	27,298	26,953	27,012	27,407
	DIFFERENCE:	**2,913**	**3,751**	**2,232**	**2,198**	**1,997**
Third Year	Supply Totals, AFY	30,507	31,049	29,184	29,210	29,403
	Demand Totals, AFY	24,916	24,619	24,378	24,513	24,849
	DIFFERENCE:	**5,591**	**6,429**	**4,806**	**4,697**	**4,554**
Fourth Year	Supply Totals, AFY	30,507	31,049	29,184	29,210	29,403
	Demand Totals, AFY	24,882	24,556	24,386	24,602	24,917
	DIFFERENCE:	**5,625**	**6,493**	**4,798**	**4,608**	**4,486**
Fifth Year	Supply Totals, AFY	28,607	29,244	27,470	27,496	27,511
	Demand Totals, AFY	25,657	25,290	25,189	25,495	25,799
	DIFFERENCE:	**2,950**	**3,953**	**2,281**	**2,000**	**1,711**

Note: Five consecutive dry years demands are expected to change based on actual demands in five consecutive dry years of 2013–2017 compared to an average year of 2011 per Table 7-3 as follows: Year 1 (108%), Year 2 (100%), Year 3 (91%), Year 4 (91%), and Year 5 (94%).

7.2.4 Description of Management Tools and Options

The City relies on local groundwater to meet demands and offset costs for imported water. As a result, the City is committed to ensuring that the basin meets sustainability goals and is

protected against seawater intrusion and other threats. The City is in the process of finalizing a stable recycled water supply for indirect potable reuse and the potential for groundwater recharge. The City also coordinates efforts with FCGMA.

7.3 Drought Risk Assessment

CWC Section 10635 (b) requires a DRA. The DRA provides a quick snapshot of the anticipated surplus or deficit if a five-consecutive year drought were to occur in the next five years. The DRA can be modified or updated outside of the UWMP five-year plan cycle, so a description of the data, methodology, and basis for shortage conditions must be included in this 2025 UWMP. The DRA evaluates each water supply's reliability and compares available water supplies and projected demands during a five-consecutive dry years scenario. This short-term analysis can help water suppliers foresee undesired risks, such as upcoming shortages, and provide time to evaluate and implement the necessary response actions needed to mitigate shortages in a less impactful manner to the community and environment.

7.3.1 Data, Methods, and Basis for Water Shortage Condition

The DRA builds on the water service reliability analysis from Section 7.2, which incorporated assessment of historical consumption data by customer class, populated from billing records, and historical supply data by source from production reports. Based on this data, historical demand has never exceeded available supply. For this DRA analysis, normal year demand conditions and five consecutive year drought supply conditions were considered for 2026-2030.

7.3.2 DRA Individual Water Source Reliability

As described previously, the City does not anticipate any supply shortages within the next five years as shown in Table 7-7.

Table 7-7: DWR 7-5 Five-Year Drought Risk Assessment

2026	Gross Water Use	25,578
	Total Supplies	30,507
	Surplus/Shortfall without WSCP Action	4,929
2027	Gross Water Use	24,630
	Total Supplies	30,507
	Surplus/Shortfall without WSCP Action	5,877
2028	Gross Water Use	23,043
	Total Supplies	30,507
	Surplus/Shortfall without WSCP Action	7,464
2029	Gross Water Use	23,817
	Total Supplies	30,507
	Surplus/Shortfall without WSCP Action	6,690
2030	Gross Water Use	25,393
	Total Supplies	28,607
	Surplus/Shortfall without WSCP Action	3,214

Note: Total water use is calculated by applying five consecutive dry year factors from (which are calculated by comparing actual potable use from 2013-2017 to 2011, as shown in Table 7-3) to a linear interpolation between actual 2025 potable use and projected 2030 potable use.

8 Water Shortage Contingency Plan

The Water Shortage Contingency Plan (WSCP) is a detailed plan for how the City intends to act in the case of an actual water shortage condition. This allows for management of a shortage with predictability and accountability. This section provides an overview of the contents of the City's WSCP. The standalone WSCP is included in Appendix A.

IN THIS SECTION

- Overview of WSCP Components

8.1 Introduction

The CWC Section 10632 requires that every urban water supplier shall prepare and adopt a standalone WSCP as part of its UWMP.

The City's WSCP is included as Appendix A and will be separately submitted to DWR. The WSCP is developed independently of the City's 2025 UWMP and can be amended, as needed, without amending the UWMP.

The WSCP is a strategic plan that the City uses to prepare for and respond to foreseeable and unforeseeable water shortages. A water shortage occurs when the water supply available is insufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to a number of reasons, such as water supply quality changes, climate change, drought, regional power outage, and catastrophic events (e.g., earthquake). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands. The WSCP serves as the operating manual that the City will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages.

The WSCP provides a process for an annual water supply and demand assessment and structured steps designed to respond to actual conditions. This level of detailed planning and preparation provides accountability and predictability and will help City maintain reliable supplies and reduce the impacts of any supply shortages and/or interruptions.

The WSCP must be updated based on new requirements every five years and will be adopted as a current update for submission to DWR.

8.2 Overview of WSCP Components

The Water Code establishes several prescriptive elements that must be included in a retail water supplier's WSCP. Each element and its location within the WSCP is described below.

Water Supply Reliability Analysis: Summarizes City's water supply analysis and reliability and identifies any key issues that may trigger a shortage condition.

Annual Water Supply and Demand Assessment Procedures: Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year and the steps to formally declare any water shortage levels and response actions.

Shortage Stages: Establishes water shortage levels to clearly identify and prepare for shortages.

Shortage Response Actions: Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand.

Communication Protocols: Describes communication protocols under each stage to ensure customers, the public, and government agencies are informed of shortage conditions and requirements.

Compliance and Enforcement: Defines compliance and enforcement actions available to administer demand reductions.

Legal Authorities: Lists the legal documents that grant City the authority to declare a water shortage and implement and enforce response actions.

Financial Consequences of WSCP Activation: Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens.

Monitoring and Reporting: Summarizes the monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation. Results are used to determine if additional shortage response actions should be activated or if efforts are successful and response actions should be reduced.

WSCP Refinement Procedures: Describes the factors that may trigger updates to the WSCP and outlines how to complete an update.

Special Water Feature Distinctions: Identifies restrictions and applicable exemptions for decorative water features in accordance with the City's Water Shortage Contingency Plan and water waste ordinances..

Plan Adoption, Submittal, and Availability: Describes the process for the WSCP adoption, submittal, and availability after each revision.

The WSCP was prepared in conjunction with City's 2025 UWMP and is a standalone document that can be modified as needed. The document is compliant with the CWC Section 10632 and incorporates guidance from the DWR UWMP Guidebook (California Department of Water Resources, 2026).

9 Demand Management Measures

This section describes City's efforts to promote water use efficiency, reduce demand on the water supply, and prepare for future requirements through implementation of demand management measures (DMMs).

IN THIS SECTION

- Existing Demand Management
- Reporting Implementation
- Water Use Objectives

9.1 Introduction

In 2005, the City became a signatory to the California Urban Water Conservation Council's (CUWCC) memorandum of understanding, establishing a firm commitment to the implementation of DMMs. The CUWCC was a consensus-based partnership of agencies and organizations concerned with water supply and conservation of natural resources in California.

By becoming a member, the City demonstrated its commitment to implement a specific set of locally cost-effective conservation practices in its service area. Over the following years, CUWCC members, including the City, submitted BMP reports detailing progress.

In March 2018, the CUWCC was replaced by the California Water Efficiency Partnership (CalWEP) and the City joined the organization shortly thereafter. CalWEP's mission is to maximize urban water efficiency and conservation throughout California by supporting and integrating innovative technologies and practices; encouraging effective public policies; advancing research, training, and public education; and building collaborative approaches and partnerships. As an active CalWEP member, the City will continue to collaborate to achieve greater water use efficiency for our local community.

The CWC requires a narrative description that addresses the nature and extent of each DMM implemented over the past five years and DMMs that the supplier plans to implement to achieve its water use targets pursuant to CWC Section 10608.20. The required DMM narratives are provided in the following subsections.

Table 9 1. Demand Management Measures

Measure	
1	Water waste prevention ordinances
2	Metering
3	Conservation pricing
4	Public education and outreach
5	Programs to assess and manage distribution system real loss
6	Water conservation program coordination and staffing
7	Other DMMs

9.2 Existing Demand Management Measures

Consistent with the requirements of CWC, this section describes the DMMs from Table 9-1 that have been implemented in the past five years and will continue to be implemented into the future in order to continue meeting the City's water use efficiency goals and CWOL Regulation requirements.

9.2.1 Water Waste Prevention Ordinances

As detailed in Section 8, Oxnard restricts water waste through its municipal code. Oxnard City Code Chapter 22, Section 22-136, prohibits wasteful or unreasonable water use and establishes a range of specific water-saving requirements (such as limits on outdoor irrigation hours, prohibition of water runoff, and restrictions on use of potable water for washing surfaces) that apply at all times. Ordinances 2729, 2810, and 2826 are among those that have amended these provisions in the code. Section 22-154 further authorizes the City Council to designate water shortage conditions in stages (1 through 4) and to implement corresponding mandatory conservation measures when a water shortage is declared.

The City's water use restrictions outline multi-stage conservation requirements tied to drought severity, with Stage 1 involving limits such as outdoor irrigation schedules and Stage 2 and higher stages imposing progressively stricter measures. Declaration of a water shortage stage carries specific conservation measures and possible enforcement actions, including surcharges for water use in excess of designated allotments.

In April 2023, the City declared a Stage 1 water shortage level. The Stage 1 measures listed below are in addition to the permanent measures in Chapter 22 Sections 22-136 of the City Code. Water waste prevention measures mainly include outdoor irrigation measures as listed below (City of Oxnard, 2023):

a) Watering of lawns, functional turf, trees, shrubs, vegetation, landscape and other outside irrigation is limited to three days per week.
b) The following watering schedule is established for all customers:
    - Monday, Wednesday, and Saturday ONLY
c) Watering or irrigating of functional turf, landscape or other vegetated area with potable water using a landscape irrigation system or a watering device is limited to no more than 10 minutes per day per station as permitted during the three days per week watering allowance.
d) Exceptions to allow for irrigation outside of the designated periods include (1) the hand watering of trees, food plants, or other perennials with use of a container (e.g. bucket or watering can) or a hose fitted with a shut-off nozzle and (2) the use of drip irrigation or other high-efficiency irrigation systems to apply water at a weekly volume consistent with the three-day watering restriction imposed on less efficient irrigation systems.
e) Potable water for irrigation of non-functional turf at commercial, industrial and institutional properties, including HOAs, is prohibited.

f) The application of potable water to landscapes during and within 48 hours after measurable rainfall is prohibited.
g) The use of potable water in a fountain or other decorative water features is prohibited, except where the water is part of a recirculating system.
h) All vegetation within Wildland-Urban Interface and Defensible Space will be maintained as required under Public Resource Code 4291.

9.2.2 Metering

All of Oxnard's customers are metered and billed volumetrically on a monthly basis using an Automatic Meter Reading (AMR) system. Commercial, industrial, and institutional accounts and parks are encouraged to have dedicated irrigation meters. In addition, Oxnard has identified Advanced Metering Infrastructure (AMI) technologies as a conservation priority. In 2025, the City successfully completed the transition from Automated Meter Reading (AMR) to Advanced Metering Infrastructure (AMI) system-wide. This technology now plays a key role in supporting water conservation efforts by improving leak detection, reducing water loss, and providing enhanced monitoring by customers for their water usage through more timely and accurate data. Customers have the opportunity to download the EyeOnWater app to see their water usage activity in real time.

9.2.3 Conservation Pricing

The City's pricing structure is based on the March 2023 cost of service and includes both a fixed monthly service charge and a per-unit charge. The monthly fixed charge is based on meter size. The per-unit charge includes the cost of water supply, treatment and distribution. The March 2023 Cost of Service study provides information about the tiered rate structure as well as the fixed and variable rates. It also outlines allowable drought rates. The Cost of Service Study is available at https://www.oxnard.gov/public-works/water/water-rates-fees for reference. The rate structure reflects the City's various sources of supply, coupled with specific consumption patterns that directly impact the City's costs. The Water Cost of Service Study in March 2023, considered operating costs, capital needs, supply costs, and other factors influencing service costs.

9.2.4 Public Education and Outreach

Public outreach is a critical component of Oxnard's conservation efforts. Water conservation is promoted through a variety of informational programs and public events. Oxnard offers conservation educational flyers, activity booklets, public outreach displays, oral presentations, and workshops to inform the public of conservation efforts at a variety of different local community events throughout the year. Oxnard raises awareness about water conservation through paid advertising, press releases, newspaper ads, and social media, and provides its customers with a water usage comparison on their water bills. Additionally, Oxnard's web page (Oxnard.gov/Water) provides information related to programs, rebates, water-saving tips, and announcements about upcoming events. Oxnard also benefits from outreach programs provided through the Metropolitan Water District (MWD) and Calleguas Municipal Water District (CMWD).

9.2.5 Programs to Assess and Manage Distribution System Real Losses

The City repairs all reported leaks and locates and repairs unreported leaks. Additionally, the City's Public Works Integrated Master Planning identifies aging pipelines prone to leakage to support a more robust pipeline replacement program, thereby reducing water loss from aging infrastructure.

The City recognizes the need to optimize local water resources, minimize the need for imported water, and discourage wasteful practices. The City conducts water audits, leak detection, and repairs on an ongoing basis. Through metering, the City closely monitors water production and consumption and investigates any unaccounted-for water to identify water loss. The City's AMI metering systems identify leaks on the customers' side of the meter. If a customer has uncharacteristically high (greater than 20% of the past month) monthly water use, the City contacts the customer for a leak evaluation. An example of optimizing water resources is the analysis performed by Waterwise Consulting, Inc. on the water usage at twenty-two City managed parks throughout the City. The program was paid for by the City of Oxnard Water Division with a grant from Metropolitan Irrigation District and resulted in saving 9,845,176 gallons of water for FY 2023/24 at a cost savings of $58,835.

The City's field staff regularly watches for water waste and leaks, then notifies and works with customers to address the situation. Incidents of water waste are investigated, and recommendations for correction are provided. Water sources are regulated and can be disconnected in cases of excessive leakage and/or facility failure.

Since 2016, the City has annually completed an AWWA's M36 Water Loss analysis, which consists of a component analysis of leaks into "revenue" and "non-revenue" categories, among others, and an economic analysis of recoverable loss. The most recent water loss audit was completed and verified for CY 2025.

9.2.6 Water Conservation Program Coordination and Staffing Support

Since 2021, the Water Conservation Program has experienced several staffing changes, including retirements and team members moving on to other opportunities. As of 2023, the program is composed of a full-time Water Conservation Outreach Supervisor and a Water Conservation Outreach Technician. Despite the reduction in staffing, the program continues to advance conservation efforts and remains supported through regional partnerships with the Calleguas Municipal Water District and the Metropolitan Water District's conservation programs and staff to encourage and promote regional water efficiency.

9.2.7 Other Demand Management Measures

Residential Plumbing Retrofit: The City provides free water conservation devices to residents at water conservation events and upon request. The free water conservation devices include showerheads, kitchen faucet aerators, bathroom faucet aerators, toilet flappers, and hose nozzles.

School Education Programs: The Water Conservation Team provides a variety of educational programs and outreach opportunities throughout Oxnard's service area. Staff conduct educational presentations at local schools to teach students about water conservation, water sources, and the importance of protecting our water supply. The team also participates in multiple career fairs each year to raise awareness about careers in the water industry and promote workforce development. In addition, several student groups are welcomed to the Water Division annually for guided tours, offering a firsthand look at water operations and career pathways. The City also partners with a consultant who delivers interactive school assemblies focused on water education. Furthermore, the Water Division hosts the annual Water Wise Student Art Contest, which engages youth in promoting water conservation through creative expression. The winning artworks and artists are recognized in May during Water Awareness Month.

Rebates: City customers have access to various types of rebates, such as for turf replacement and water saving devices offered by Metropolitan in collaboration with Calleguas. These rebates change from year to year but when available, customers are notified by way of bill inserts and other media channels and current information is always posted on the City's website.

Water Neutrality Policy: the City evaluates proposed developments to determine whether the proposed development is within the supply and demand forecasts contained in the City's most recent UWMP or General Plan EIR (City of Oxnard, May 2017). Should a proposed development require additional water than previously planned for in the City's UWMP or General Plan EIR (City of Oxnard, May 2017), then the proposed development may be required to offset its water demand with a supplemental water supply. Possible supplemental supply options may include existing FCGMA groundwater allocations that are transferred to the City, increased efficiency and water conservation or recycled water retrofit projects, additional water supplies, or a combination of efforts (City of Oxnard, May 2017). More information can be found in the Oxnard CEQA Guidelines at https://www.oxnard.gov/wp-content/uploads/CEQA-Guidelines-Color.pdf.

9.3 Reporting Implementation

9.3.1 Implementation over the Past Five Years

The following sections describe the DMMs implemented by the City for the 2021 through 2025 calendar years.

9.3.1.1 Public Education

Since 2021, the City has held its Student Water Wise art contest for students participating in the Scholars After School Program. The award-winning artworks were displayed at the Oxnard Public Library during the month of May, for Water Awareness month, and the top-winning art pieces were posted on the City's recycling trucks. The students participated in a small recognition ceremony at their respective schools, and the number one winners got to have the recycling truck visit their school to showcase their artwork. In addition, Oxnard facilitated a

school assembly program in 2021-2025 with the "H2O, Where Do You Go?" show, which meets the state education framework requirement and next generation science standards (NGSS). The presentations in 2021 were transitioned into a virtual learning format due to COVID-19 restrictions. Table 9-1 summarizes Oxnard's water conservation education efforts from 2021 to 2025.

Table 9-1: Public Water Conservation Education 2021 - 2025

	2021	2022	2023	2024	2025	TOTAL
K-6 School Live Assemblies and Virtual Presentations	28	13	21	13	10	**57**
High School Visits/Secondary Education	0	2	4	4	2	**12**
TOTAL ESTIMATED STUDENT AUDIENCE						**14,250**

9.3.1.2 Public Outreach

The City has undertaken hundreds of public outreach measures between 2021 and 2025. Outreach messages have included subjects related to water conservation, drought, water careers, water wise landscaping, the impact of water conservation on water quality, and available rebate and retrofit offers. Total outreach activities from 2021 to 2025 are listed in Table 9-2.

Table 9-2. Public Outreach 2021-2025

OUTREACH METHOD	2021	2022	2023	2024	2025	TOTAL
Printed Messages	6	3	5	2	3	**19**
Presentations	4	5	17	6	16	**48**
Booths at Local Fairs/Events	7	4	12	21	15	**59**
Website Ads and Updates	6	6	4	6	4	**26**
Monthly Water Use Reports	12	12	12	12	12	**60**
Fix-A-Leak Workshops	2	2	4	2	2	**12**
News Releases	3	3	2	0	0	**8**
Newspaper Contacts/ads	4	4	2	1	2	**13**
Television Contacts/DMV ads	0	12	12	12	12	**48**
Radio Ads and Interviews	2	2	2	0	2	**8**
Digital Road Sign or Lawn Sign	200	12	60	0	0	**272**

NOTES: "Printed Messages" includes fliers, brochures, bill stuffers, door hangers, handouts, messages printed on bill, etc. "Website Ads and Updates" includes updates of www.oxnard.gov/water and ventura.watersavingplants.com

9.3.1.3 Water Waste Tracking

The City responds to water violations, water waste reports, and leak alerts from its residents through its 311 incident reporting app and its water conservation hotline.

From 2021 to 2025, the City cataloged 2,118 alerts and issued over 1,457 warnings to reduce wasteful water use. Table 9-3 summarizes documented water waste/leak alerts and issued notices over the last five years. A significant amount of water waste notices were issued in 2022 due to the severe drought. Water conservation staff contacted customers via mail to notify them regarding observed water waste activities and to offer information such as rebates/incentives for helpful water conservation devices.

Table 9-3: Water Waste Tracking Summary 2021 - 2025

	2021	2022	2023	2024	2025	TOTAL
Log Entries	115	1,102	594	151	156	**2,118**
Warnings/Notices Issued	48	762	464	90	93	**1,457**

NOTES: Additional warnings and notices, which have been documented in the City's alert logs, were given in person by staff, by phone or email.

9.3.1.4 Device Retrofitting

The City offers free retrofits of bathroom and irrigation fixtures to promote water conservation. Free devices were offered every year for the last five years. In 2021, the City completed landscape audits and distributed water-efficient hose nozzles, moisture meters, shower timers, and more. Due to COVID-19 and the social distancing measures in 2021, Oxnard implemented a pilot Curbside Water Conservation Program where customers were provided with water-efficient devices to conserve water at home. Table 9-4 provides an annualized summary of distributed water devices and fixtures.

Table 9-4: Device Retrofits 2021-2025

RETROFIT/EXCHANGE DEVICE	2021	2022	2023	2024	2025	TOTAL
Shower Heads	1,137	500	750	697	649	**3,733**
Kitchen Faucet Aerators	30	15	0	0	0	**45**
Bathroom Faucet Aerators	2,000	300	348	97	0	**2,745**
Toilet Flapper	250	0	0	0	0	**250**
Toilet Leak Detector Tablets	850	740	2,410	2,855	426	**7,281**
Moisture Meters	750	500	500	572	408	**2,730**
Precision Irrigation Nozzles	1,500	700	700	932	1,024	**4,856**
Shower Timers	1,000	1,000	2,000	2,148	1,998	**8,146**
OVERALL TOTAL						**29,786**

9.3.1.5 Rebates

Oxnard residents who wish to upgrade to high-efficiency appliances and irrigation devices, as well as remove turf, are directed to the bewaterwise.com (SoCal Water$mart) website. Rebate information and bewaterwise.com links are also found on the City's website (Oxnard.gov/water). The rebate incentives are offered and managed by MWD in collaboration with CMWD. The City has actively promoted these residential and commercial rebates through bill inserts and social media, with approximately 1,268 customers taking advantage of the program since 2015. A summary of participation in rebate programs is provided in Table 9-4 and Table 9-5.

Table 9-5. Rebate Program Implementation, Participation Counts

	2021	2022	2023	2024	2025	Total
Faucet Aerator	0	0	10	57		67
High-Efficiency Clothes Washer	173	158	113	59		503
High-Efficiency Toilet	5	1	6	2		14
Low-Flow Showerhead			34	88		122
Rain Barrel	4	6	9			19
Rotating Nozzle		15	73	22		110

	2021	2022	2023	2024	2025	Total
Hose Bib Irrigation Controller	4					4
Weather Based Irrigation Controller	18	17	19	16		70
Turf	12	20	38	4		74

Table 9-6. Rebate Program Implementation, Total Rebate Values[1]

	2021	2022	2023	2024	2025	Total
Faucet Aerator	$0	$0	$43	$249		$292
High-Efficiency Clothes Washer	$16,605	$14,980	$11,815	$6,490		$49,890
High-Efficiency Toilet	$325	$65	$390	$130		$910
Low-Flow Showerhead			$441	$1,153		$1,594
Rain Barrel	$140	$210	$315			$665
Rotating Nozzle		$30	$593	$44		$667
Hose Bib Irrigation Controller	$140					$140
Weather Based Irrigation Controller	$1455	$1,608	$1,998	$1,419		$6,480
Turf	$34,250	$71,381	$400,099	$48,303		$554,033
Total	$52,915	$88,274	$415,694	$57,788		$614,671

1. Values are rounded to the nearest dollar.

9.3.2 Implementation to Achieve Water Use Targets

Through the implementation of its active water conservation program, the City has met its Interim Water Use Target for 2015 and its Confirmed Water use Target for 2020. To maintain this level of water use as well as meet new future efficiency goals for CWOL Regulation compliance, the City intends to continue building and designing its outreach and programs to provide specific support for different customer sectors as appropriate.

9.4 Water Use Objectives (Future Requirements)

During the next five years, the City will continue its traditional outreach efforts while seeking improvements and innovation. This includes expanded use of data and new tools to create tailored programs that drive greater water use efficiency. The City will continue preparing to meet State-mandated water use objectives established under AB 1668 and SB 606 as part of California's Making Conservation a California Way of Life framework. Through enhanced data analysis and targeted outreach efforts, the City will work to identify customers who may need assistance in improving water efficiency and develop messaging, programs, and incentives that support water-saving behaviors across customer sectors.

The City will also support implementation of new State regulations, including requirements related to the AB 1572 non-functional turf ban at commercial, industrial, and institutional properties, through education, outreach, and potential incentive programs that encourage the transition to more water-efficient landscapes. As an example of the City taking the lead on this, there is a Capital Improvement Program (CIP) project that the City has undertaken at four parks in the City that includes the removal of non-functional turf and replacing with native and drought tolerant plants. These parks were selected for being next to elementary schools that can be used by the students for field education that also include the native birds and pollinators that rely on these plants. Additionally, the City received a grant from the State Department of Water Resources to convert the non-functioning turf around the Civic Center into a native and drought tolerant landscape.

In addition, the water conservation program intends to leverage customer outreach and data collection capabilities from the new Automated Meter Infrastructure (AMI) system. These systems provide a wide range of opportunities to educate customers, identify and catch leaks early, and improve customer service and business processes. With a larger data set of consumption information across usage sectors, patterns can be analyzed to identify potential water savings and efficiencies.

These programs, and others, will support the City's achievement of its water use objectives and ensure compliance with evolving State regulations while continuing to promote water efficiency as an Oxnard way of life.

10 Plan Adoption, Submittal, and Implementation

This section describes the completed steps taken to make the UWMP publicly available as well as adopt and submit the UWMP in accordance with the California Water Code.

IN THIS SECTION

- Completed Steps for UWMP and WSCP

10.1 Completed Steps for UWMP and WSCP

The 2025 UWMP and WSCP were made available for public review in May 2026[1], and a public hearing was held on June X, 2026, at the City Council meeting to receive public input on the draft documents. Per Government Code 6066, the public hearing was noticed in the [newspaper name] newspaper on May/June X, 2026, and noticed again on May/June X, 2026. Additionally, the City issued a notice to County of Ventura County more than 60 days prior to the public hearing. All notice documentation is included in Appendix D.

The City Council adopted the Final 2025 UWMP and the WSCP at a public meeting on June XX, 2026. Additionally, the City issued a notice to County of Ventura more than 60 days prior to the public hearing. A copy of the resolution of adoption is included in Appendix E.

This UWMP was submitted to DWR through the WUEData portal before the deadline of July 1, 2026, and will be available to the public on the City's website.

If City identifies the need to amend this UWMP or WSCP, it will follow the same procedures used previously for notification to cities, counties, and the public and for initial adoption.

[1] All highlighted text to be updated after public review and adoption.

References

AECOM for the City of Oxnard. (2015). *Water Operations Support Technical Memorandum No. 7 Review of Water Supply Contracts.* Oxnard: City of Oxnard.

California Data Collaborative for Calleguas Municipal Water District. (February 2021). *Draft Imported Water Outage Protocal - Allocation Framework and Public Outreach.* Calleguas Municipal Water District.

California Department of Water Resources. (2026). *Urban Water Management Plan Guidebook 2025.* Sacramento: California Department of Water Resources.

California Department of Water Resources. (n.d.). *California's Groundwater (Bulletin 118).* Retrieved from https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118

California Department of Water Resources. (March 2016). *2015 Urban Water Management Plans Guidebook for Urban Water Suppliers.*

Carollo for the City of Oxnard. (2017). *Advanced Water Purification Facility Indirect Potable Reuse Engineering Report.* Oxnard: City of Oxnard.

Carollo for the City of Oxnard. (December 2015). *Public Works Integrated Master Plan, Water, Project Memorandum 2.2 Water Demand Projections Final Draft.* Oxnard: City of Oxnard.

City of Oxnard. (2014). *2030 General Plan Map.* Oxnard: City of Oxnard.

City of Oxnard. (2021, May). *Climate Action and Adaptation Plan*. Retrieved from City of Oxnard: https://www.oxnard.org/climate-action-plan/

City of Oxnard. (2023, April 23). *Water Use Restrictions*. Retrieved March 12, 2026, from https://www.oxnard.gov/public-works/water/water-use-restrictions

City of Oxnard. (2025). *City of Oxnard 2024 General Plan Annual Progress Report.*

City of Oxnard. (2026, March 12). *Advanced Metering Infrastructure (AMI) Replacement*. Retrieved from https://www.oxnard.gov/project/advanced-metering-infrastructure-replacement

City of Oxnard Development Services Department. (2013). *Energy Action Plan.* Oxnard: City of Oxnard .

City of Oxnard. (May 2017). *City of Oxnard CEQA Guidelines.* Oxnard: City of Oxnard.

City of Oxnard. (n.d.). *Oxnard, California Codified Ordinances.* Retrieved from American Legal Publishing Corporation: https://codelibrary.amlegal.com/codes/oxnard/latest/oxnard_ca/0-0-0-30106

City of Oxnard. (n.d.). *Oxnard, California Codified Ordinances*. Retrieved from American Legal Publishing Corporation: https://codelibrary.amlegal.com/codes/oxnard/latest/oxnard_ca/0-0-0-30106

Department of Finance, State of California. (2021). *E-5 Population and Housing Estiamtes for Cities, Counties, and the State, 2011-2021 with Census Benchmark*. Retrieved from Estimates: https://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-5/

Dudek. (December 2019). *Groundwater Sustainability Plan for Oxnard Subbasin.* Retrieved from https://fcgma.org/oxnard-subbasin-gsp-files/#docaccess-1db8b222275b69a81661d58be2e3dfb5

Dudek. (January 2025). *Revised First Periodic Evaluation Groundwater Sustainability Plan for the Oxnard Subbasin.* Retrieved from https://fcgma.org/gsp-periodic-evaluations/#docaccess-89b2fdb967d0446d3fd5b605f44fa76b574b8397da8ac2df1abfdfb47a146ae0

ESA. (2020). City of Oxnard CAP Project - GHG Inventory Data Needs for Municipal Operations Inventory.

Fox Canyon Groundwater Management Agency. (2019). *Groundwater Sustainability Plan for the Oxnard Subbasin.* Ventura: Fox Canyon Groundwater Management Agency.

Gannett Fleming for the City of Oxnard. (May 2021). *Water Resource Management Plan Final Draft* . Oxnard: City of Oxnard.

Matrix Design Group, Inc. for the City of Oxnard. (April 2006). *City of Oxnard General Plan Draft Background Report.* Oxnard: City of Oxnard.

Metropolitan Water District of Southern California. (2025). *Draft 2025 Urban Water Management Plan.*

MNS Engineers, Inc. for the City of Oxnard. (January 2018). *2015 Urban Water Management Plan with Errata Included.* Oxnard: City of Oxnard.

MNS Engineers, Inc. for the City of Oxnard. (January 2018). *2015 Urban Water Management Plan with Errata Included.* Oxnard: City of Oxnard.

N.S. Oakley, B.J. Hatchett, D. McEvoy, and L. Rodriguez. (June 2019). *Projected Changes in Ventura County Climate.* Western Regional Climate Center, Desert Research Institute, Reno, Nevada. Available at: https://wrcc.dri.edu/Climate/reports.php. Retrieved from Western Regional Climate Center, Desert Research Institute, Reno, Nevada. Available at: https://wrcc.dri.edu/Climate/reports.php.

Oxnard, A. f. (2015). *Water Operations Support Technical Memorandum No. 7 Review of Water Supply Contracts.* Oxnard: City of Oxnard.

Southern California Association of Governments . (March 4, 2021). *6th Cycle Final RHNA Allocation Plan (pending HCD approval).* Southern California Association of Governments .

Southern California Association of Governments. (2024). *Connect SoCal 2024 Demographics & Growth Forecast Technical Report.*

Southern California Association of Governments. (March 4, 2021). *6th Cycle Final RHNA Allocation Plan (pending HCD approval).* Southern California Association of Governments.

Southern California Association of Governments. (September 2020). *Connect SoCal-The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy.* Southern California Association of Governments.

Stantec Consulting Services Inc. Prepared for United Water Conservation District. (2021). *2020 Urban Water Managment Plan for United Water Conservation District.* Oxnard: United Water Conservation District.

State of California Department of Water Resources. (2021). *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use.*

State of California Department of Water Resources. (2026). *Urban Water Management Plan Guidebook.*

State of California Department of Water Resources. (March 2021). *Urban Water Management Plan Guidebook 2020.*

United Water Conservation District. (April 2026). *United Water Conservation District's 2025 Urban Water Management Plan Public Review Draft.* Retrieved from https://www.unitedwater.org/key-documents/

US Census Bureau. (2024). *Population Estimates Base, April 1, 2020.*

US Census Bureau. (n.d.). *2024 QuickFacts Oxnard City, CA.* Retrieved March 16, 2026, from QuickFacts: https://www.census.gov/quickfacts/fact/table/oxnardcitycalifornia/PST045224

Water Systems Consulting, Inc. (2026). *Calleguas Municipal Water District 2025 Urban Water Management Plan.*

Water Systems Consulting, Inc. (May 2026). *Calleguas Municipal Water District 2025 Urban Water Management Plan.* Retrieved from https://www.calleguas.com/transparency/general-information/

Water Systems Consulting, Inc. (May 2026). *Calleguas Municipal Water District 2025 Water Shortage Contingency Plan.* Retrieved from https://www.calleguas.com/transparency/general-information/

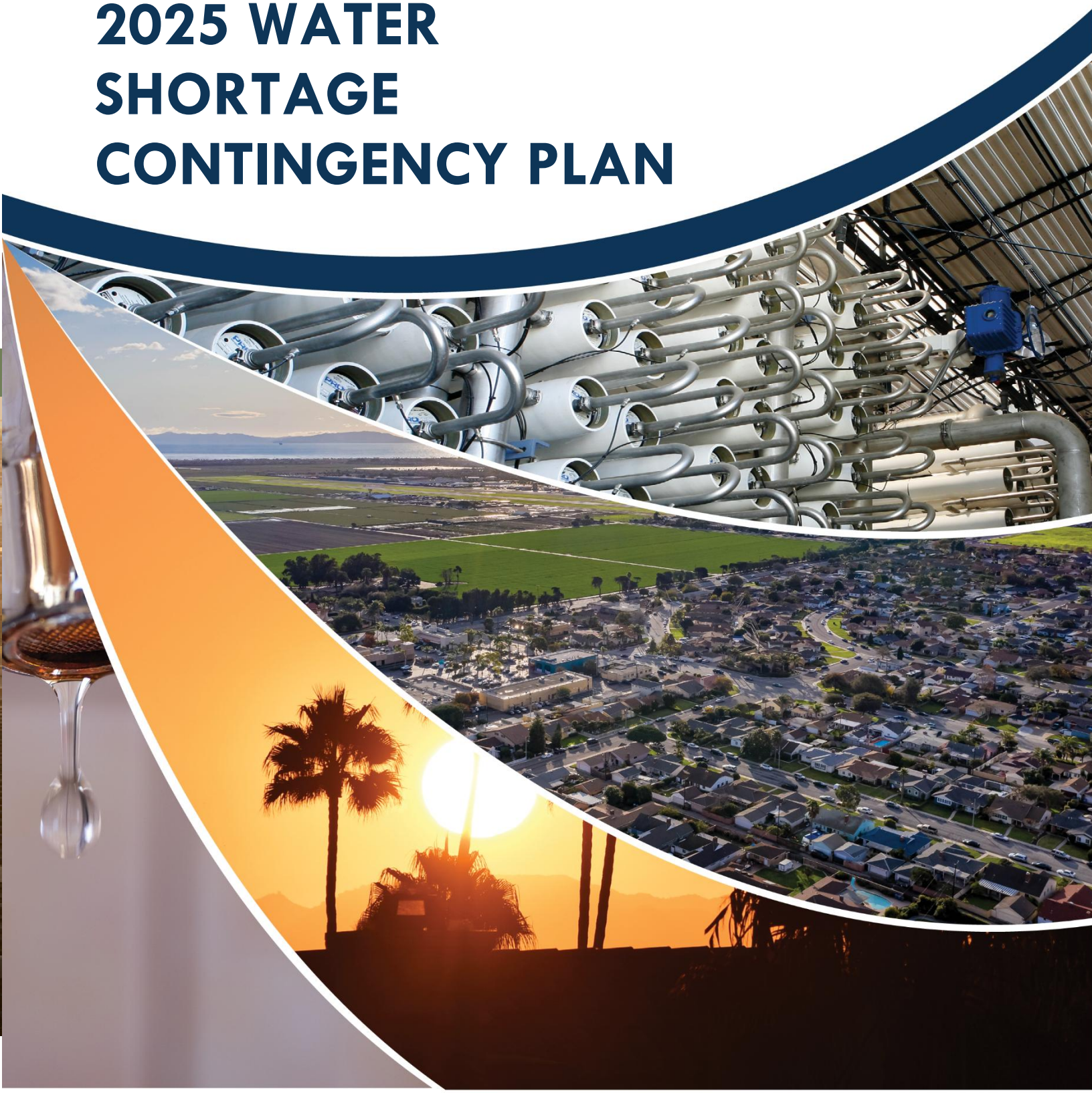
Appendix A Water Shortage Contingency Plan

A

CITY OF OXNARD CALIFORNIA

PUBLIC DRAFT

2025 WATER SHORTAGE CONTINGENCY PLAN



WSC

CITY OF OXNARD

Water Shortage Contingency Plan – Public Draft

MAY 2026

Prepared by Water Systems Consulting, Inc.

TABLE OF CONTENTS

List of Tables iii
Appendix A: Water Shortage Contingency Plan 1
1.1 Water Supply Reliability Analysis 3
1.2 Annual Water Supply and Demand Assessment 3
1.2.1 Key Data Inputs 3
1.2.2 Evaluation Criteria 4
1.2.3 Annual Water Supply and Demand Assessment Procedure 4
1.3 Six Standard Water Shortage Levels 5
1.4 Shortage Response Actions 6
1.4.1 Demand Reduction 6
1.4.2 Supply Augmentation 12
1.4.3 Operational Changes 12
1.4.4 Additional Mandatory Restrictions 12
1.4.5 Emergency Response Plan 13
1.4.6 Seismic Risk Assessment and Mitigation Plan 13
1.4.7 Shortage Response Action Effectiveness 14
1.5 Communication Protocols 14
1.6 Compliance and Enforcement 16
1.7 Legal Authorities 16
1.8 Financial Consequences of WSCP 17
1.9 Monitoring and Reporting 17
1.10 WSCP Refinement Procedures 17
1.11 Special Water Feature Distinction 17
1.12 Plan Adoption, Submittal, and Availability 18
1.13 Resources and References 19

LIST OF TABLES

Table 1. Key Data Inputs for the Annual Assessment 3
Table 2. DWR 8-1 Water Shortage Contingency Plan Levels 5
Table 3. DWR 8-2 Demand Reduction Actions 7
Table 4. Estimated Savings by Response Action Type 14
Table 5. Communication and Outreach Actions by Shortage Stage. 15

Water Shortage Contingency Plan

This Water Shortage Contingency Plan (WSCP) is a detailed plan for how the City of Oxnard (City) intends to predict and respond to foreseeable and unforeseeable water shortages.

A water shortage occurs when the water supply is reduced to a level that cannot support typical demand at any given time. The WSCP is used to provide guidance to the City's governing body, staff, and the public by identifying anticipated shortages and response actions to allow for efficient management of any water shortage with predictability and accountability. Preparation provides the tools to maintain reliable supplies and reduce the impacts of supply interruptions due to a range of conditions including extended drought, production capacity limitations, catastrophic supply interruptions, or other unforeseen shortages.

IN THIS SECTION

- Water Supply Reliability Analysis
- Annual Supply and Demand Assessment
- Water Shortage Stages
- Shortage Response Actions
- Communication Protocols
- Compliance, Enforcement, and Legal Authority
- Financial Consequences
- Implementation

The WSCP describes the following:

Water Supply Reliability Analysis: Summarizes the City's water supply analysis and reliability and identifies any key issues that may trigger a shortage condition.

Annual Water Supply and Demand Assessment Procedures: Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year and the steps to formally declare any water shortage levels and response actions.

Six Standard Shortage Stages: Establishes water shortage levels to clearly identify and prepare for shortages.

Shortage Response Actions: Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand.

Communication Protocols: Describes communication protocols under each stage to ensure customers, the public, and government agencies are informed of shortage conditions and requirements.

Compliance and Enforcement: Defines compliance and enforcement actions available to administer demand reductions.

Legal Authority: Lists the legal documents that grant the City the authority to declare a water shortage and implement and enforce response actions.

Financial Consequences of WSCP Implementation: Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens.

Monitoring and Reporting: Summarizes the monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation. Results are used to determine if additional shortage response actions should be activated or if efforts are successful and response actions should be reduced.

WSCP Refinement Procedures: Describes the factors that may trigger updates to the WSCP and outlines how to complete an update.

Special Water Features Distinctions: Identifies exemptions for decorative features aside from pools and spas.

Plan Adoption, Submittal, and Availability: Describes the process for the WSCP adoption, submittal, and availability after each revision.

This WSCP was prepared in conjunction with the City's 2025 Urban Water Management Plan (UWMP) and is a standalone document that can be modified as needed. This document is compliant with the California Water Code (CWC) Section 10632 and incorporated guidance from the State of California Department of Water Resources (DWR) UWMP Guidebook (California Department of Water Resources 2026).

1.1 Water Supply Reliability Analysis

As part of the 2025 UWMP, the City performed a supply reliability analysis for normal, single-dry, and five-year consecutive dry periods. The analysis considered different factors that influenced the City's various supply sources. The City has a very diverse supply portfolio and will manage it to meet customer demands under all water year scenarios. However, the City will continue to promote conservation as an important component of the portfolio that may be more cost effective than use of other supplies.

The 2025 UWMP also includes a Drought Risk Assessment (DRA) to analyze supply reliability for 2026-2030 considering normal, unconstrained demand. Unconstrained demand refers to the typical demand not influenced by other factors, such as demand reduction or limitations on use. The DRA assessed future reliability based on consideration of historical supply availability and potential changes to historical conditions in the future. While the Water Service Reliability and DRA of the 2025 UWMP identify the ability meet demand under most historical and anticipated dry year conditions, there is the potential for supply to not meet unconstrained demands through 2050 without conservation. Furthermore, there is potential for supply to be significantly impacted by catastrophic factors, such as natural disasters and operational/infrastructure failure events. This WSCP addresses the process to assess and address shortages under these catastrophic conditions.

1.2 Annual Water Supply and Demand Assessment

The City performs an Annual Water Supply and Demand Assessment (Annual Assessment) each year by July 1st for the following fiscal year to determine if there is a need to implement the WSCP and to what extent. Key data inputs, evaluation criteria, and procedures for developing the Annual Assessment are described in this section.

1.2.1 Key Data Inputs

Key data inputs and their sources for the Annual Assessment are summarized in Table 1.

Table 1. Key Data Inputs for the Annual Assessment

KEY DATA INPUT	SOURCE
City of Oxnard Groundwater	City production reports and supply allocations
United Water Conservation District (United) O-H Groundwater	City production reports and supply allocations
Calleguas Municipal Water District (Calleguas) Imported Water	Each spring, the City provides a water use projection to Calleguas for the following five years. Oxnard and the Port Hueneme Water Agency share an allotment, which is based on the historical 10-year use. **The City is not limited by the allotment and may purchase more water if necessary. The City tries to avoid using Calleguas water as much as possible to keep costs down.*
Recycled Water	City production reports

1.2.2 Evaluation Criteria

Staff will use the key data inputs and Annual Assessment procedures to evaluate supply reliability. Supply reliability is based on dry year supply availability and typical unconstrained demand, as calculated in the City's UWMP. The City will determine supply levels in the Annual Assessment and calculate if there is a shortage, compared to normal year supply conditions. The City will also consider any shortage declarations established by Calleguas Municipal Water District (Calleguas), a member agency of the Metropolitan Water District of Southern California (Metropolitan), in the analysis.

Additional conditions that may be evaluated include the loss of any supply sources or key infrastructure (such as the Oxnard-Hueneme pipeline), any natural disasters, or State-mandated declarations or policies. In the event that any critical components are impacted and unable to support the City, the City will reevaluate and work to regain supply sources as quickly as possible.

1.2.3 Annual Water Supply and Demand Assessment Procedure

The City performs the Annual Assessment prior to July 1st each year. Steps to conduct the Annual Assessment are as follows:

1. The Annual Assessment is led by the Water Resources Manager. The Water Resources Manager shall coordinate with conservation, production, distribution, recycled water, and development staff as necessary to prepare the Annual Assessment.
2. Staff will evaluate supply amounts for the coming year.
    a. City groundwater: Staff will analyze historical production and anticipated production.
        i. Determine if there are any maintenance needs that would require a shut-down of any wells.
        ii. Determine if there is a need to decrease typical pumping to protect against seawater intrusion or contamination.
        iii. Fox Canyon Groundwater Management Agency (FCGMA) sets allocations for water years (October 1 – September 30). It is expected that FCGMA will communicate allocations to Oxnard in a timely manner. Based on the past, allocations have been set no less than one year in advance.
    b. United Water Conservation District (United) Groundwater
        i. Distinguish if there are any planned outages that would restrict United from delivering water to Oxnard.
    c. Calleguas imported water availability
        i. Distinguish if there are any limitations on allocations imposed by Calleguas or Metropolitan.
    d. Recycled Water
        i. Recycled water supply should be stable and quantities known once in full operation. The City will track recycled water supply and storage amounts.
    e. Infrastructure updates or limitations
        i. Staff will identify any pieces of infrastructure that are out of service or in need of maintenance within the next year.
        ii. Staff will identify any on-going water supply projects that will be complete within the next year and will be available as a supply source.
    f. Staff will track supply for the previous year by supply source on a monthly basis to develop estimates of available supply for the coming year.
3. Staff will forecast the demand for the coming year.

a. Staff will continue to monitor demand for supply blending purposes.
b. Staff will track demand for the previous year by customer class on a monthly basis to inform demand estimates for the coming year.
c. Staff will consider any drought declarations in place as determined by the U.S. Drought Monitor (USDM), which is updated each Thursday to show the location and intensity of drought across California using a five-category system, from Abnormally Dry (D0) conditions to Exceptional Drought (D4).
d. Staff will consider any State-mandated declarations and policies that may influence water demand.

4. Demands will first be met by local supply sources to the extent possible, and then supplemented with imported water from Calleguas.
5. Staff will analyze the total supply available compared to normal supply to determine if there are supply reductions. The percentage of deficit will be calculated and related to the shortage stages identified in the following section.
6. Staff will analyze the total supply available for the coming year and compare to the future demand to determine if there is a supply/demand gap. The percentage of deficit will be calculated and related to the shortage stages in this WSCP.
    a. Staff will assess if there is a need to implement the WSCP and the corresponding shortage stage declaration.
7. Staff will compile the Annual Assessment findings and may present recommendations to the Public Works and Transportation Committee, then to the City Council, if a shortage is anticipated. The City Council will determine if a shortage stage should be declared and may make that declaration.

1.3 Six Standard Water Shortage Levels

Water suppliers must align with six standard water shortage levels as mandated by water code. Shortage levels indicate the gap between supply and demand compared to normal year conditions. DWR standardized six shortage levels to provide a consistent regional and statewide approach to measure water supply shortage conditions. The six shortage levels correspond to 10-, 20-, 30-, 40-, 50-percent (%), and greater than 50% shortage compared to the normal reliability conditions. However, a water supplier may use its own shortage levels if a crosswalk is included relating its existing shortage levels to the six standard levels. The crosswalk between the City's four levels and the standard water shortage levels is shown in Table 2.

Table 2. DWR 8-1 Water Shortage Contingency Plan Levels Crosswalk

CITY OF OXNARD SHORTAGE LEVEL	PERCENT REDUCTION GOAL	STANDARD WSCP LEVEL	PERCENT SHORTAGE LEVEL
1	≤15%	1	10%
		2	20%
2	15 - 25%	3	30%
3	25 - 35%	4	40%
		5	50%
4	>35%	6	>50%

1.4 Shortage Response Actions

The City developed a variety of shortage response actions to implement during each given shortage stage. In the event of a water shortage emergency, the City will evaluate the cause of the emergency to help inform which response actions should be implemented. Depending on the nature of the water shortage, the City can elect to implement one or several response actions to mitigate the shortage and reduce gaps between supply and demand. The City has identified actions that fall within supply augmentation, demand reduction, operational changes, and additional mandatory restrictions, as recommended by DWR. If necessary, the City may adjust actions or adopt additional actions not listed.

During a declared water shortage condition, the water sources available to the City will be put to the maximum beneficial use to the greatest extent possible. The waste or unreasonable use of water will be prevented, and water available will be conserved for public welfare in the interests of City residents.

Examples of the City's general water waste prohibitions and restrictions include limits on outdoor irrigation watering hours; limits on running water duration; no run-off; drinking water service upon request (water served only upon customer request at public places where food is served); various prohibitions in the commercial sector; no filling or refilling of swimming pools; and waste in general, including any indiscriminate use of water which is wasteful.

1.4.1 Demand Reduction

The City has identified a variety of potential demand reduction actions to offset supply shortages. These actions include, but are not limited to conservation and rebate programs, leak detection and repair, covers for pools and spas, equipping hoses with automatic shut-off nozzles, and others as shown in Table 3.

Table 3. DWR 8-2 Demand Reduction Actions

SHORTAGE LEVEL	DEMAND REDUCTION ACTIONS	SHORTAGE GAP REDUCTION, AFY	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
All	Expand Public Information Campaign			Yes
All	Reduce System Water Loss			Yes
All	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	5,196	EPA Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs (United States Environmental Protection Agency, Office of Water, 2002)	Yes
All	Other water feature or swimming pool restriction		Draining of pools or refilliong shall be done only for health and safety reasons.	Yes
All	CII - Restaurants may only serve water upon request	12	Southwest Florida Water Management (Southwest Florida Water Management District, 2018)	Yes
All	CII - Lodging establishment must offer opt out of linen service			Yes
All	CII - Commercial kitchens required to use pre-rinse spray valves	1,824	EPA WaterSense, Saving Water in Restaurants (United States Environmental Protection Agency, 2012)	Yes
All	Pools and Spas - Require covers for pools and spas	26	Arlington, Virginia, Water & Utilities. (Arlington County Government, n.d.)	Yes
All	Landscape - Other landscape restriction or prohibition		Free flowing hoses are prohibited; automatic shut-off hoses are required.	Yes
All	Landscape - Restrict or prohibit runoff from landscape irrigation			Yes
All	Landscape - Limit landscape irrigation to specific times	301	Texas Living Waters (Texas Living Waters Project, 2018)	Yes
All	Landscape - Limit landscape irrigation to specific days	840	CalWep WSCP Toolkit 2021; City of Sacramento and City of Clovis; AWE Use and Effectiveness of Municipal Irrigation Restrictions During Drought Study Report, January 2020. (California Water Efficiency Partnership, 2021)	Yes

SHORTAGE LEVEL	DEMAND REDUCTION ACTIONS	SHORTAGE GAP REDUCTION, AFY	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
All	Landscape - Limit landscape irrigation to specific days		Irrigation of parks, school ground areas, and road median landscaping will not be permitted more than twice a week and only if necessary.	
All	Landscape - Prohibit certain types of landscape irrigation		Irrigation of ornamental turf on public medians with potable water prohibited.	Yes
All	Landscape - Other landscape restriction or prohibition		Limits on watering duration. Watering or irrigation of lawns, landscape or other vegetated area with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than 15 minutes per day per station. This does not apply to landscape irrigation systems that exclusively use high efficiency irrigation equipment, very low-flow drip type irrigation systems when no emitter produces more than two gallons of water per hour, and weather based controllers or high-efficiency stream rotor sprinklers.	
All	Landscape - Restrict or prohibit runoff from landscape irrigation		Irrigation of newly constructed home and building exteriors with potable water is prohibited unless drip or microspray systems are used.	Yes
All	Landscape - Other landscape restriction or prohibition		Golf course water use shall be limited. Limitation on the irrigation of roughs shall be implemented before limitations on fairway irrigation. Efficient use of recycled water on any golf course shall not be limited.	
All	Landscape - Other landscape restriction or prohibition		Application of potable water to landscapes during and within 48 hours after measurable rainfall is prohibited.	Yes
All	Other - Require automatic shut of hoses	8	Maryland Department of the Environment (Maryland Department of the Environment, n.d.)	Yes

SHORTAGE LEVEL	DEMAND REDUCTION ACTIONS	SHORTAGE GAP REDUCTION, AFY	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
All	Other - Prohibit use of potable water for construction and dust control	2,361	Maryland Department of the Environment (Maryland Department of the Environment, n.d.)	Yes
All	Other		The City may not issue new construction meters or short-term water use unless reclaimed or non-potable water is used, unless potable water is necessary to protect the health, safety, or welfare.	Yes
All	Other - Prohibit use of potable water for washing hard surfaces		No water use to clean surfaces. The use of running water from a hose, pipe, or faucet to clean buildings, pavement, tile, wood, plastic, driveways, parking lots, and other paved surfaces is prohibited, except for public health and safety reasons and then only with a hose and automatic shut-off nozzle.	Yes
All	Decrease Line Flushing	143	CalWep WSCP Toolkit 2021; City of Clovis (California Water Efficiency Partnership, 2021)	Yes
All	Implement or Modify Drought Rate Structure or Surcharge			Yes
All	Other	4,936	All types of rebates; EPA Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs; Evaluating the Effectiveness of a Water Conservation Campaign: Combining Experimental and Field Methods (United States Environmental Protection Agency, Office of Water, 2002)	Yes
2 & Up	Other		Reduce indoor and outdoor water use by specified percentage as determined (based on Shortage Stage). Contact the City Water Division or visit OxnardWater.org for additional tips and techniques to reduce water use.	

SHORTAGE LEVEL	DEMAND REDUCTION ACTIONS	SHORTAGE GAP REDUCTION, AFY	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
2 & Up	Other		The use of water from fire hydrants shall be limited to fire fighting and related activities and other uses of water for municipal purposes shall be limited to activities necessary to maintain the public health, safety, and welfare.	
2 & Up	Other		Commercial car wash and laundry systems. Installation of new or replacement non re-circulating water systems in commercial conveyor car wash or commercial laundry systems is prohibited.	
2 & Up	Other		The manager shall grant prior approval for water to be used on a one-time or short-term basis for construction and dust control. The user shall submit to the manager its water use plan at least 30 days in advance of the proposed use.	
3 & Up	Other		Commercial/industrial cooling systems: installation of new or replacement single pass cooling systems in commercial or industrial buildings is prohibited.	Yes
3 & Up	Water Features - Restrict water use for decorative water features, such as fountains			Yes
3 & Up	Water Features - Restrict water use for decorative water features, such as fountains		Where and when available, approved non-potable water shall be used to fill or refill recreational or ornamental lakes, ponds, or fountains. When using non-potable water, the user shall post signs in conspicuous areas identifying the fact that non-potable water is being used. Newly installed or replacement ponds and fountains shall include recirculation pump(s) that maximize the efficiency and reuse of fill water.	
3 & Up	Other water feature or swimming pool restriction		Watering to maintain the level of water in swimming pools shall occur only when essential.	

SHORTAGE LEVEL	DEMAND REDUCTION ACTIONS	SHORTAGE GAP REDUCTION, AFY	ADDITIONAL EXPLANATION OR REFERENCE	PENALTY, CHARGE, OR OTHER ENFORCEMENT
4 & Up	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water			
4 & Up	Landscape - Other landscape restriction or prohibition		Depending on the drought severity, the use of potable water for irrigation uses may be restricted or prohibited. The manager shall have the right to shut off water service to any such irrigation service upon seven days advance notice to the customer.	Yes
4 & Up	Other		Issuance of building permits which require new or expanded water service may be limited or withheld, except to protect the public's health, safety and welfare, or in cases which meet the City Council adopted conservation and offset requirements.	Yes

1.4.2 Supply Augmentation

The City has a diverse supply portfolio and is currently looking to expand supply with additional permanent sources as discussed in Chapter 6 of the UWMP. The City expects to meet any supply shortages through adaptive supply portfolio management, effective communication and outreach efforts, operational changes, and demand reduction efforts from their customers.

1.4.3 Operational Changes

The City has identified several possible changes to maximize supply and reduce demand during a water shortage stage. These potential City actions could include, but are not limited to:

- Flush watermains only on a complaint basis and/or suspend or modify its routine flushing schedule to reduce operational water use.
- Monitor construction meters and fire hydrant meters for efficient water use. In the event that a meter identifies wastes water, the City will take swift action to correct errors and ensure efficiency.
- Restrict issuance of new permits for hydrant-construction or temporary construction meters.
- Limit issuance of building permits which require new or expanded water service, except in cases that protect public health, safety and welfare as deemed by the City Council.
- In severe water shortages, implement water emergency tiered pricing, pursuant to the requirements of Proposition 218 and in accordance with California Law.
- Conduct water waste patrols in cooperation with staff from other departments.
- Suspend consideration of annexations to its service area, unless the annexation increases the water supply available to the City more than the anticipated demands of the property to be annexed.

1.4.4 Additional Mandatory Restrictions

The City has identified additional mandatory restrictions to implement during a water shortage. Such restrictions will first be evaluated on the type of shortage condition. Restrictions could include, but are not limited to:

- Irrigation of newly constructed home and building exteriors with potable water is prohibited unless drip or micro spray systems are used.
- Irrigation of ornamental turf on public medians with potable water is prohibited.
- The use of potable water for sanitation, irrigation and construction purposes, including but not limited to dust control, settling of backfill, flushing of plumbing lines, and washing of equipment, buildings and vehicles, shall be prohibited in all cases where it has been determined that use of reclaimed, recycled or other forms of non-potable water use is a feasible alternative.
- Free flowing hoses are prohibited. Automatic shut-off hoses are required.
- No use of water to clean surfaces. The use of running water from a hose, pipe, or faucet to clean buildings, pavement, tile, wood, plastic, driveways, parking lots, and other paved surfaces is prohibited, except for public health and safety reasons and then only with a hose with an automatic shut-off nozzle.
- Application of potable water to landscapes during and within 48 hours after measurable rainfall is prohibited.
- Prohibit vehicle washing except at facilities using recycled or recirculating systems.

1.4.5 Emergency Response Plan

Water supplies as well as other public facilities can be negatively impacted by catastrophic events, including regional power outages and earthquakes. The City of Oxnard Water Division Water System Emergency Response Plan (ERP) (AECOM for the City of Oxnard Water Division, January 2020) identifies action plans for various emergencies. Compared to many other purveyors, the City is well-positioned to respond to such events because:

- The City has multiple sources of water, including Calleguas, United and City wells.
- Calleguas has an Imported Water Outage Protocol (IWOP). The IWOP is a local planning effort and follows a recommendation from the Calleguas' Water Supply Alternatives Study to "prepare and codify a methodology for demand reduction during an outage."
- The City's pipeline system has a tremendous by-pass system ("looping"), referring to the interconnection of pipelines and avoidance of critical pipelines where a break due to a seismic event, for example, would leave substantial areas of the City without water.
- In terms of a regional power outage, the City has back-up diesel generators at its major facilities (i.e., blending stations and water wells). United also has generation capacity. There is also additional pumping capacity plus diesel-powered generation capacity at all wellfields and the Desalter facility.

1.4.6 Seismic Risk Assessment and Mitigation Plan

The City completed an update to their Emergency Response Plan (ERP) and performed a Risk and Resiliency Assessment (RRA) (AECOM for the City of Oxnard Water Division, January 2020) that analyzes seismic events and mitigation actions to offset any impacts from such an event. The ERP and RRA were performed in accordance with America's Water Infrastructure Act (AWIA) of 2018. The purpose of the RRA and ERP is to meet the AWIA compliance requirements and plan for long-term resilience of the City's infrastructure.

The RRA assessed the City's water system to identify critical assets that may be vulnerable to malevolent threats and natural hazards such as a seismic event, as well as identified measures that can be taken to reduce risk and enhance resilience from service disruption for the benefit of customers. The RRA identifies and characterizes both infrastructure-specific and system-wide vulnerabilities and threats in addition to the consequences of disruption. The RRA also recognizes various options in addressing and mitigating risk due to intentional or accidental threats as well as natural hazards.

The ERP includes prevention and detection measures for a wide range of emergency situations. In the case of a seismic event, the ERP includes specific responses to mitigate damage and provide safety for staff during the event as well as documents detailed responses and action items to complete following the event.

The RRA, in conjunction with the ERP, charts a course for water system resilience. Since critical pieces of infrastructure and specific vulnerabilities are detailed in the RRA and critical response procedures are outlined in the ERP, the contents of these documents are confidential and for use by City staff only. However, the City can confirm that these plans meet the requirements set forth by AWIA and evaluate seismic risks and mitigation actions to the City's infrastructure.

The City also participated in the development of the 2022 Ventura County Multi-Jurisdictional Hazard Mitigation Plan (MHMP) (Tetra Tech, County of Ventura, Ventura County Sheriff Emergency Services, 2022). The MHMP analyzed the vulnerability of water facilities, including various lift stations, blending stations, and the wastewater treatment plant. The MHMP identified potential hazards that could affect the City, such as earthquakes and landslides. In addition, the MHMP summarizes financial, legal, and regulatory resources to mitigate the effects if any hazard were to occur, as well as mitigation projects, programs, and other actions. Furthermore, since the City obtains water from Calleguas and United, it is important to note that both Calleguas and United also participated in development of the MHMP.

1.4.7 Shortage Response Action Effectiveness

The City has estimated the effectiveness of shortage response actions when data pertaining to such actions is available. Estimates of the effectiveness of actions has been included in Table 3, assuming these actions are supported by successful communication and outreach efforts. A summary of the potential savings by each action class is provided in Table 4.

Table 4. Estimated Savings by Response Action Type

ACTION TYPE	ESTIMATED POTENTIAL SAVINGS, AFY	PERCENTAGE OF ESTIMATED SAVINGS BY ACTION TYPE
Demand Reduction	7,429	80%
Operational Changes	143	2%
Additional Mandatory Restrictions	1,738	19%
Communication Efforts	-	-
Total	**9,310**	**100%**

1.5 Communication Protocols

The City has developed an extensive plan to communicate the declaration of a shortage stage, inform restrictions, and provide updates during a water shortage stage. The City's Code authorizes the City Manager to issue notices pertaining to the WSCP and implement public outreach through press releases, print and broadcast media, and written and verbal communications to specifically impacted industry groups (such as public services, hotels, golf courses, school districts, developers, and restaurants) (City of Oxnard, n.d.). The City's website highlights water conservation and during a shortage event, would be consistently updated to reflect the most current information to help inform the community. Additionally, postcard notifications may be mailed directly to customers to explain current water restrictions and messages may be included with monthly water bills. A summary of actions the City could potentially take during a specific shortage stage is outlined in Table 5.

Table 5. Communication and Outreach Actions by Shortage Stage.

COMMUNICATION ACTION	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6
Maintain public information and outreach focused on long term, ongoing conservation actions (e.g., rebates on water saving appliances, repairing leaks, and low water use landscaping).	X	X	X	X	X	X
Initiate public information and advertising campaign.		X	X			
Utilize regional partnerships for messaging and implementation.		X	X	X	X	X
Focus messaging on shortage status and immediate behavioral changes.		X	X			
Develop and distribute specific drought or incident information to customers.		X	X	X	X	X
Special mailing/utility bill insert notifying of shortage stage and copy of stage requirements.		X	X	X	X	X
Offer presentations to all local civic groups, HOAs and neighborhood associations. Work with groups to post City messaging/literature or links on respective websites, social media, or meetings.		X	X	X	X	X
Further expand outreach efforts.			X	X	X	X
Modify messages to reflect more severe shortage condition and need for immediate behavioral changes.			X	X	X	X
Update website with required percent demand reduction information.			X	X	X	X
Open drought or shortage information center and establish conservation hotline.				X	X	X
Initiate water waste enforcement through fines/patrols.				X	X	X
Provide weekly updates on water shortage emergency (media briefings, web update, local newspaper, online ads, social media outlets).						
Modify utility billing system and bill format to accommodate residential rationing; add penalty rates.					X	X
Expand water waste patrols to 7 days a week.					X	X
Provide daily updates on water shortage emergency (media briefings, web update, local newspaper, online Ads, social media outlets).						X
Implement severe crisis communications plan and campaign.						X

1.6 Compliance and Enforcement

The City's Water Conservation staff is diligent in monitoring water waste and the City website encourages the public to report water waste activities. The Water Conservation staff proactively monitors consumption and responds to water waste reports.

Enforcement of water waste prohibitions and water shortage–stage restrictions is implemented under Oxnard City Code Chapter 22, including Articles VIII and IX, as amended. Enforcement authority was strengthened through ordinance amendments adopted during the 2022 drought emergency and includes administrative citations, fines, flow-restricting devices, and discontinuation of water service, subject to due process pursuant to Chapter 22 (including Section 22-140).

Chapter 22, Article VIII of the City's Code (City of Oxnard, n.d.) pertains to water waste and outlines the prohibitions identified in this WSCP. Sections 22-136 and 22-137 define the consequences for customers that violate any of the restrictions implemented to reduce demands at any time and during a water shortage stage.

1.7 Legal Authorities

The City's first water shortage stage procedures were established in 1991 by Ordinance No. 2246 but were later entirely repealed and restated by Ordinance No. 2729 in 2006. This ordinance established new water conservation and water shortage response procedures under Chapter 22, Article IX of the Oxnard City Code. Article IX, which is also titled the "City of Oxnard Water Conservation and Water Shortage Response Procedures," was later amended with language of Ordinance No. 2810 in 2009, which also provided amendments to Articles VIII and X, on Water Waste and Recycled Water Use, respectively. Copies of Ordinances 2729, 2810 and 2826 are provided online at: https://codelibrary.amlegal.com/codes/oxnard/latest/oxnard_ca/0-0-0-45641

Following 2021, the City adopted additional amendments to Chapter 22 during the 2022 drought emergency to update water waste restrictions and enforcement procedures and to align municipal enforcement authority with the Water Shortage Contingency Plan framework. The currently codified provisions of Chapter 22 should be consulted for the requirements in effect at the time of any water shortage declaration.

These amendments to City Code were deemed necessary to manage the City's potable water supply and to avoid or minimize the effects of drought and water supply variations within the City. The ordinances establish permanent water conservation standards to maximize water use efficiency for non-shortage conditions and refines response actions implemented during water shortage conditions. The conservation resulting from improved water use efficiency should help ensure a reliable and sustainable minimum supply of water for the public health, safety and welfare by maintaining local and imported water resources.

Article IX of the City's Code provides the City Council with the legal authority to declare, by resolution, that water shortage conditions are present within the City and establish mandatory water conservation measures associated with the shortage conditions. These measures shall remain in effect until the City Council declares that water shortage conditions have eased and modified or eliminated shortage responses (City of Oxnard, n.d.).

The City Council adopts mandatory water conservation measures by resolution as needed to respond to statewide, regional, or local drought and water shortage conditions, including actions taken during the 2022–2023 drought period, to operationalize and implement the WSCP shortage stages and associated response actions.

1.8 Financial Consequences of WSCP

The City's water system is financially managed as an enterprise fund. The current water rate structure includes a fixed charge and a variable charge. Fixed charges are based on meter size and will not be impacted by reduced water sales. The variable charge will be impacted by reduced water consumption. Oxnard currently "passes through" rate increases for water purchased from Calleguas and United. Oxnard does not currently have a drought rate structure or surcharge in place but will evaluate all options during the next water rate process.

To offset financial impacts from mandated water conservation during shortage conditions, Oxnard will consider delaying capital improvement projects; however, delaying capital improvement projects is not ideal for long-term or severe revenue losses. If Oxnard decides to increase future water rates or implement penalty fees for overuse, such actions may be subject to the requirements of California Proposition 218 (Prop 218).

Prior to the 2012-2015 drought period, the City had reserve revenues capable of accommodating a 10 to 20 percent reduction in revenues, which were used in the 2012-2015 drought period to offset losses.

The financial impacts outlined in this section apply to all shortage stages.

1.9 Monitoring and Reporting

The water savings from implementation of the WSCP will be determined based on measurements of consumption from water meters and well production meters. Customer meters will be read every month in Stages 1 and 2 and will increase to weekly readings in Stages 3 – 6. Production meters will be read on a weekly basis for a general analysis.

The City is in the process of implementing Advanced Metering Infrastructure (AMI). These automated tools will enable the City to track consumption and meet efficiency goals more effectively.

1.10 WSCP Refinement Procedures

The WSCP is best prepared and implemented as an adaptive management plan. The City will use results obtained from their monitoring and reporting program to evaluate any needs for revisions. Potential changes to the WSCP that would warrant an update include, but are not limited to, any changes to trigger conditions, changes to the shortage stage structure, changes to rate structures or development of water budgets, and/or changes to customer reduction actions.

Any prospective changes to the WSCP would need to be presented to the City Council for approval. The City will hold a public hearing, obtain any comments and formally adopt the updated WSCP. Notices for refinement and the public hearing date will be published in the local newspaper in advance of any public meetings.

1.11 Special Water Feature Distinction

The City evaluates special water features. The City expects to restrict water use to special decorative features starting in Stage 3 shortages. Special decorative features apply to items that use water for aesthetic purposes. Aesthetic purposes pertain to ornamental fountains, ponds, or other decorative features. If necessary, customers may use water for decorative features to sustain aquatic life.

1.12 Plan Adoption, Submittal, and Availability

The WSCP will be presented for adoption to the City Council at a public meeting. The City Council and members of the public may submit any comments prior to approval and adoption. The WSCP will be submitted to DWR at the same time as the 2025 Urban Water Management Plan.

The WSCP will be made available to all staff, customers, and any affected cities, counties, or other members of the public through the City's website, located under the Water Conservation Department.

1.13 Resources and References

AECOM for the City of Oxnard Water Division. (January 2020). *City of Oxnard Water Division Water System Emergency Response Plan.* Oxnard: City of Oxnard.

AECOM for Ventura County. (2015). *2015 Ventura County Multi-Hazard Mitigation Plan.* Ventura: Ventura County.

Arlington County Government. (n.d.). *Arlington, Virginia*. Retrieved from Water & Utilities: https://water.arlingtonva.us/environment/conserving-water/

California Department of Water Resources. (2021). *Urban Water Management Plan Guidebook 2020.* Sacramento: California Department of Water Resources.

California Department of Water Resources. (2026). *Urban Water Management Plan Guidebook 2025.* Sacramento: California Department of Water Resources.

California Water Efficiency Partnership. (2021). *Jumpstart Water Shortage Toolkit Tool#1: Model Water Shortage Contingency Plans.* Sacramento: California Water Efficiency Partnership.

City of Oxnard. (n.d.). *Oxnard, California Codified Ordinances*. Retrieved from American Legal Publishing Corporation: https://codelibrary.amlegal.com/codes/oxnard/latest/oxnard_ca/0-0-0-84217

Maryland Department of the Environment. (n.d.). *Water Conservation and Washing Vehicles*. Retrieved 2021, from Water Conservation: https://mde.maryland.gov/programs/water/waterconservation/pages/carwashing.aspx

Southwest Florida Water Management District. (2018). *Water Conservation in Restaurants*. (Southwest Florida Water Management District) Retrieved March 2021, from Water Conservation: https://www.swfwmd.state.fl.us/residents/water-conservation/water-conservation-restaurants

Tetra Tech, County of Ventura, Ventura County Sheriff Emergency Services. (2022). *Multi-Jurisdictional Hazard Mitigation Plan.*

Texas Living Waters Project. (2018). *Water Conservation by the Yard: A Statewide Analysis of Outdoor Water Savings Potential.* Austin: Texas Living Waters Project, Sierra Club, National Wildlife Federation. Retrieved from Texas Living Waters Project.

United States Environmental Protection Agency. (2012). *Saving Water in Restaurants.* United States Environmental Protection Agency.

United States Environmental Protection Agency, Office of Water. (2002). *Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs.* United States Environmental Protection Agency.

Appendix B Reduced Delta Reliance

B

B

Appendix B. Demonstration of Reduced Delta Reliance



Quantifying Regional Self-Reliance and Reduced Reliance on Water Supplies from the Delta

1. Background

Under the Sacramento-San Joaquin Delta Reform Act of 2009, state and local public agencies proposing a covered action in the Delta, prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and submit that certification to the Delta Stewardship Council. Anyone may appeal a certification of consistency, and if the Delta Stewardship Council grants the appeal, the covered action may not be implemented until the agency proposing the covered action submits a revised certification of consistency, and either no appeal is filed, or the Delta Stewardship Council denies the subsequent appeal.

An urban water supplier that anticipates participating in or receiving water from a proposed covered action such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta should provide information in their Urban Water Management Plans (UWMPs) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1).

WR P1 details what is needed for a covered action to demonstrate consistency with reduced reliance on the Delta and improved regional self-reliance. WR P1 subsection (a) states that:

> *(a) Water shall not be exported from, transferred through, or used in the Delta if all the following apply:*
>
> > *(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);*
> >
> > *(2) That failure has significantly caused the need for the export, transfer, or use; and*
> >
> > *(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.*

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means in terms of (a)(1) above.

> *(c)(1) Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:*
>
> > *(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;*
> >
> > *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and*
> >
> > *(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected*

> *outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).*

The analysis and documentation provided below include all the elements described in WR P1(c)(1) that need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action.

2. Demonstration of Regional Self-Reliance

The methodology used to determine the City of Oxnard's (City) improved regional self-reliance is consistent with the approach detailed in DWR's UWMP Guidebook Appendix C (Guidebook Appendix C), including the use of narrative justifications for the accounting of supplies and the documentation of specific data sources. Some of the key assumptions underlying the City's demonstration of reduced reliance include:

- All data were obtained from the current 2025 UWMP or previously adopted UWMPs and represent average or normal water year conditions.
- All analyses were conducted at the service area level, and all data reflect the total contributions of the City and its customers.
- No projects or programs that solely use water from the Delta and are described in the UWMPs as "Projects Under Development" were included in the accounting of supplies. Future local supply projects are included in this analysis.

Baseline and Expected Outcomes

To calculate the expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance, a baseline is needed to compare against. This analysis uses a normal water year representation of 2010 as the baseline, which is consistent with the approach described in the Guidebook Appendix C. Data for the 2010 baseline were taken from the City's 2005 UWMP as UWMPs generally do not provide normal water year data for the year that they are adopted (i.e., 2005 UWMP forecasts begin in 2010, 2010 UWMP forecasts begin in 2015, and so on).

Consistent with the 2010 baseline data approach, the expected outcomes for reduced Delta reliance and improved regional self-reliance for 2015, 2020, and 2025 were taken from the City's 2010, 2015, and 2020 UWMPs, respectively. Expected outcomes for 2030-2050 are from the current 2025 UWMP. Documentation of the specific data sources and assumptions are included in the discussions below.

Service Area Demands without Water Use Efficiency

In alignment with the Guidebook Appendix C, this analysis uses normal water year demands, rather than normal water year supplies to calculate expected outcomes in terms of the percentage of water used. Normal water year demands serve as a proxy for the amount of supplies that would be used in a normal water year, which helps alleviate issues associated with how supply capability is presented to fulfill requirements of the UWMP Act versus how supplies might be accounted for to demonstrate consistency with WR P1.

Because WR P1 considers water use efficiency savings a source of water supply, water suppliers can calculate their embedded water use efficiency savings based on changes in forecasted per capita water use since the baseline. As explained in the Guidebook Appendix C, water use efficiency savings must be added back to the normal year demands to represent demands without water use efficiency savings accounted for; otherwise, the effect of water use efficiency savings on regional self-reliance would be overestimated. Table C-1 shows the results of this adjustment for the City. Supporting narratives and documentation for all the data shown in Table C-1 are provided below.

Service Area Demands with Water Use Efficiency

The service area demands shown in Table C-1 represent the total water demands for the City's service area. The demand data shown in Table C-1 were collected from the following sources:

- Baseline (2010): the City's 2005 UWMP, Table 4-3
- 2015: the City's 2010 UWMP, Table 2-16
- 2020: the City's 2015 UWMP, Table 4-3
- 2025: the City's 2020 UWMP, Table 4-5
- 2030-2050: the City's 2025 UWMP, Table 4-7

Non-Potable Water Demands

Over the years, the City has developed and implemented the Groundwater Recharge Enhancement and Treatment (GREAT) Program to establish recycled water for indirect potable reuse and increase local supply reliability. The City owns and operates an advanced water purification facility (AWPF) with an initial capacity of 7,000 AFY and future planned expansions. Details on recycled water are discussed in Chapter 6 of the 2025 UWMP. The non-potable water demand data shown in Table C-1 represents recycled water demand estimates directly used by customers. Water supply from indirect potable reuse (IPR) are used to meet potable demands, and are counted under supplies contributing to regional self-reliance.

Non-potable water demand data was collected from the following sources:

- Baseline (2010): the City's 2005 UWMP, Table 4-3
- 2015: the City's 2010 UWMP, Table 2-15 (no non-potable water demand as all water is projected to be used for IPR)
- 2020: the City's 2015 UWMP, Table 6-4, excluding IPR which is a potable supply
- 2025: the City's 2020 UWMP, Table 4-5 (no non-potable water demand as all water is projected to be used for IPR)
- 2030-2050: the City's 2025 UWMP, Table 4-7 (no non-potable water demand as all water is projected to be used for IPR)

Potable Service Area Demands with Water Use Efficiency

The "Potable Service Area Demands with Water Use Efficiency" was calculated by subtracting the "Non-Potable Water Demands" from "Service Area Demands with Water Use Efficiency."

Service Area Population

The population data shown in Table C-1 were collected from the following sources:

- Baseline (2010): the City's 2010 UWMP, Table 2-2
- 2015: the City's 2015 UWMP, Table 3-1
- 2020: the City's 2020 UWMP, Table 3-2
- 2025-2050: the City's 2025 UWMP, Table 3-2

Estimated Water Use Efficiency Since Baseline

The "Estimated Water Use Efficiency Since Baseline" was calculated using "Potable Service Area Demands with Water Use Efficiency" divided by "Service Area Population" and then comparing with 2010 Per Capita Water Use.

Service Area Water Demands without Water Use Efficiency

In Table C-2, the "Service Area Demands with Water Use Efficiency" was added to the "Estimated Water Use Efficiency Since Baseline" to obtain the "Service Area Water Demands without Water Use Efficiency Accounted For".

Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. Table C-3 shows expected outcomes for supplies contributing to regional self-reliance both in the amount and as a percentage. The numbers shown in Table C-3 represent efforts to improve regional self-reliance for the City's service area and include the total contributions of the City and its customers. Supporting narratives and documentation for all the data shown in Table C-3 are provided below.

Water Use Efficiency

The water use efficiency information shown in Table C-3 is taken directly from Table C-2.

Water Recycling

The water recycling values shown in Table C-3 are taken directly from the non-potable water demands in Table C-1.

Advanced Water Technologies

The advanced water technology values shown in Table C-3 include projected supply from the City's AWPF used for IPR. The values were collected from the following sources:

- Baseline (2010): No supplies included.
- 2015: the City's 2010 UWMP, Table 2-15, shown as groundwater recharge
- 2020: the City's 2015 UWMP, Table 6-4, shown as groundwater recharge (IPR)
- 2025: the City's 2020 UWMP, Table 6-11, shown as ASR Recovered

Local and Regional Water Supply and Storage Projects

The Local and Regional Water Supply and Storage Projects include local groundwater using the City's groundwater supply, purchased groundwater from United Water Conservation District (UWCD), and groundwater pumped through sales of recycled water to agricultural users outside of the City's service area (Recycled Water Pump Back Allocation). The values were collected from the following sources:

- Baseline (2010): the City's 2010 UWMP, Table 3-1, shown as groundwater less brine losses.
- 2015: the City's 2010 UWMP, Table 3-1, shown as groundwater recharge less brine losses.
- 2020: the City's 2015 UWMP, Table 6-8, shown as groundwater and purchased water from UWCD
- 2025: the City's 2020 UWMP, Table 6-11, shown as City groundwater, UWCD groundwater, and recycled water pumpback allocation.
- 2030-2050: the City's 2025 UWMP, Table 6-11, shown as City groundwater, UWCD groundwater, and recycled water pumpback allocation.

3. Infeasibility of Accounting Supplies from the Delta Watershed for Metropolitan's Member Agencies and their Customers

Metropolitan's service area, as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures. Consistent with Metropolitan's 2025 Urban Water Management Plan (UWMP), reduced reliance on supplies from the Delta watershed is evaluated at the regional level through changes in regional self-reliance and total reliance on Delta supplies. Metropolitan's member agencies coordinate reliance on the Delta through their membership in Metropolitan, a regional cooperative providing wholesale water service to its 26 member agencies. Accordingly, regional reliance on the Delta can only be measured regionally—not by individual Metropolitan member agencies and not by the customers of those member agencies.

Metropolitan's member agencies, and those agencies' customers, indirectly reduce reliance on the Delta through their collective efforts as a cooperative. Metropolitan's member agencies do not control the amount of Delta water they receive from Metropolitan. Metropolitan manages a statewide integrated conveyance system consisting of its participation in the State Water Project (SWP), its Colorado River Aqueduct (CRA) including Colorado River water resources, programs and water exchanges, and its regional storage portfolio. Along with the SWP, CRA, storage programs, and Metropolitan's conveyance and distribution facilities, demand management programs increase the future reliability of water resources for the region. In addition, demand management programs provide system-wide benefits by decreasing the demand for imported water, which helps to decrease the burden on the district's infrastructure and reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Metropolitan's costs are funded almost entirely from its service area, with the exception of grants and other assistance from government programs. Most of Metropolitan's revenues are collected directly from its member agencies. Properties within Metropolitan's service area pay a property tax that provided approximately 15 percent of the fiscal year 2024 annual budgeted revenues. The rest of Metropolitan's costs are funded through rates and charges paid by Metropolitan's member agencies for the wholesale services it provides to them.[1] Thus, Metropolitan's member agencies fund nearly all operations Metropolitan undertakes to reduce reliance on the Delta, including Colorado River Programs, storage facilities, Local Resources Programs and conservation programs within Metropolitan's service area.

Because of the integrated nature of Metropolitan's systems and operations, and the collective nature of Metropolitan's regional efforts, it is infeasible to quantify each of Metropolitan's member agencies' individual reliance on the Delta. It is infeasible to attempt to segregate an entity and a system that were designed to work as an integrated regional cooperative.

---

[1] A standby charge is collected from properties within the service areas of 22 of Metropolitan's 26 member agencies, ranging from $5 to $15 per acre annually, or per parcel if smaller than an acre. Standby charges go towards those member agencies' obligations to Metropolitan for the Readiness-to-Serve Charge. Standby charges represented approximately 2 percent of Metropolitan's total revenues in Fiscal Year 2025/26. *See Metropolitan Water District of Southern California, Water Standby Charge for Fiscal Year 2025/26, Board Materials (as presented May 13, 2025 and incorporated in subsequent budget materials, including November 2025 revision), and Metropolitan Water District of Southern California, Water Revenue Bonds Official Statement, Appendix A – "The Metropolitan Water District of Southern California."*

In addition to the member agencies funding Metropolitan's regional efforts, they also invest in their own local programs to reduce their reliance on any imported water. Moreover, the customers of those member agencies may also invest in their own local programs to reduce water demand. However, to the extent those efforts result in reduction of demands on Metropolitan, that reduction does not equate to a like reduction of reliance on the Delta. Demands on Metropolitan are not commensurate with demands on the Delta because most of Metropolitan's member agencies receive blended resources from Metropolitan as determined by Metropolitan—not the individual member agency—and for most member agencies, the blend varies from month-to-month and year-to-year due to hydrology, operational constraints, use of storage and other factors.

Colorado River Programs

As a regional cooperative of member agencies, Metropolitan invests in programs to ensure the continued reliability and sustainability of Colorado River supplies. Metropolitan was established to obtain an allotment of Colorado River water, and its first mission was to construct and operate the CRA. The CRA consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four regulating reservoirs, and 242 miles of aqueducts, siphons, canals, conduits and pipelines terminating at Lake Mathews in Riverside County. Metropolitan owns, operates, and manages the CRA. Metropolitan is responsible for operating, maintaining, rehabilitating, and repairing the CRA, and is responsible for obtaining and scheduling energy resources adequate to power pumps at the CRA's five pumping stations.

Colorado River supplies include Metropolitan's basic Colorado River apportionment, along with supplies that result from existing and committed programs, including supplies from the Imperial Irrigation District (IID)-Metropolitan Conservation Program, the implementation of the Quantification Settlement Agreement (QSA) and related agreements, and the exchange agreement with San Diego County Water Authority (SDCWA). The QSA established the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Since the QSA, additional programs have been implemented to increase Metropolitan's CRA supplies. These programs have continued to evolve in response to ongoing drought conditions in the Colorado River Basin and associated shortage and contingency actions. These include the PVID Land Management, Crop Rotation, and Water Supply Program, as well as the Lower Colorado River Water Supply Project. The 2007 Interim Guidelines provided for the coordinated operation of Lake Powell and Lake Mead, as well as the Intentionally Created Surplus (ICS) program that allows Metropolitan to store water in Lake Mead.

Storage Investments/Facilities

Surface and groundwater storage are critical elements of Southern California's water resources strategy and help Metropolitan reduce its reliance on the Delta. Because California experiences dramatic swings in weather and hydrology, storage is important to regulate those swings and mitigate possible supply shortages. Surface and groundwater storage provide a means of storing water during normal and wet years for later use during dry years, when imported supplies are limited. The Metropolitan system, for purposes of meeting demands during times of shortage, regulating system flows, and ensuring system reliability in the event of a system outage, provides over 1,000,000 acre-feet of system storage capacity. Diamond Valley Lake provides 810,000 acre-feet of that storage

capacity, effectively doubling Southern California's previous surface water storage capacity. Other existing imported water storage available to the region consists of Metropolitan's raw water reservoirs, a share of the SWP's raw water reservoirs in and near the service area, and the portion of the groundwater basins used for conjunctive-use storage.

Since the early twentieth century, DWR and Metropolitan have constructed surface water reservoirs to meet emergency, drought/seasonal, and regulatory water needs for Southern California. These reservoirs include Pyramid Lake, Castaic Lake, Elderberry Forebay, Silverwood Lake, Lake Perris, Lake Skinner, Lake Mathews, Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, Orange County Reservoir, and Metropolitan's Diamond Valley Lake (DVL).

Metropolitan's Live Oak and Garvey Reservoirs serve exclusively as regulating facilities and have a combined capacity of approximately 4,100 AF. The remaining reservoirs are primarily used to meet emergency, drought, and seasonal demands, with a total gross storage capacity of 1,760,200 AF. However, not all of this capacity is available to Metropolitan; accounting for dead storage and volumes allocated to other entities, Metropolitan's effective storage capacity is approximately 1,665,200 AF. Conjunctive use of the aquifers offers another important source of dry year supplies. Unused storage in Southern California groundwater basins can be used to optimize imported water supplies, and the development of groundwater storage projects allows effective management and regulation of the region's major imported supplies from the Colorado River and SWP. Over the years, Metropolitan has implemented conjunctive use through various programs in the service area; Table 1 lists the groundwater conjunctive use programs active in the region.

Table 1: Contractual Conjunctive Groundwater Projects

Project and Project Proponents*	**Storage Capacity** (TAF)	**Dry-Year Yield** (TAF/Year)	**Storage Account Balance as of 1/1/2025** (TAF)
Los Angeles County			
Upper Claremont Heights Groundwater Storage Program Three Valleys MWD	3.0	1.0	1.2
San Bernardino County			
Chino Basin Groundwater Storage Program IEUA, TVMWD, Chino Basin Watermaster	100.0	33.0	63.8
Riverside County			
Elsinore Groundwater Storage Program Western MWD, Elsinore Valley MWD	12.0	4.0	11.9
Total	**115.0**	**38.0**	**76.9**

* Metropolitan's active Conjunctive Use Programs as of July 1, 2025.

Metropolitan Demand Management Programs

Demand management costs are Metropolitan's expenditures for funding local water resource development programs and water conservation programs. These Demand Management Programs incentivize the development of local water supplies and the conservation of water to reduce the need to import water to deliver to Metropolitan's member agencies. These programs are implemented below the delivery points between Metropolitan's and its member agencies' distribution systems and, as such, do not add any water to Metropolitan's supplies. Rather, the effect of these downstream programs is to produce a local supply of water for the local agencies and to reduce demands by member agencies for water imported through Metropolitan's system. The following discussions outline how Metropolitan funds local resources and conservation programs for the benefit of all of its member agencies and the entire Metropolitan service area. Notably, the history of demand management by Metropolitan's member agencies and the local agencies that purchase water from Metropolitan's members has spanned more than four decades. The significant history of the programs is another reason it would be difficult to attempt to assign a portion of such funding to any one individual member agency.

Local Resources Programs

In 1982, Metropolitan began providing financial incentives to its member agencies to develop new local supplies to assist in meeting the region's water needs. Because of Metropolitan's regional distribution system, these programs benefit all member agencies regardless of project location because they help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs, and free up conveyance capacity to the benefit of all the agencies that rely on water from Metropolitan.

For example, the Groundwater Replenishment System (GWRS) operated by the Orange County Water District is the world's largest water purification system for indirect potable reuse. It was funded, in part, by Metropolitan's member agencies through the Local Resources Program. Annually, the GWRS produces approximately 130,000 acre-feet of reliable, locally controlled, drought-proof supply of high-quality water to recharge the Orange County Groundwater Basin and protect it from seawater intrusion. The GWRS is a premier example of a regional project that significantly reduced the need to utilize imported water for groundwater replenishment in Metropolitan's service area, increasing regional and local supply reliability and reducing the region's reliance on imported supplies, including supplies from the State Water Project.

Metropolitan's local resource programs have evolved through the years to better assist Metropolitan's member agencies in increasing local supply production. The following is a description and history of the local supply incentive programs.

Local Projects Program

In 1982, Metropolitan initiated the Local Projects Program (LPP), which provided funding to member agencies to facilitate the development of recycled water projects. Under this approach, Metropolitan contributed a negotiated up-front funding amount to help finance project capital costs. Participating member agencies were obligated to reimburse Metropolitan over time. In 1986, the LPP was revised, changing the up-front funding approach to an incentive-based approach. Metropolitan contributed an amount equal to the avoided State Water Project pumping costs for each acre-foot of recycled water delivered to end-use consumers. This funding incentive was based on the premise that local projects

resulted in the reduction of water imported from the Delta and the associated pumping cost. The incentive amount varied from year to year depending on the actual variable power cost paid for State Water Project imports. In 1990, Metropolitan's Board increased the LPP contribution to a fixed rate of $154 per acre-foot, which was calculated based on Metropolitan's avoided capital and operational costs to convey, treat, and distribute water, and included considerations of reliability and service area demands.

Groundwater Recovery Program

The drought of the early 1990s sparked the need to develop additional local water resources, aside from recycled water, to meet regional demand and increase regional water supply reliability. In 1991, Metropolitan conducted the Brackish Groundwater Reclamation Study which determined that large amounts of degraded groundwater in the region were not being utilized. Subsequently, the Groundwater Recovery Program (GRP) was established to assist the recovery of otherwise unusable groundwater degraded by minerals and other contaminants, provide access to the storage assets of the degraded groundwater, and maintain the quality of groundwater resources by reducing the spread of degraded plumes.

Local Resources Program

In 1995, Metropolitan's Board adopted the Local Resources Program (LRP), which combined the LPP and GRP into one program. The Board allowed for existing LPP agreements with a fixed incentive rate to convert to the sliding scale up to $250 per acre-foot, similar to GRP incentive terms. Those agreements that were converted to LRP are known as "LRP Conversions."

Competitive Local Projects Program

In 1998, the Competitive Local Resources Program (Competitive Program) was established. The Competitive Program encouraged the development of recycled water and recovered groundwater through a process that emphasized cost-efficiency to Metropolitan, timing new production according to regional need while minimizing program administration cost. Under the Competitive Program, agencies requested an incentive rate up to $250 per acre-foot of production over 25 years under a Request for Proposals (RFP) for the development of up to 53,000 acre-feet per year of new water recycling and groundwater recovery projects. In 2003, a second RFP was issued for the development of an additional 65,000 acre-feet of new recycled water and recovered groundwater projects through the LRP.

Seawater Desalination Program

Metropolitan established the Seawater Desalination Program (SDP) in 2001 to provide financial incentives to member agencies for the development of seawater desalination projects. In 2014, seawater desalination projects became eligible for funding under the LRP, and the SDP was ended.

2007 Local Resources Program

In 2006, a task force comprised of member agency representatives was formed to identify and recommend program improvements to the LRP. As a result of the task force process, the 2007 LRP was established with a goal of 174,000 acre-feet per year of additional local water resource development. The new program allowed for an open application process and eliminated the previous competitive process. This program offered sliding scale incentives of up to $250 per acre-foot,

calculated annually based on a member agency's actual local resource project costs exceeding Metropolitan's prevailing water rate.

2014 Local Resources Program

A series of workgroup meetings with member agencies was held to identify the reasons why there was a lack of new LRP applications coming into the program. The main constraint identified by the member agencies was that the $250 per acre-foot was not providing enough of an incentive for developing new projects due to higher construction costs to meet water quality requirements and to develop the infrastructure to reach end-use consumers located further from treatment plants. As a result, in 2014, the Board authorized an increase in the maximum incentive amount, provided alternative payment structures, included onsite retrofit costs and reimbursable services as part of the LRP, and added eligibility for seawater desalination projects. The current LRP incentive payment options are structured as follows:

Option 1 – Sliding scale incentive up to $340/AF for a 25-year agreement term

Option 2 – Sliding scale incentive up to $475/AF for a 15-year agreement term

Option 3 – Fixed incentive up to $305/AF for a 25-year agreement term

On-site Retrofit Programs

In 2014, Metropolitan's Board also approved the On-site Retrofit Pilot Program which provided financial incentives to public or private entities toward the cost of small-scale improvements to their existing irrigation and industrial systems to allow connection to existing recycled water pipelines. The On-site Retrofit Pilot Program helped reduce recycled water retrofit costs to the end-use consumer which is a key constraint that limited recycled water LRP projects from reaching full production capacity. The program incentive was equal to the actual eligible costs of the on-site retrofit, or $975 per acre-foot of up-front cost, which equates to $195 per acre-foot for an estimated five years of water savings ($195/AF x 5 years) multiplied by the average annual water use in previous three years, whichever is less. The Pilot Program lasted two years and was successful in meeting its goal of accelerating the use of recycled water.

In 2016, Metropolitan's Board authorized a permanent On-site Retrofit Program (ORP). This program encompassed lessons learned from the Pilot Program and feedback from member agencies to make the program more streamlined and improve its efficiency. With an annual budget of $3 million, as of fiscal year 2024/25 the program has funded 550 sites, replacing 15,360 acre-feet of potable water with recycled water per year.

Stormwater Pilot Programs

In 2019, Metropolitan's Board authorized both the Stormwater for Direct Use Pilot Program and a Stormwater for Recharge Pilot Program to study the feasibility of reusing stormwater to help meet regional demands in Southern California. These pilot programs are intended to encourage the development, monitoring, and study of new and existing stormwater projects by providing financial incentives for their construction/retrofit and monitoring/reporting costs. These pilot programs will help evaluate the potential benefits delivered by stormwater capture projects and provide a basis for potential future funding approaches. Metropolitan's Board authorized a total of $12.5 million for the stormwater pilot programs ($5 million for the District Use Pilot and $7.5 million for the Recharge Pilot).

Current Status and Results of Metropolitan's Local Resource Programs

Today, nearly one-half of the total recycled water and groundwater recovery production in the region has been developed with an incentive from one or more of Metropolitan's local resource programs. During fiscal year 2025, Metropolitan provided about $5 million for production of 40,000 acre-feet of recycled water for non-potable and indirect potable uses. Metropolitan provided about $8 million to support projects that produced about 53,000 acre-feet of recovered groundwater for municipal use. Since 1982, Metropolitan has invested $771 million to fund 90 recycled water projects and 28 groundwater recovery projects that have produced a cumulative total of about 4.6 million acre-feet.

Conservation Programs

Metropolitan's regional conservation programs and approaches have a long history. Decades ago, Metropolitan recognized that demand management at the consumer level would be an important part of balancing regional supplies and demands. Water conservation efforts were seen as a way to reduce the need for imported supplies and offset the need to transport or store additional water into or within the Metropolitan service area. The actual conservation of water takes place at the retail consumer level. Regional conservation approaches have proven to be effective at reaching retail consumers throughout Metropolitan's service area and successfully implementing water saving devices, programs and practices. Through the pooling of funding by Metropolitan's member agencies, Metropolitan is able to engage in regional campaigns with wide-reaching impact. Regional investments in demand management programs, of which conservation is a key part along with local supply programs, benefit all member agencies regardless of project location. These programs help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Incentive-Based Conservation Programs

Conservation Credits Program

In 1988, Metropolitan's Board approved the Water Conservation Credits Program (Credits Program). The Credits Program is similar in concept to the Local Projects Program (LPP). The purpose of the Credits Program is to encourage local water agencies to implement effective water conservation projects through the use of financial incentives. The Credits Program provides financial assistance for water conservation projects that reduce demands on Metropolitan's imported water supplies and require Metropolitan's assistance to be financially feasible.

Initially, the Credits Program provided 50 percent of a member agency's program cost, up to a maximum of $75 per acre-foot of estimated water savings. The $75 Base Conservation Rate was established based Metropolitan's avoided cost of pumping SWP supplies. The Base Conservation Rate has been revisited by Metropolitan's Board and revised twice since 1988, from $75 to $154 per acre-foot in 1990 and from $154 to $195 per acre-foot in 2005.

Metropolitan's Credits Program investment in fiscal year 2025 was $22 million.

Member Agency Administered Program

Some member agencies also have unique programs within their service areas that provide local rebates that may differ from Metropolitan's regional program. Metropolitan continues to support these local efforts through a member agency administered funding program that adheres to the same funding guidelines as the Credits Program. The Member Agency Administered Program allows member agencies to receive funding for local conservation efforts that supplement, but do not duplicate, the rebates offered through Metropolitan's regional rebate program.

Water Savings Incentive Program

There are numerous commercial entities and industries within Metropolitan's service area that pursue unique savings opportunities that do not fall within the general rebate programs that Metropolitan provides. In 2012, Metropolitan designed the Water Savings Incentive Program (WSIP) to target these unique commercial and industrial projects. In addition to rebates for devices, under this program, Metropolitan provides financial incentives to businesses and industries that created their own custom water efficiency projects. Qualifying custom projects can receive funding for permanent water efficiency changes that result in reduced potable demand.

Non-Incentive Conservation Programs

In addition to its incentive-based conservation programs, Metropolitan also undertakes additional efforts throughout its service area that help achieve water savings without the use of rebates. Metropolitan's non-incentive conservation efforts include:

- residential and professional water efficient landscape training classes
- water audits for large landscapes
- research, development and studies of new water saving technologies
- advertising and outreach campaigns
- community outreach and education programs
- advocacy for legislation, codes, and standards that lead to increased water savings

Current Status and Results of Metropolitan's Conservation Programs

Since 1990, Metropolitan has invested $976 million in conservation rebates that have resulted in a cumulative savings of 4.32 million acre-feet of water as of fiscal year 2025. These investments include $414 million in turf removal which resulted in 175 million square feet of lawn turf removed. During fiscal year 2025, 1.12 million acre-feet of water is estimated to have been conserved. This annual total includes Metropolitan's Conservation Credits Program; code-based conservation achieved through Metropolitan-sponsored legislation; building plumbing codes and ordinances; reduced consumption resulting from changes in water pricing; and pre-1990 device retrofits.

Infeasibility of Accounting Regional Investments in Reduced Reliance Below the Regional Level

The accounting of regional investments that contribute to reduced reliance on supplies from the Delta watershed is straightforward to calculate and report at the regional aggregate level. However, any similar accounting is infeasible for the individual member agencies or their customers. As described

above, the region (through Metropolitan) makes significant investments in projects, programs and other resources that reduce reliance on the Delta. In fact, all of Metropolitan's investments in Colorado River supplies, groundwater and surface storage, local resources development and demand management measures that reduce reliance on the Delta are collectively funded by revenues generated from the member agencies through rates and charges.

Metropolitan's revenues cannot be matched to the demands or supply production history of an individual agency, or consistently across the agencies within the service area. Each project or program funded by the region has a different online date, useful life, incentive rate and structure, and production schedule. It is infeasible to account for all these things over the life of each project or program and provide a nexus to each member agency's contributions to Metropolitan's revenue stream over time. Accounting at the regional level allows for the incorporation of the local supplies and water use efficiency programs done by member agencies and their customers through both the regional programs and through their own specific local programs. As shown above, despite the infeasibility of accounting reduced Delta reliance below the regional level, Metropolitan's member agencies and their customers have together made substantial contributions to the region's reduced reliance.

References

https://mwdh2o.legistar.com/View.ashx?M=F&ID=14909541&GUID=74F23E74-C89B-4C8D-ACA8-764CBA3DFA63

https://www-admin.mwdh2o.com/media/soibemtf/2026-annual-achievement-report.pdf

https://d1q0afiq12ywwq.cloudfront.net/media/5ralzxit/public-review-draft-february-2026-uwmp.pdf

https://mwdh2o.legistar.com/View.ashx?M=F&ID=10371591&GUID=1A060A60-2A18-4EA1-BB1B-3624C07C4C61

4. Summary of Expected Outcomes for Reduced Reliance on the Delta

As stated in WR P1(c)(1)(C), the policy requires that UWMPs include expected outcomes for measurable reduction in Delta reliance and improved regional self- reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta.

The expected outcomes for the City's Delta reliance and regional self-reliance were developed using the approach and guidance described in 2025 UWMP Guidebook Appendix C issued in January 2026.

Regional Self-Reliance

The data used to demonstrate increased regional self-reliance in this analysis represent the total regional efforts of the City and its customers and was developed in conjunction with Calleguas and Metropolitan as part of the UWMP coordination process.

The following provides a summary of the near-term (2030) and long-term (2050) expected outcomes for the City's regional self-reliance.

- Near-term (2030) – Normal water year regional self-reliance is expected to increase by almost 10,000 AFY from the 2010 baseline; this represents an increase of about 24 percent of 2030 normal water year retail demands (Table C-3).
- Long-term (2050) – Normal water year regional self-reliance is expected to increase by about 12,000 AFY from the 2010 baseline, this represents an increase of about 26 percent of 2050 normal water year retail demands (Table C-3).

The results show that the City is reducing reliance on the Delta and improving regional self-reliance.

Reduced Reliance on Supplies from the Delta Watershed

For reduced reliance on supplies from the Delta Watershed, the data used in this analysis represent the total regional efforts of Metropolitan, Calleguas, and their member agencies and customers (including the City), and were developed in conjunction with the City and other Metropolitan member agencies as part of the UWMP coordination process (as described in Section 5 of Metropolitan's 2025 UWMP). In accordance with UWMP requirements, Metropolitan's member agencies and their customers (many of them retail agencies) also report demands and supplies for their service areas in their respective UWMPs. The data reported by those agencies are not additive to the regional totals shown in Metropolitan's UWMP, rather their reporting represents subtotals of the regional total and should be considered as such for the purposes of determining reduced reliance on the Delta.

While the demands that Metropolitan's member agencies and their customers report in their UWMP's are a good reflection of the demands in their respective service areas, they do not adequately represent each water suppliers' individual contributions to reduced reliance on the Delta. To calculate and report their reliance on water supplies from the Delta watershed, water suppliers that receive water from the Delta through other regional or wholesale water suppliers would need to determine the amount of Delta water that they receive from the regional or wholesale supplier. Two specific pieces of information are needed to accomplish this, first is the quantity of demands on the regional or wholesale water supplier that accurately reflect a supplier's contributions to reduced reliance on the Delta and second is the quantity of a supplier's demands on the regional or wholesale water supplier that are met by supplies from the Delta watershed.

For water suppliers that make investments in regional projects or programs it may be infeasible to quantify their demands on the regional or wholesale water supplier in a way that accurately reflects their individual contributions to reduced reliance on the Delta. Due to the extensive, long-standing, and successful implementation of regional demand management and local resource incentive programs in Metropolitan's service area, this infeasibility holds true for Metropolitan's members as well as their

customers. For Metropolitan's service area, reduced reliance on supplies from the Delta watershed can only be accurately accounted for at the regional level.

The following provides a summary of the near-term (2030) and long-term (2050) expected outcomes for the reduced reliance on supplies from the Delta Watershed for Metropolitan:

- Near-term (2030) – Normal water year reliance on supplies from the Delta watershed decreased by 466,000 AF from the 2010 baseline, this represents a decrease of 6.5% of 2025 normal water year retail demands (Table C-4).
- Long-term (2050) – Normal water year reliance on supplies from the Delta watershed decreased by 537,000 AF from the 2010 baseline, this represents a decrease of just over 9.4% of 2045 normal water year retail demands (Table C-4).

The results show that as a region, Metropolitan and its members (including the City) as well as their customers are measurably reducing reliance on the Delta and improving regional self-reliance.

5. UWMP Implementation

In addition to the analysis and documentation described above, WR P1 subsection (c)(1)(B) requires that all programs and projects included in the UWMP that are locally cost-effective and technically feasible, which reduce reliance on the Delta, are identified, evaluated, and implemented consistent with the implementation schedule. WR P1 (c)(1)(B) states that:

> *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta[.]*

In accordance with Water Code Section 10631(f), water suppliers must already include in their UWMP a detailed description of expected future projects and programs that they may implement to increase the amount of water supply available to them in normal and single-dry water years and for a period of drought lasting five consecutive years. The UWMP description must also identify specific projects, include a description of the increase in water supply that is expected to be available from each project, and include an estimate regarding the implementation timeline for each project or program.

Chapter 6 of the City's 2020 UWMP summarizes the implementation plan and continued progress in developing a diversified water portfolio to meet the region's water needs.

Table C-1: Optional Calculation of Water Use Efficiency

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	35,250	41,829	39,664	34,819	27,024	26,732	26,268	26,212	26,613
Non-Potable Water Demands	650	-	4,675	-	-	-	-	-	0
Potable Service Area Demands with Water Use Efficiency Accounted For	34,600	41,829	34,989	34,819	27,024	26,732	26,268	26,212	26,613

Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Population	201,499	193,654	206,352	210,472	217,235	223,998	225,378	226,758	228,138

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Per Capita Water Use (GPCD)	153	193	151	148	111	107	104	103	104
Change in Per Capita Water Use from Baseline (GPCD)		40	(2)	(6)	(42)	(47)	(49)	(50)	(49)
Estimated Water Use Efficiency Since Baseline		(8,576)	444	1,322	10,278	11,731	12,432	12,725	12,561

Table C-2: Calculation of Service Area Water Demands without Water Use Efficiency

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	35,250	41,829	39,664	34,819	27,024	26,732	26,268	26,212	26,613
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline	-	(8,576)	444	1,322	10,278	11,731	12,432	12,725	12,561
Service Area Water Demands without Water Use Efficiency Accounted For	35,250	33,253	40,108	36,141	37,302	38,463	38,700	38,937	39,174

Table C-3: Calculation of Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Use Efficiency	-	(8,576)	444	1,322	10,278	11,731	12,432	12,725	12,561
Water Recycling	650	-	4,675	-	-	-	-	-	-
Stormwater Capture and Use	-	-	-	-	-	-	-	-	-
Advanced Water Technologies	-	5,200	1,525	1,500	3,000	6,400	6,400	6,400	6,400
Conjunctive Use Projects									
Local and Regional Water Supply and Storage Projects	17,040	19,092	13,619	16,772	14,349	12,095	10,790	10,790	10,790
Other Programs and Projects the Contribute to Regional Self-Reliance	-	-	-	-	-	-	-	-	-
Water Supplies Contributing to Regional Self-Reliance	17,690	15,716	20,263	19,594	27,627	30,226	29,623	29,916	29,752

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	35,250	33,253	40,108	36,141	37,302	38,463	38,700	38,937	39,174

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Supplies Contributing to Regional Self-Reliance	17,690	15,716	20,263	19,594	27,627	30,226	29,623	29,916	29,752
Change in Water Supplies Contributing to Regional Self-Reliance		(1,974)	2,573	1,904	9,937	12,536	11,933	12,226	12,062

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	50.2%	47.3%	50.5%	54.2%	74.1%	78.6%	76.5%	76.8%	75.9%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		-2.9%	0.3%	4.0%	23.9%	28.4%	26.4%	26.6%	25.8%

Table C-4: Calculation of Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
CVP/SWP Contract Supplies	1,472,000	1,029,000	984,000	1,133,000	949,000	924,000	901,000	877,000	877,000
Delta/Delta Tributary Diversions	-	-	-	-	-	-	-	-	-
Transfers and Exchanges of Supplies from the Delta Watershed	20,000	44,000	91,000	58,000	77,000	77,000	78,000	78,000	78,000
Other Water Supplies from the Delta Watershed	-	-	-	-	-	-	-	-	-
Total Water Supplies from the Delta Watershed	**1,492,000**	**1,073,000**	**1,075,000**	**1,191,000**	**1,026,000**	**1,001,000**	**979,000**	**955,000**	**955,000**

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	4,969,000	5,102,000	5,209,000	5,302,000	5,391,000

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,026,000	1,001,000	979,000	955,000	955,000
Change in Supplies from the Delta Watershed	**NA**	**(419,000)**	**(417,000)**	**(301,000)**	**(466,000)**	**(491,000)**	**(513,000)**	**(537,000)**	**(537,000)**

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050
Percent of Supplies from the Delta Watershed	27.2%	19.5%	20.6%	24.2%	20.6%	19.6%	18.8%	18.0%	17.7%
Change in Percent of Supplies from the Delta Watershed	**NA**	**-7.6%**	**-6.6%**	**-3.0%**	**-6.5%**	**-7.5%**	**-8.4%**	**-9.1%**	**-9.4%**

Source: Metropolitan 2025 Draft UWMP, Appendix 10 - Metropolitan's Reduced Delta Reliance Reporting (February 2026)

Appendix C DWR Checklist

C

Retail (x = required)	Wholesale (x = required)	Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
x	x	1	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and overview	n/a	Section 1.3
x	x	1	Chapter 1	10630.5	Each plan shall include a simple description of the Supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a Supplier may also choose to include a simple description at the beginning of each chapter.	Plan preparation	n/a	Section 1.3 and Chapter Intros
x	x	2.1	Section 2.1	10620(b)	Every person that becomes a Supplier shall adopt UWMP within one year after it has become a Supplier.	Plan preparation	n/a	n/a
x	n/a	2.5	Section 2.5	10644	Supplier shall report the Public Water Systems number, volume of delivered water, and number of connections that are included in this UWMP.	Plan preparation	2-1	Section 2.1 & Appendix G
x	x	2.5	Section 2.5	10644	Supplier shall report if this UWMP is an individual UWMP and whether the Supplier belongs to a regional UWMP or regional alliance.	Plan preparation	2-2	Section 2.1
x	x	2.5	Section 2.5	10644	Supplier shall report whether the data is in fiscal or calendar years and the units of measure used for reporting water volumes.	Plan preparation	2-3	Section 2.1
x	x	2.4	Section 2.4	10642	Provide supporting documentation that the Supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan preparation	n/a	Section 2.2
x	x	2.4	Section 2.4.2	10620(d)(3)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other Suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan preparation	n/a	Section 2.2
x	n/a	2.4	Section 2.4.1	10631(h)	Retail Suppliers will include documentation that they have provided their Wholesale Supplier(s)—if any—with water use projections from that source.	Plan preparation	2-4 R	Section 2.2
n/a	x	2.4	Section 2.4.1	10631(h)	Wholesale Suppliers will provide their Suppliers with identification and quantification of the existing and planned sources of water available from the Wholesale Supplier to the Supplier during various water year types.	Plan preparation	2-4 W	n/a
x	x	3	Chapter 3.0	10631(a)	Describe the Supplier service area.	System description	n/a	Chapter 3
x	x	3.3	Section 3.3	10631(a)	Describe the climate of the Supplier's service area.	System description	n/a	Section 3.3
x	x	3.4	Section 3.4.1	10631(a)	Provide the current and projected service area populations for 2030, 2035, 2040, 2045 and optionally 2050.	System description	3-1	Section 3.4
x	x	3.4	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the Supplier's water management planning.	System description	n/a	Section 3.4
x	x	3.5	Section 3.5	10631(a)	Describe the land uses within the service area… include the current and projected land uses within the existing or anticipated service area affecting the Supplier's water management planning. Describe the land uses within the service area.	System description and baselines	n/a	Section 3.5
x	Optional	4.2	Sections 4.2.3 and 4.2.4	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System water use	4-1 and 4-2	Section 4.1
x	Optional	4.3	Section 4.3.1	10631(d)(3)(A)	Report the distribution system water loss for each of the five years preceding the plan update.	System water use	4-5	Section 4.1.3
x	n/a	4.3	Section 4.3.2	10631(d)(3)(C)	Retail Suppliers shall provide data to show the distribution loss standards were met.	System water use	4-6	Section 4.1.3
x	n/a	4.2	Section 4.2.5.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the Supplier.	System water use	4-3	Section 4.1
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System water use	4-3	Section 4.1.4
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System water use	4-3	Section 4.1.4
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)(ii)	To the extent that a Supplier reports the information described in subparagraph (A), an urban water Supplier shall… Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.	System water use	4-3	Section 4.1.4
x	x	4.2	Section 4.2.5.6	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System water use	n/a	Section 4.2
n/a	x	5.1	Section 5.1	10608.36	Wholesale Suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their Retail Suppliers achieve targeted water use reductions.	Baselines and targets	n/a	n/a
x	n/a	5.2	Section 5.2	10608.4	Retail Suppliers shall report on their compliance in meeting their water use targets. Reporting requirements will vary depending on whether the Supplier: - Was considered an urban retail water supplier in 2020, - Met its 2020 target in 2020, or - Was part of a merger or consolidation since 2020. Chapter 5 Subsections 5.2.1, 5.2.2, and 5.2.3 address each of these situations.	Baselines and targets	5-1	Section 5.1
x	x	6.1	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System supplies	n/a	Section 6.1
x	x	6.1	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, including changes in supply due to climate change.	System supplies	n/a	Section 6.1
x	x	6.2	Section 6.2.2	10631(b)(4)(C)	Indicate whether groundwater is an existing or planned source of water available to the Supplier. If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	Water supplies and recycled water	6-1	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the Supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the Supplier has the legal right to pump.	System supplies	n/a	n/a
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins… (include) information as to whether DWR has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin…	Water supplies and recycled water	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins… describe efforts by the Supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	Water supplies and recycled water	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2.	10631(b)(4)(C)	If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	System supplies	n/a	Section 6.2.2
x	x	6.2	Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System supplies	6-9	Section 6.2.2
x	x	6.1	Section 6.1	10631(b)	Identify and quantify the existing and planned sources of water available for 2025, 2030, 2035, 2040, 2045 and optionally 2050.	System supplies	6-8 and 6-9	Section 6.2.10

x	x	6.2	Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System supplies	n/a	Section 6.2.9
x	n/a	6.2	Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the Supplier's service area with quantified amount of collection and treatment and the disposal methods.	System supplies (recycled water)	6-2	Section 6.2.7
x	x	6.2	Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System supplies (recycled water)	6-3	Section 6.2.7
x	x	6.2	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the Supplier's service area.	System supplies (recycled water)	6-4	Section 6.2.7
x	x	6.2	Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System supplies (recycled water)	6-4	Section 6.2.7
x	x	6.2	Section 6.2.5	10633(e)	Describe the projected use of recycled water within the Supplier's service area at the end of 5, 10, 15, and 20 years, and describe the actual use of recycled water in comparison to uses previously projected.	System supplies (recycled water)	6-4 and 6-5	Section 6.2.7
x	x	6.2	Section 6.2.5	10633(f)	Describe the actions that may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System supplies (recycled water)	6-6	Section 6.2.7
x	x	6.2	Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the Supplier's service area.	System supplies (recycled water)	n/a	Section 6.2.7
x	x	6.2	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System supplies	6-7	Section 6.2.8
x	x	6.2	Section 6.2.10	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water Supplier to address water supply reliability in average, single-dry, and for a period of drought lasting five consecutive water years.	System supplies	6-7	Section 6.2.10
x	x	6.3	Section 6.3 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a Supplier can readily obtain.	System suppliers, energy intensity	O-1A, O-1B, O-1C, and O-2	Section 6.3
x		7.1	Section 7.1	10634	Provide information on the quality of existing sources of water available to the Supplier and the manner in which water quality affects water management strategies and supply reliability.	Water supply reliability assessment	n/a	Section 7.2
x	x	7.2	Section 7.2	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the Supplier with the total projected water use over the next 20 years.	Water supply reliability assessment	7-2, 7-3, and 7-4	Section 7.2
x	x	7.2	Section 7.2.3	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water supply reliability assessment	n/a	Section 7.2.4
x	x	7.3	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water supply reliability assessment	n/a	Section 7.3
x	x	7.3	Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive years.	Water supply reliability assessment	n/a	Section 7.3.1
x	x	7.3	Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water supply reliability assessment	n/a	Section 7.2
x	x	7.3	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the Supplier with the total projected water use for the drought period.	Water supply reliability assessment	7-5	Section 7.3.1
x	x	7.3	Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water supply reliability assessment	n/a	Section 7.2.1
x	x	8	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water shortage contingency planning	n/a	Appendix A
x	x	8	Chapter 8	10632(a)(1)	Provide an analysis of water supply reliability (from Guidebook Chapter 7) in the WSCP.	Water shortage contingency planning	n/a	Appendix A Section 1.1
x	x	8.2	Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the Supplier will use each year to determine its water reliability.	Water shortage contingency planning	n/a	Appendix A Section 1.2
x	x	8.2	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the Supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water shortage contingency planning	n/a	Appendix A Section 1.2
x	x	8.3	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10%, 20%, 30%, 40%, 50% shortage, and greater than 50% shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water shortage contingency planning	n/a	Appendix A Section 1.3
x	x	8.3	Section 8.3	10632(a)(3)(B)	Suppliers with an existing WSCP that uses different water shortage levels must cross reference their categories with the six standard categories.	Water shortage contingency planning	8-1	Appendix A Section 1.3
x	x	8.4	Section 8.4	10632(a)(4)(A)	Suppliers with WSCPs that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water shortage contingency planning	8-2	Appendix A Section 1.4.2
x	x	8.4	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water shortage contingency planning	8-3	Appendix A Section 1.4.1
x	x	8.4	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water shortage contingency planning	8-2	Appendix A Section 1.4.3
x	x	8.4	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to State-mandated prohibitions are appropriate to local conditions.	Water shortage contingency planning	Table 8-3	Appendix A Section 1.4.4
x	x	8.4	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water shortage contingency planning	8-2 and 8-3	Appendix A Section 1.4.1
x	x	8.4	Section 8.4.6	10632.5	The UWMP shall include a seismic risk assessment and mitigation plan.	Water shortage contingency plan	n/a	Appendix A Section 1.4.6
x	x	8.5	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water shortage contingency planning	n/a	Appendix A Section 1.5
x	x	8.5	Section 8.5	10632(a)(5)(B), 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water shortage contingency planning	n/a	Appendix A Section 1.5
x	n/a	8.6	Section 8.6	10632(a)(6)	Retail Supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water shortage contingency planning	n/a	Appendix A Section 1.6
x	x	8.7	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the Supplier to enforce shortage response actions.	Water shortage contingency planning	n/a	Appendix A Section 1.7
x	x	8.7	Section 8.7	10632(a)(7)(B)	Provide a statement that the Supplier will declare a water shortage emergency per Water Code Chapter 3. *Water Shortage Emergencies* .	Water shortage contingency planning	n/a	Appendix A Section 1.7
x	x	8.7	Section 8.7	10632(a)(7)(C)	Provide a statement that the Supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water shortage contingency planning	n/a	Appendix A Section 1.5
x	x	8.8	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Appendix A Section 1.8
x	x	8.8	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Appendix A Section 1.8
x	n/a	8.8	Section 8.8	10632(a)(8)(C)	Retail Suppliers must describe the cost of compliance with Water Code Chapter 3.3, *Excessive Residential Water Use During Drought* .	Water shortage contingency planning	n/a	Appendix A Section 1.8

x	n/a	8.9	Section 8.9	10632(a)(9)	Retail Suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data are collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water shortage contingency planning	n/a	Appendix A Section 1.9
x	x	8.10	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the WSCP to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water shortage contingency planning	n/a	Appendix A Section 1.9
x	n/a	8.11	Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water shortage contingency planning	n/a	Appendix A Section 1.11
x	x	8.12	Section 8.12	10632(c)	Make available the WSCP to customers and any city or county where it provides water within 30 days after adoption of the plan.	Water shortage contingency planning	n/a	Appendix A Section 1.12
x	n/a	9.1	Sections 9.1	10631(e)(1)	Retail Suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand management measures	n/a	Section 9.2
n/a	x	9.2	Sections 9.2	10631(e)(2)	Wholesale Suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and Supplier assistance program.	Demand management measures	n/a	Section 9.2
x	n/a	10	Chapter 10	10608.26(a)	Retail Suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan adoption, submittal, and implementation	n/a	Section 10.1
x	x	10.2	Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the Supplier provides water that the Supplier will be reviewing the UWMP and considering amendments or changes to the plan.	Plan adoption, submittal, and implementation	10-1	Section 10.1
x	x	10.4	Section 10.4	10621(f)	Each urban water Supplier shall update and submit its 2025 plan to DWR by July 1, 202 6.	Plan adoption, submittal, and implementation	n/a	Section 10.1
x	x	10.2	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the Supplier made the UWMP and WSCP available for public inspection, published notice of the public hearing, and held a public hearing about the UWMP and WSCP.	Plan adoption, submittal, and implementation	n/a	Appendix E
x	x	10.2	Section 10.2.2	10642	The Supplier is to provide the time and place of the hearing to any city or county within which the Supplier provides water.	Plan adoption, submittal, and implementation	10-1	Section 10.1, Appendix E
x	x	10.3	Section 10.3.2	10642	Provide supporting documentation that the UWMP and WSCP has been adopted as prepared or modified.	Plan adoption, submittal, and implementation	n/a	Appendix F
x	x	10.4	Section 10.4	10644(a)	Provide supporting documentation that the Supplier has submitted their UWMP to the California State Library.	Plan adoption, submittal, and implementation	n/a	Section 10.1
x	x	10.4	Section 10.4	10644(a)(1)	Provide supporting documentation that the Supplier has submitted their UWMP to any city or county within which the Supplier provides water no later than 30 days after adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.1, Appendix D
x	x	10.4	Sections 10.4.1 and 10.4.2	10644(a)(2)	The UWMP, or amendments to the UWMP, submitted to DWR shall be submitted electronically.	Plan adoption, submittal, and implementation	n/a	Section 10.1
x	x	10.7	Section 10.7.2	10644(b)	If revised, submit a copy of the WSCP to DWR within 30 days of adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.1
x	x	10.5	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its UWMP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.1
x	x	10.5	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its WSCP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Appendix A Section 1.12
x	x	10.6	Section 10.6	10621(c)	If Supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan adoption, submittal, and implementation	n/a	Section 10.1

Appendix D Notification Letters and Outreach

D

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: john.demers@ventura.org
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Mr. Demers,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: robert.mullane@ventura.org
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Mr. Mullane,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: mike.pettit@ventura.org
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Mr. Pettit,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Thank you,

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: "Ozdy, Andrea" <andrea.ozdy@ventura.org>
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Ms. Ozdy,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: Earthea.Nance@ventura.org
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Ms. Nance,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: kmccaffrey <KMcCaffrey@calleguas.com>
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Ms. McCaffrey,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: gdorrington@venturawater.net
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Ms. Dorrington,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:41 AM
To: sdeshmukh@mwdh2o.com

Dear Mr. Deshmukh,

City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: dklotzle@cityofcamarillo.org
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Mr. Klotzle,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: fcamarillo@cityofporthueneme.org
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Mr. Camarillo,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: NBVC_PAO@navy.mil
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Captain Brown,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: pmartinez@cibcsd.com
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Mr. Martinez,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Maldonado, Abraham <abraham.maldonado@oxnard.org>

CITY OF OXNARD – NOTICE OF PREPARATION OF THE 2025 URBAN WATER MANAGEMENT PLAN AND SHORTAGE CONTINGENCY PLAN

1 message

Maldonado, Abraham <abraham.maldonado@oxnard.org> Wed, Apr 1, 2026 at 9:38 AM
To: mauriciog@unitedwater.org
Cc: Chris Peyton <chris.peyton@oxnard.org>

Dear Mr. Guardado,

The City of Oxnard is in the process of preparing and updating its 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the Urban Water Management Planning Act. An update of the City of Oxnard's UWMP is required every five (5) years.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City of Oxnard's notice that it is preparing and updating its 2025 UWMP and WSCP.

A draft of the UWMP and WSCP will be made available prior to the public hearing at:
www.oxnard.gov/UWMP

The City of Oxnard anticipates holding a public hearing for adoption as follows:

Date: June 1, 2026
Time: 5:30 PM
Location: City of Oxnard Council Chambers, 305 West Third Street, Oxnard, CA 93030

The City invites your agency to coordinate and provide input during the preparation of these plans. If you have any questions or would like to provide input, please contact Abraham Maldonado by email at abraham.maldonado@oxnard.org or by phone at (805) 200-5375.

Thank you,

Chris Peyton
Division Manager
City of Oxnard

Abraham Maldonado - Water Resources Manager
Public Works Department | Water Division
251 South Hayes Avenue
Oxnard, California 93030
O: 805-200-5375 C: 805-228-2659
www.oxnard.gov

Appendix E Public Hearing Notices

E

Documents to be added after public hearing and adoption.

Appendix F Resolution of UWMP and WSCP Adoption

F

Documents to be added after public hearing and adoption.

Appendix G Standard DWR Tables

G

Submittal Table 2-1 Retail: Public Water Systems			
Has there been a change in the number of affiliated Public Water Systems since the 2020 UWMP? (OPTIONAL)			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2025	Volume of Water Supplied 2025
Add additional rows as needed			
CA5610007	OXNARD WATER DEPT	44,621	22,977
	Total	44,621	22,977
DWR NOTES: **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Table 2-3.			
NOTES:			

Submittal Table 2-2: Plan Identification			
Select One or Both	**Type of Plan**		**Name of Regional Alliance or RUWMP** (Drop Down List)
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a SB X7-7	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesale supplier
☑	Supplier is a retail supplier
Fiscal or Calendar Year (select one)	
☑	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of measure used in UWMP (Select from the drop down list).	
Unit	AF
DWR NOTES: **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	
NOTES:	

Submittal Table 2-4 Retail: Water Supplier Information Exchange Water Code Section 10631(h)
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631 (h).
Wholesale Water Supplier Name
Calleguas Muncipal Water District
United Water Conservation District
Metropolitan Water District
NOTES:

Submittal Table 3-1 Retail: Population - Current and Projected Water Code Section 10631(a)						
Population Served	2025	2030	2035	2040	2045	2050(opt)
	206,822	213,585	220,348	221,728	223,108	224,488
NOTES:						

CWC 10631(a) describe the current and projected population of the service area including current and projected population

Submittal Table 4-1 Retail: 2025 Actual Total Uses for Potable and Non-Potable Water Water Code Section 10631(d)(1)			
Use Type	Additional Description (as needed)	2025 Actual Water Use	
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUEdata online submittal tool		Level of Treatment When Delivered (OPTIONAL) Drop down list	Volume AF
Single Family		Potable	9,315
Multi-Family		Potable	3,080
Commercial		Potable	3,554
Industrial		Potable	1,826
Landscape		Potable	2,684
Other	Fire Hydrant	Potable	0
Agricultural irrigation		Potable	635
Losses		Potable	1,745
Sales/ Transfers/ Exchanges to Other Agencies	Wheeled to PHWA	Potable	138
		Subtotal Potable	22,977
		Subtotal Non-Potable	0
		Total	22,977
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table			
NOTES:			

Submittal Table 4-2 Retail: Total Uses of Potable, and Non-Potable Water - Projected Water Code Section 10631(d)(1)							
Use Type	Additional Description (as needed)	Level of Treatment When Delivered (OPTIONAL) Drop down list	**Projected Water Use** (Report To the Extent that Records are Available)				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool			**2030**	**2035**	**2040**	**2045**	**2050** (opt)
			AF	AF	AF	AF	AF
Add additional rows as needed.							
Single Family		Potable	8,727	8,158	7,392	6,700	6,075
Multi-Family		Potable	3,859	3,607	3,269	2,963	2,686
Commercial		Potable	5,372	5,372	5,372	5,372	5,372
Industrial		Potable	3,042	3,870	4,897	6,174	7,766
Landscape		Potable	2,750	2,476	2,230	2,007	1,807
Agricultural		Potable	82	85	87	90	93
Other		Potable	1,107	927	777	655	554
Distribution System Water Loss		Potable	2,084	2,238	2,244	2,252	2,260
Sales/Transfers/Exchanges to other Suppliers	Transferred to PHWA	Potable	492	521	563	589	604
		Subtotal Potable	27,515	27,254	26,831	26,802	27,217
		Subtotal Non-Potable	0	0	0	0	0
		Total	27,515	27,254	26,831	26,802	27,217
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal							
NOTES:							

Submittal Table 4-3 Retail: Inclusion in Water Use Projections Water Code Section 10631 (a), 10631 (d)(4)(A), and 10631 (d)(4)(B)	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) **Drop down list (y/n)**	Yes
If "Yes" to above: State the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found. **OPTIONAL** Suppliers may complete Optional Submittal Table 4-4 R to quantify the expected savings.	Pg 4 - 7
Are Lower Income Residential Demands Included In Projections? (Refer to Appendix K of UWMP Guidebook) **Drop down list (y/n)**	Yes
OPTIONAL If the method for accounting Lower Income Residential Demands has been included, provide page number where this accounting can be found. (An example is included in Appendix K.)	Pg 4 - 8
NOTES:	

Submittal Table 4-5 Retail: Water Loss Audit Reporting | Water Code Section 10631(d)(3)(A)		
Public Water System ID # Reported in Table 2-1 R	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
Report all five years for each Public Water System as available.		
CA5610007	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes
	2025	Yes
DWR NOTES: Suppliers will provide a reference to the WUEdata submittals of their Water Loss Audit Reports		
NOTES See Section 4.1.3 for references to the City's AWWA audits.		

Index

Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard

Public Water System ID # Reported in Submittal Table 2-1 R	Did the Water Board Calculate a Water Loss Standard for this Public Water System? (y/n) If no, Supplier will not complete this row.	Real Water Loss					Apparent Water Loss				
		State Water Board Standard		Most Recent AWWA Water Loss Audit			State Water Board Standard		Most Recent AWWA Water Loss Audit		
		2028 Real Water Loss Standard per Unit per day	Units for Real Water Loss Drop down list	Number of Units (Connections or Miles corresponding with units selected)	Volume of Total Real Loss (from AWWA Water Loss Audit)	Real Water Loss Per Unit per Day	2028 Apparent Water Loss Standard per Unit per Day	Units for Apparent Water Loss	Number of Connections	Volume of Total Apparent Loss (from AWWA Water Loss Audit)	Apparent Water Loss Per Unit per Day
CA5610007	Yes	18	gpscd	44,621	1,004	20.1	12.1	gpscd	44,621	528	10.6

Water Board's Calculated Water Loss Standards

DWR NOTES: Units of measure (AF, CCF, MG) for Water Loss **MUST** remain consistent with units reported in Submittal Table 2-3. The units reported in Submittal Table 2-3 are used in this table's calculations.

NOTES:

Submittal Table 5-1 Retail: SB X7-7 2020 Target Progress Water Code Section 10608.40						
☐	Check the box if the Supplier was not an Urban Water Supplier during or before the 2020 UWMP reporting cycle. Proceed to the next table.					
Was Supplier part of a merger or consolidation since 2020?	Regional Alliance Target or Individual Target? Drop down list	2020 Target	Actual 2020 GPCD	Did Supplier Achieve Targeted Reduction for 2020?	Only for suppliers that did not meet the Target in 2020	
					Actual 2025 GPCD (From SB X7-7 Compliance Form)	Did Supplier meet the 2020 Target in 2025?
No	Individual	140	116	Yes		NA

DWR NOTES:
Suppliers calculating a 2025 GPCD will need to complete and submit SB X 7-7 Compliance Tables to verify the use of SB X7-7 Methodologies.
Suppliers that were part of a merger or consolidation since 2020 see Chapter 5 and Appendix P for guidance.
NA=Not Applicable

NOTES:

Submittal Table 6-1 Retail: Groundwater Volume Pumped							
☐	Check the box if the Supplier does not pump groundwater. Proceed to the next table.						
☑	Check the box if all or part of the groundwater described below is desalinated. (OPTIONAL)						
Groundwater Type **Drop Down List** May use each category multiple times	Water Type (OPTIONAL) **Drop down list**	Location or Basin Name	2021	2022	2023	2024	2025
			AF	AF	AF	AF	AF
Alluvial Basin		Oxnard	6,050	8,899	7,540	7,989	7,077
		Total	6,050	8,899	7,540	7,989	7,077
DWR NOTES: **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure							
NOTES							

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2025 | Water Code Section 10633(a)				
☐	There is no wastewater collection system. The supplier will not complete the table below.			
	Percentage of 2025 service area covered by wastewater collection system (OPTIONAL)			
	Percentage of 2025 service area population covered by wastewater collection system (OPTIONAL)			
Wastewater Collection			**Recipient of Collected Wastewater**	
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? OPTIONAL **Drop Down List**	Volume of Wastewater Collected from UWMP Service Area 2025	Name of Wastewater Treatment Plant (WWTP) **Drop down list**	Is WWTP Located Within UWMP Area? **Drop Down List**
City of Oxnard	Metered	22,805	Oxnard WWTP, Place ID 246946	Yes
Total Wastewater Received from UWMP Service Area in 2025:		22,805		

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.

Additional Guidance See Appendix M, Section M.21 for detailed guidance on this table.

NOTES:

Submittal Table 6-3 Retail: Wastewater Treatment and Outcomes Within UWMP Service Area in 2025

	Check the box if no wastewater is treated or disposed of within the UWMP service area. Proceed to the next table.

Wastewater Treatment Plant Name and Place ID Number **Drop down list**	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area? (OPTIONAL) **Drop down list**	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R)	Total 2025 Volume of Water Treated	**2025 Outcomes of Treated Wastewater**										
				Water Recycled Within UWMP Service Area (enter data as applicable)		**Water Recycled Outside of UWMP Service Area** (enter data as applicable)		**Effluent Discharge that is not a Permitted Recycled Water Use** (enter data as applicable)		**Required Discharge for Instream Flow** (enter data as applicable)		**Delivered to Another Entity for Additional Treatment** (enter data as applicable)		
				Treatment Level **Drop down list**	Volume	Treatment Level **Drop down list**	Volume	Treatment Level **Drop down list**	Volume	Treatment Level **Drop down list**	Volume	Treatment Level **Drop down list**	Volume	Name of other entity
		AF	AF		AF		AF		AF		AF		AF	
Oxnard WWTP, Place ID 246946	Yes	22805	25,969		-	Secondary, Disinfected - 2.2	125	Secondary, Disinfected - 2.2	22680		-		-	
Total		22,805	25,969		0		125		22,680		0		0	

DWR NOTES:

Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.

NOTES:

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area
Water Code Section 10633 (c)(e)

☐	Check box if recycled water is not used and is not planned for use within the service area of the supplier. The supplier will only complete the column on "Potential Recycled Water Use" and submit an accompanying narrative on the feasibility of that potential recycled water use.

Name(s) of Facility/ies Producing (Treating) the Recycled Water (OPTIONAL) :	
Name of Supplier Operating the Recycled Water Distribution System (OPTIONAL) :	
Supplemental Water Added in 2025 (volume) Include units (OPTIONAL) :	
Source of 2025 Supplemental Water (OPTIONAL) :	

Use Type **Drop down list**	Water Type (after treatment if treated) (OPTIONAL) **Drop down list**	Additional Information (as needed)	2025	2030	2035	2040	2045	2050 (opt)	**Potential Recycled Water Use**	
									Volume	Narrative page number (OPTIONAL)
Agricultural Irrigation			0	0	0	0	0	0		
Groundwater Recharge (IPR)		ASR Recovered	0	3,000	6,400	6,400	6,400	6,400	10,200	Table 6-8
Groundwater Recharge (IPR)		Recycled Water Pumpback Allocation	0	200	250	1,250	1,250	1,250		
		Total	0	0	0	0	0	0	10,200	

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table

NOTES:The City currently delivers recycled water to agricultural customers outside of the water service area, so 0 AFY is shown for agricultural irrigation. The City intends to increase deliveries of recycled water for which it receives a Recycled Water Pumpback Allocation, which is shown here to reflect that recycled water was delivered but is quantified as potable supply in Report Table 6 11.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier... and shall include...
(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use
(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

Submittal Table 6-5 Retail: 2020 UWMP Recycled Water Use Projection Compared to 2025 Actual
Water Code Section 10633 (e)

☐ Check the box if recycled water was not used in 2025 nor previously projected for use in 2020. Proceed to the next table.

Use Type	2020 Projection for 2025	2025 Actual Use
Insert additional rows as needed using the types found in this list		
Agricultural irrigation	3,875	0
Landscape irrigation (exc golf courses)		
Golf course irrigation		
Commercial use		
Industrial reuse	780	0
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)	1,345	0
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
Total	6,000	0

DWR NOTES:
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure reported in Submittal Table 2-3

NOTES:

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the serv`ice area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following: (e) ...a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision

Submittal Table 6-6 Retail: Methods to Encourage Future Recycled Water Use			
☐	Check the box if the Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in the UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled AF
Indirect Potable Reuse	Aquifer Storage Recovery (ASR) Injection Well #1	2027	3,200
Indirect Potable Reuse	AWPF Improvements/Upgrade	2029	TBD
Indirect Potable Reuse	AWPF Expansion	2031	7,000
Indirect Potable Reuse	AWPF Recycled Water Storage Construction	TBD	TBD
Indirect Potable Reuse	ASR Injection Well Field	2031	TBD
		Total	10,200
		Unit Conversion to AF	
DWR NOTES: **Units of measure** (AF, CCF, MG) MUST remain consistent with units reported in Submittal Table 2-3. The units reported in Submittal Table 2-3 are used in this table's			
NOTES:			

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the serv`ice area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following: (f) a description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre feet of recycled water used per year.

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs

☐	Check the box if there are no expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Procees to the next table.
☐	Check the box if some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.
	Provide page location of narrative in the UWMP

Name of Future Projects or Programs	Joint Project with other suppliers?		Additional Description (as needed)	Water Type (after treatment if treated) (OPTIONAL) **Drop Down list**	Planned Implementation Year	Planned for Use in Year Type **Drop Down List**	Expected Increase in Water Supply to Supplier (This may be a AF
	Drop Down List (yes/no)	If Yes, Supplier Name					
IPR – AWPF Expansion	No		ASR/Injection Well #1		2027	All Year Types	3,200
IPR – AWPF Expansion	No		AWPF Improvements/Upgrades		2029	All Year Types	TBD
IPR – AWPF Expansion	No		AWPF Expansion		2031	All Year Types	7,000
IPR – AWPF Expansion	No		AWPF Recycled Water Storage Construction		TBD	All Year Types	TBD
IPR – AWPF Expansion	No		ASR/Injection Well Field		2031	All Year Types	TBD

DWR NOTES:
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure reported in Submittal Table 2-3.

NOTES: *Use of this supply will decrease use from other sources (i.e. imported water).

Submittal Table 6-8 Retail: Water Supplies — 2025 Actual				
Water Supply		**2025**		
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	**Water Type** (after treatment if treated) (OPTIONAL) **Drop Down list**	**Actual Volume** AF	**Total Entitlement** (OPTIONAL) AF
Groundwater (not desalinated)	City	Potable	7,077	
Groundwater (not desalinated)	United	Potable	8,278	
Purchased or Imported Water	Calleguas	Potable	7,485	
Purchased or Imported Water	Wheeled to PHWA	Potable	138	
		Subtotal Potable	22,978	0
		Subtotal Non-Potable	0	0
		Total	22,978	0
DWR NOTES: **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure				
NOTES:				

OPTIONAL Submittal Table 6-8DS: Source Water Desalination by Urban Water Supplier

☐ Check the box if the Supplier does not reduce salinity in either groundwater or surface water prior to distribution.

Desalination Facility **Drop Down list**	Plant Capacity	Intake Type **Drop down list**	Source Water Type **Drop down list**	Influent TDS	Brine Discharge **Drop down list**	Volume of Water Desalinated					Name(s) of Agencies that Receive this Water
						2021	**2022**	**2023**	**2024**	**2025**	
						AF	AF	AF	AF	AF	
City Desalter	8,400	Vertical Well	Groundwater		Brine Line	3622	4135	1665	1137	841	
					Total	3622	4135	1665	1137	841	

DWR NOTES:

Submittal Table 6-9 Retail: Water Supplies — Projected
Water Code Section 10631 (b)

Water Supply			Projected Water Supply (Report to the Extent Practicable)									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Detail on Water Supply	**Water Type** (after treatment if treated) (OPTIONAL) **Drop Down list**	**2030**		**2035**		**2040**		**2045**		**2050 (opt)**	
			Reasonably Available	Total Entitlement (OPTIONAL)	Reasonably Available	Total Entitlement (OPTIONAL)	Reasonably Available	Total Entitlement (OPTIONAL)	Reasonably Available	Total Entitlement (OPTIONAL)	Reasonably Available	Total Entitlement (OPTIONAL)
			AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Groundwater (not desalinated)	City Groundwater	Potable	6,874		5,754		4,635		4,635		4,635	
Groundwater (not desalinated)	United Groundwater	Potable	7,275		6,090		4,905		4,905		4,905	
Purchased or Imported Water	Calleguas	Potable	12,666		12,033		11,431		11,431		11,431	
Other	Calleguas - Transferred to PHWA	Potable	492		521		563		589		604	
Other	ASR Recovered	Potable	3,000		6,400		6,400		6,400		6,400	
Other	Recycled Water Pumpback Allocation	Potable	200		250		1,250		1,250		1,250	
Other	Groundwater Allocation Used	Potable	0		0		0		0		0	
		Subtotal Potable	30,507	0	23,878	0	20,971	0	20,971	0	20,971	0
		Subtotal Non-Potable	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
		Total	30,507	0	31,049	0	29,184	0	29,210	0	29,225	0

DWR NOTES:
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3

NOTES:

Optional Submittal Table O-1B: Recommended Energy Reporting - SINGLE DELIVERY PRODUCT - TOTAL UTILITY APPROACH				
Water Delivery Product drop down list (If delivering more than one type of product recommend using Table O-1C)		**Only for Water Delivery Products Under the Urban Water Supplier's Operational Control**		
Start Date of Reporting Period	1/1/2024	**Sum of All Water Management Processes**	**Non-Consequential Hydropower**	
End Date of Reporting Period	1/1/2025			
Is upstream embedded energy in the values reported?	No			
Units of Measure for Water	AF	**Total Utility** See DWR NOTES	**Hydropower**	**Net Utility**
Volume of Water Entering Process		22,977		22,977
Energy Consumed (kWh)		2,864,350		2,864,350
Energy Intensity (kWh/vol. converted to MG)		125	-	125
DWR NOTES:				
Quantity of Self-Generated Renewable Energy				
Data Quality (Estimate, Metered Data, Combination of Estimates and Metered Data)				
Data Quality Narrative:				
Narrative:				
NOTES:				

OPTIONAL Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2024-2025, use 2025	**Available Supplies if Year Type Repeats** ☐ Check the box if quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available AF	**% of Average Supply**
Average Year	2011	28,189	100%
Single-Dry Year	2013	30,454	108%
Consecutive Dry Years 1st Year	2013	30,454	108%
Consecutive Dry Years 2nd Year	2014	28,323	100%
Consecutive Dry Years 3rd Year	2015	25,624	91%
Consecutive Dry Years 4th Year	2016	25,638	91%
Consecutive Dry Years 5th Year	2017	26,487	94%

DWR NOTES: Supplier may use multiple versions of Submittal Table 7-1 R if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Submittal Table 7-1 R, in the "Note" section of each submittal table, state that multiple versions of Submittal Table 7-1 R are being used and identify the particular water source that is being reported in each submittal table.

Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table reports the units of measure reported in Submittal Table 2-3.

NOTES:

Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison Water Code Section 10635 (a)					
	2030	2035	2040	2045	2050 (Opt)
	AF	AF	AF	AF	AF
Supply totals (autofill from Submittal Table 6-9 R)	30,507	31,049	29,184	29,210	29,403
Use totals (autofill from Submittal Table 4-2 R)	27,516	27,253	26,831	26,801	27,217
Surplus/(shortfall)	2,991	3,796	2,354	2,409	2,187
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal					
NOTES:					

Submittal Table 7-3 Retail: Single Dry Year Supply and Use Comparison
Water Code Section 10635(a)

	2030	2035	2040	2045	2050 (Opt)
	AF	AF	AF	AF	AF
Supply totals	30,507	31,049	29,184	29,210	29,403
Use totals	29,727	29,442	28,986	28,954	29,403
Surplus/(shortfall)	780	1,606	198	256	0
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					

DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Use Comparison
Water Code Section 10635(a)

		2030	2035	2040	2045	2050 (Opt)
First year	Supply totals	30,507	31,049	29,184	29,210	29,403
	Use totals	29,727	29,442	28,986	28,954	29,403
	Surplus/(shortfall)	780	1,606	198	256	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Second year	Supply totals	30,507	31,049	29,184	29,210	29,403
	Use totals	27,594	27,298	26,953	27,012	27,407
	Surplus/(shortfall)	2,913	3,751	2,232	2,198	1,997
	OPTIONAL WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Third year	Supply totals	30,507	31,049	29,184	29,210	29,403
	Use totals	24,916	24,619	24,378	24,513	24,849
	Surplus/(shortfall)	5,591	6,429	4,806	4,697	4,554
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fourth year	Supply totals	30,507	31,049	29,184	29,210	29,403
	Use totals	24,882	24,556	24,386	24,602	24,917
	Surplus/(shortfall)	5,625	6,493	4,798	4,608	4,486
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fifth year	Supply totals	28,607	29,244	27,470	27,496	27,511
	Use totals	25,657	25,290	25,189	25,495	25,799
	Surplus/(shortfall)	2,950	3,953	2,281	2,000	1,711
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES:

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment Water Code Section 10635(b)(3)		
2026		**Total**
Total Water Use		25,578
Total Supplies		30,507
Surplus/Shortfall w/o WSCP Action		4,929
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit		
WSCP - use reduction savings benefit		
Revised Surplus/(shortfall)		
2027		**Total**
Total Water Use		24,630
Total Supplies		30,507
Surplus/Shortfall w/o WSCP Action		5,877
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit		
WSCP - use reduction savings benefit		
Revised Surplus/(shortfall)		
2028		**Total**
Total Water Use		23,043
Total Supplies		30,507
Surplus/Shortfall w/o WSCP Action		7,464
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit		
WSCP - use reduction savings benefit		
Revised Surplus/(shortfall)		
2029		**Total**
Total Water Use		23,817
Total Supplies		30,507
Surplus/Shortfall w/o WSCP Action		6,690
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit		
WSCP - use reduction savings benefit		
Revised Surplus/(shortfall)		
2030		**Total**
Total Water Use		25,393
Total Supplies		28,607
Surplus/Shortfall w/o WSCP Action		3,214
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit		
WSCP - use reduction savings benefit		
Revised Surplus/(shortfall)		
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.		
NOTES:		

Submittal Table 8-1: Cross-reference for Standard vs Supplier Shortage Levels Water Code Section 10632(a)(3)(B)			
☐	Check the box if the Supplier uses the Standard six levels of water shortage. Proceed to the next table.		
Standard Shortage Levels	**Percent Shortage Range**	**Suppliers Shortage Levels**	**Percent Shortage Range**
1	Up to 10%	1	Up to 15%
2	Up to 20%	1,2	15 - 25 %
3	Up to 30%	2,3	25 - 35 %
4	Up to 40%	3,4	>35%
5	Up to 50%	4	>35%
6	>50%	4	>35%
NOTES:			

Submittal Table 8-2 Retail: Supply Augmentation and Other Actions				
No	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier **Drop down list** These are the only categories that will be accepted by the WUEdata online submittal tool	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range)	
			AF	
Add additional rows as needed				
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.				
NOTES:				

Submittal Table 8-3 Retail: Demand Reduction Actions

Is the Supplier completing this table using the standard six levels? (yes/no)

Shortage Level	Demand Reduction Actions **Drop down list** These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.	How much is this going to reduce the shortage gap? Volume or Percentage Drop down	Shortage Gap Reduction Value (may be a range) AF	Additional Explanation or Reference (OPTIONAL)	Penalty, Charge, or Other Enforcement? **For Retail Suppliers Only** Drop Down List
Add additional rows as needed					
All	Expand Public Information Campaign				Yes
All	Reduce System Water Loss				Yes
All	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		5,196	EPA Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs (United States Environmental Protection Agency, Office of Water, 2002)	Yes
All	Other water feature or swimming pool restriction			Draining of pools or refilling shall be done only for health and safety reasons.	Yes
All	CII - Restaurants may only serve water upon request		12	Southwest Florida Water Management (Southwest Florida Water Management District, 2018)	Yes
All	CII - Lodging establishment must offer opt out of linen service				Yes
All	CII - Commercial kitchens required to use pre-rinse spray valves		1,824	EPA WaterSense, Saving Water in Restaurants (United States Environmental Protection Agency, 2012)	Yes
All	Pools and Spas - Require covers for pools and spas		26	Arlington, Virginia, Water & Utilities. (Arlington County Government, n.d.).	Yes
All	Landscape - Other landscape restriction or prohibition			Free flowing hoses are prohibited; automatic shut-off hoses are required.	Yes
All	Landscape - Restrict or prohibit runoff from landscape irrigation				Yes
All	Landscape - Limit landscape irrigation to specific times		301	Texas Living Waters (Texas Living Waters Project, 2018)	Yes
All	Landscape - Limit landscape irrigation to specific days		840	CalWep WSCP Toolkit 2021; City of Sacramento and City of Clovis; AWE Use and Effectiveness of Municipal Irrigation Restrictions During Drought Study Report, January 2020. (California Water Efficiency Partnership, 2021)	Yes
All	Landscape - Limit landscape irrigation to specific days			Irrigation of parks, school ground areas, and road median landscaping will not be permitted more than twice a week and only if necessary.	
All	Landscape - Prohibit certain types of landscape irrigation			Irrigation of ornamental turf on public medians with potable water prohibited.	Yes
All	Landscape - Other landscape restriction or prohibition			Limits on watering duration. Watering or irrigation of lawns, landscape or other vegetated area with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than 15 minutes per day per station. This does not apply to landscape irrigation systems that exclusively use high efficiency irrigation equipment, very low-flow drip type irrigation systems when no emitter produces more than two gallons of water per hour, and weather based controllers or high-efficiency stream rotor sprinklers.	
All	Landscape - Restrict or prohibit runoff from landscape irrigation			Irrigation of newly constructed home and building exteriors with potable water is prohibited unless drip or microspray systems are used.	Yes
All	Landscape - Other landscape restriction or prohibition			Golf course water use shall be limited. Limitation on the irrigation of roughs shall be implemented before limitations on fairway irrigation. Efficient use of recycled water on any golf course shall not be limited.	
All	Landscape - Other landscape restriction or prohibition			Application of potable water to landscapes during and within 48 hours after measurable rainfall is prohibited.	Yes
All	Other - Require automatic shut of hoses		8	Maryland Department of the Environment (Maryland Department of the Environment, n.d.)	Yes
All	Other - Prohibit use of potable water for construction and dust control		2,361	Maryland Department of the Environment (Maryland Department of the Environment, n.d.)	Yes
All	Other			The City may not issue new construction meters or short-term water use unless reclaimed or non-potable water is used, unless potable water is necessary to protect the health, safety, or welfare.	Yes
All	Other - Prohibit use of potable water for washing hard surfaces			No water use to clean surfaces. The use of running water from a hose, pipe, or faucet to clean buildings, pavement, tile, wood, plastic, driveways, parking lots, and other paved surfaces is prohibited, except for public health and safety reasons and then only with a hose and automatic shut-off nozzle.	Yes
All	Decrease Line Flushing		143	CalWep WSCP Toolkit 2021; City of Clovis (California Water Efficiency Partnership, 2021)	Yes
All	Implement or Modify Drought Rate Structure or Surcharge				Yes
All	Other		4,936	All types of rebates; EPA Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs; Evaluating the Effectiveness of a Water Conservation Campaign: Combining Experimental and Field Methods (United States Environmental Protection Agency, Office of Water, 2002)	Yes
2 & Up	Other			Reduce indoor and outdoor water use by specified percentage as determined (based on Shortage Stage). Contact the City Water Division or visit OxnardWater.org for additional tips and techniques to reduce water use.	
2 & Up	Other			The use of water from fire hydrants shall be limited to fire fighting and related activities and other uses of water for municipal purposes shall be limited to activities necessary to maintain the public health, safety, and welfare.	
2 & Up	Other			Commercial car wash and laundry systems. Installation of new or replacement non re-circulating water systems in commercial conveyor car wash or commercial laundry systems is prohibited.	
2 & Up	Other			The manager shall grant prior approval for water to be used on a one-time or short-term basis for construction and dust control. The user shall submit to the manager its water use plan at least 30 days in advance of the proposed use.	
3 & Up	Other			Commercial/industrial cooling systems. Installation of new or replacement single pass cooling systems in commercial or industrial buildings is prohibited.	Yes
3 & Up	Water Features - Restrict water use for decorative water features, such as fountains				Yes
3 & Up	Water Features - Restrict water use for decorative water features, such as fountains			Where and when available, approved non-potable water shall be used to fill or refill recreational or ornamental lakes, ponds, or fountains. When using non-potable water, the user shall post signs in conspicuous areas identifying the fact that non-potable water is being used. Newly installed or replacement ponds and fountains shall include recirculation pump(s) that maximize the efficiency and reuse of fill water.	
3 & Up	Other water feature or swimming pool restriction			Watering to maintain the level of water in swimming pools shall occur only when essential.	
4 & Up	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water				
4 & Up	Landscape - Other landscape restriction or prohibition			Depending on the drought severity, the use of potable water for irrigation uses may be restricted or prohibited. The manager shall have the right to shut off water service to any such irrigation service upon seven days advance notice to the customer.	Yes
4 & Up	Other			Issuance of building permits which require new or expanded water service may be limited or withheld, except to protect the public's health, safety and welfare, or in cases which meet the City Council adopted conservation and offset requirements.	Yes

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES:

Submittal Table 10-1 Retail: Notification to Cities and Counties Water Code Section 10621(b) and 10642		
City Name	60 Day Notice **Drop Down (yes/no)**	Notice of Public Hearing **Drop Down (yes/no)**
Add additional rows as needed		
Camarillo	Yes	
Ventura	Yes	
Port Hueneme	Yes	
County Name **Drop Down List**	60 Day Notice **Drop Down (yes/no)**	Notice of Public Hearing **Drop Down (yes/no)**
Add additional rows as needed		
Ventura County	Yes	
NOTES: The City also notified Channel Islands Beach CSD, Naval Base Ventura County, Calleguas Municipal Water District, and United Water Conservation District.		

CWC 10621 (b)Notify at least 60 days prior to the public hearing any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

CWC 10642 The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.

Urban Water Management Plan

May 26, 2026

CITY OF OXNARD CALIFORNIA

WSC

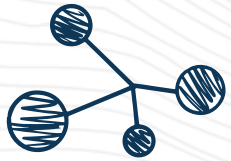
Agenda



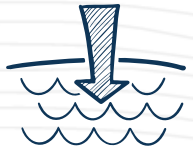
Background



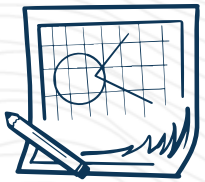
Elements



Water Use



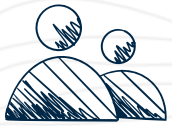
Water Supply



Water Reliability



Demand Management Measures



Water Shortage Contingency Plan



Conclusion

About Urban Water Management Plans (UWMPs)

- Required by the California Water Code
- Must be updated every 5 years and submitted to DWR
- Supports long-term water supply and drought planning
- Coordinated with land use
- Ensure supplies meet existing and projected demands over a minimum 20-year horizon through 2045, or optionally 2050
- Provides framework for conservation and drought response
- Pre-requisite for certain loans and grants

Background- Communication and Outreach

- UWMP Act requires coordination with other local agencies. The City notified development of the UWMP and coordinated, when possible, with the following agencies:
  - Calleguas Municipal Water District
  - United Water Conservation District
  - Port Hueneme Water Agency
  - County of Ventura
  - Metropolitan Water District of Southern California
  - Cities of Camarillo, Ventura, Port Hueneme
  - Fox Canyon Groundwater Management Agency
  - Channel Islands Beach Community Services District
  - Naval Base Ventura County

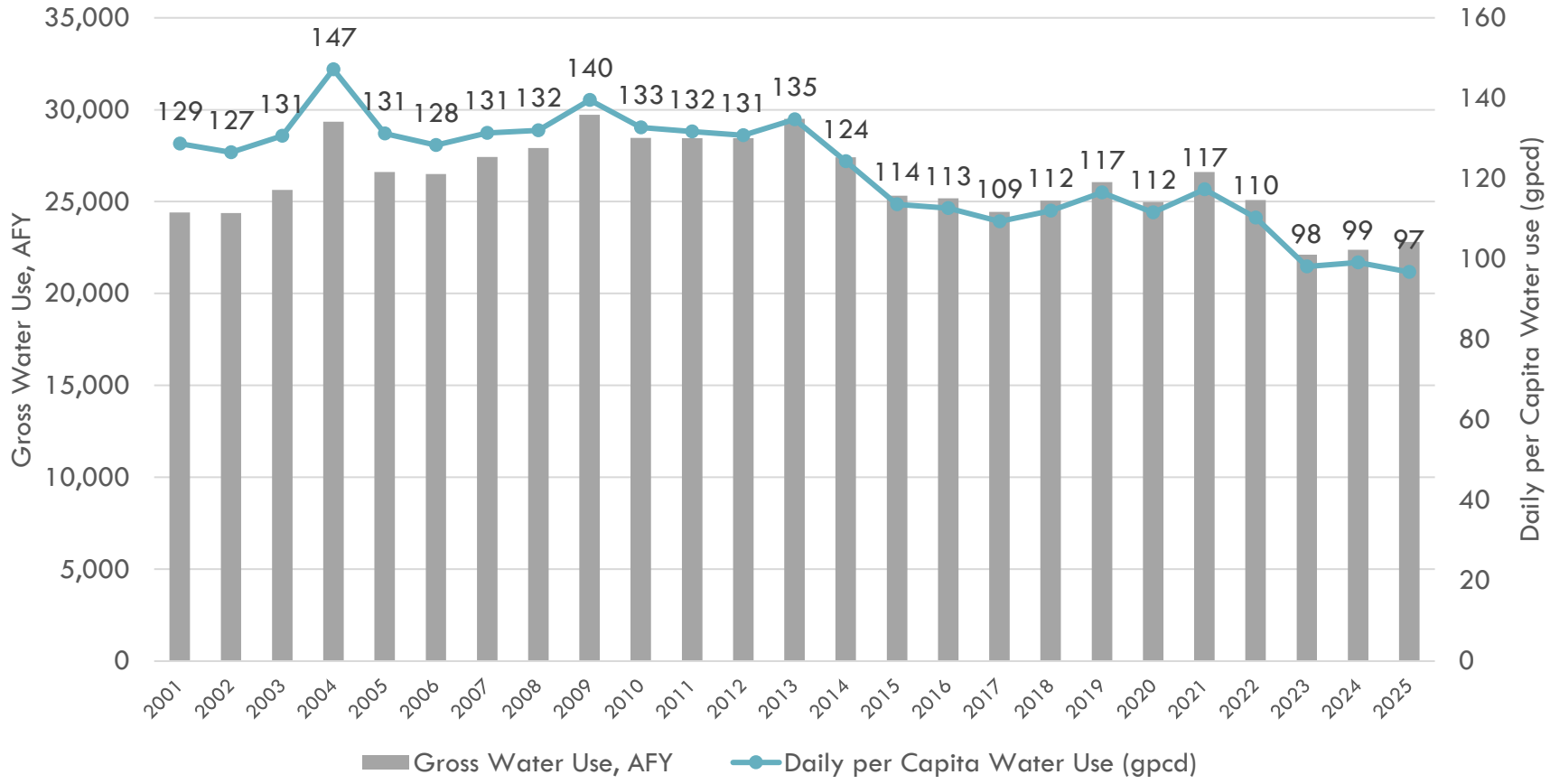
Background- Communication and Outreach

- Consistent with the UWMP Act, the City will publish public hearing notices in a local newspaper for the June 16th City Council Meeting
- Access to the UWMP and Water Shortage contingency Plan (WSCP) will be available at https://www.oxnard.org/city-department/public-works/water/uwmp/

UWMP Elements

Introduction and Lay Description	Water Supply Characterization
Plan Preparation	Water Service Reliability and Drought Risk Assessment
System Description	Water Shortage Contingency Plan
Water Use Characterization	Demand Management Measures
Senate Bill x7-7 Baselines, Targets and 2025 Compliance	Plan Adoption, Submittal, and Implementation

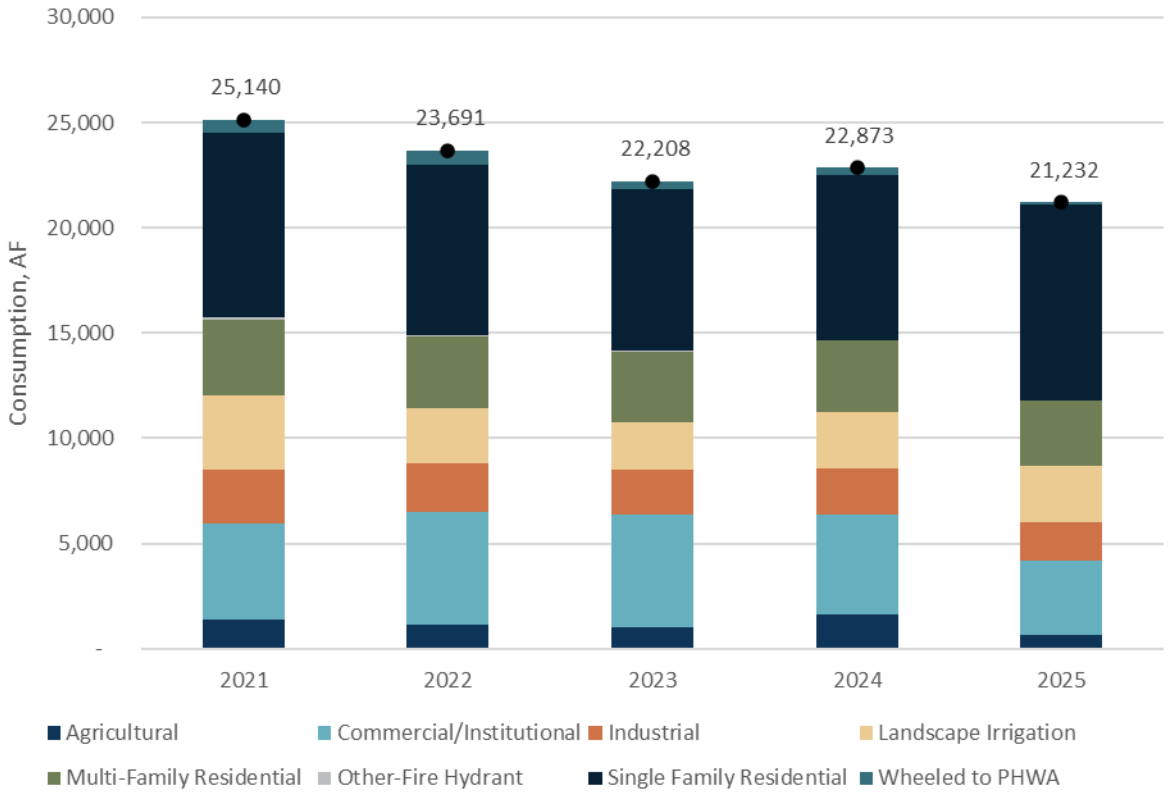
Water Use Characterization & SBx7-7 Compliance

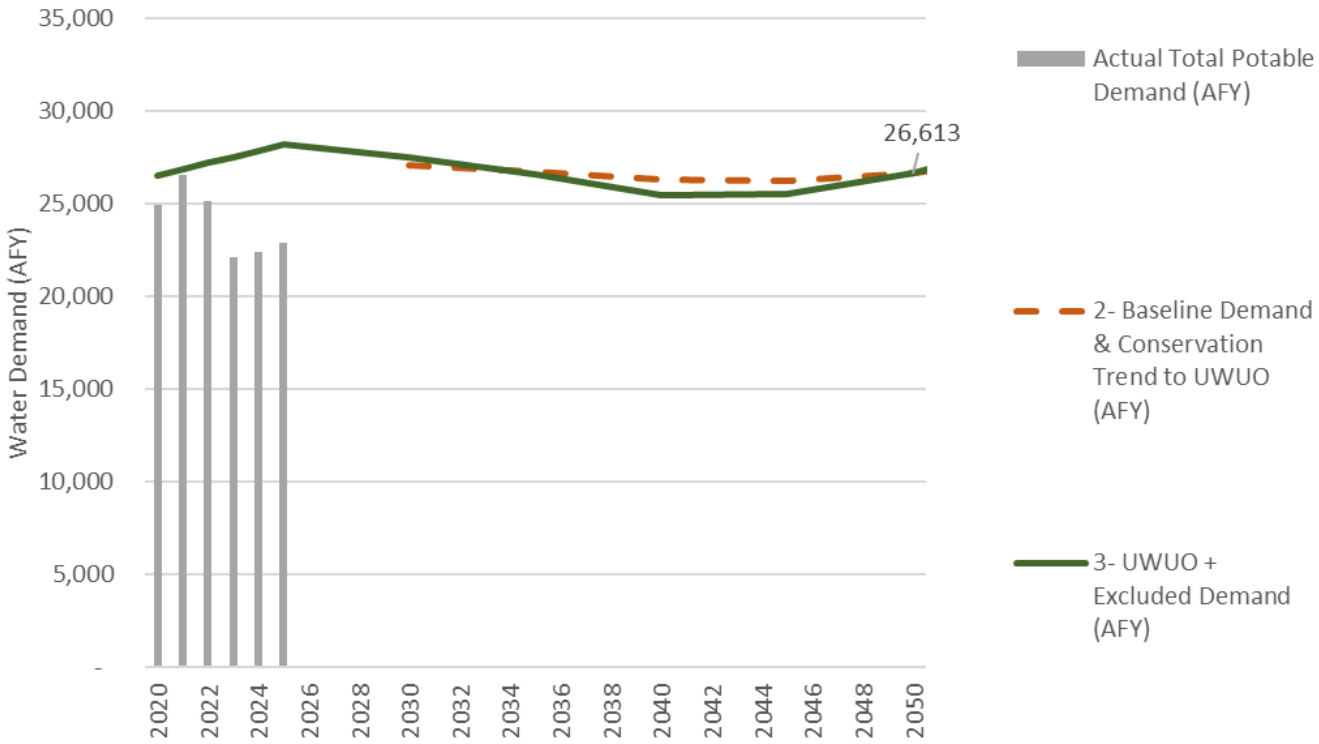


2020 Target:
140 gallons per capita per day (gpcd)

City Achieved Target in 2020 and 2025?
YES

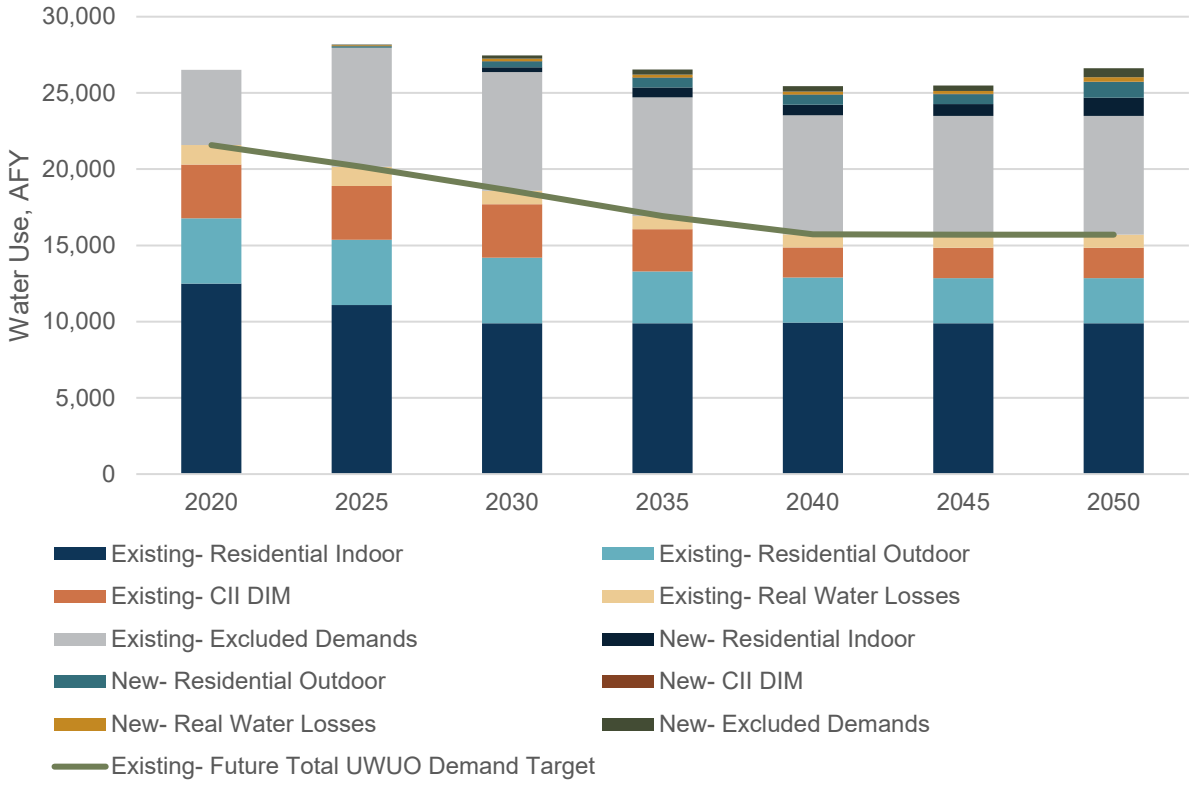
Water Use Characterization





Water Use Characterization

- *Considered* "Making Conservation a California Way of Life" Regulation Urban Water Use Objectives (UWUO)
  - UWUO = Residential Indoor Water Use Budget + Residential Outdoor Water Use Budget + Commercial, Industrial, and Institutional (CII) Dedicated Irrigation Meters (DIM) Outdoor Water Use Budget + Real Water Loss Budget
- *Considered* historic baseline demand per connection per customer type & SCAG growth
- *Used* baseline demands reduced at a constant rate to meet UWUO by 2050 (see chart on previous slide)
- High-level demand methodology to plan for sufficient supply to meet the population/housing growth from SCAG forecast, which incorporated City General Plan & City input
  - Does not project development-specific demand using demand per dwelling unit or per acre factors by land use type.



Water Supply

Local Groundwater

- City extracts from the Oxnard Plain Groundwater Basin
- United Water Conservation District (United) extracts groundwater for the City further inland

Imported Water

- State Water Project (SWP) water through Calleguas Municipal Water District (Calleguas) & Metropolitan Water District

Recycled Water

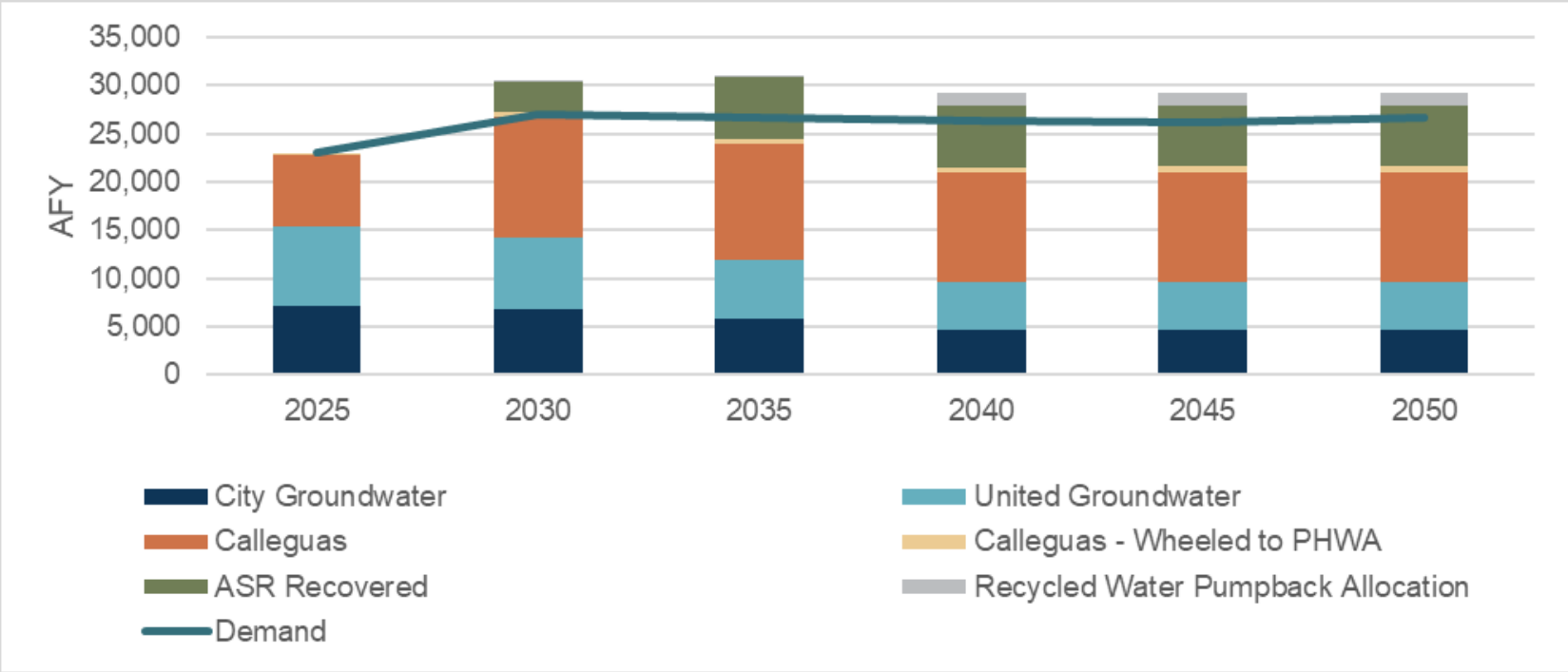
- Produced at the Advanced Water Purification Facility (AWPF)
- Used for agricultural irrigation, groundwater recharge and indirect potable reuse

Water Supply

		PROJECTED WATER SUPPLY, AFY				
		2030	2035	2040	2045	2050
WATER SUPPLY	ADDITIONAL DETAIL ON WATER SUPPLY	AVAILABLE VOLUME	AVAILABLE VOLUME	AVAILABLE VOLUME	AVAILABLE VOLUME	AVAILABLE VOLUME
Groundwater	City Groundwater	6,874	5,754	4,635	4,635	4,635
Groundwater	United Groundwater	7,275	6,090	4,905	4,905	4,905
Purchased or Imported Water	Calleguas	12,666	12,033	11,431	11,431	11,431
Other	Calleguas - Transferred to PHWA	492	521	563	589	604
Other	IPR	3,000	6,400	6,400	6,400	6,400
Other	Recycled Water Pumpback Allocation	200	250	1,250	1,250	1,250
Other	Groundwater Allocation Used	0	0	0	0	0
	TOTAL:	**30,507**	**31,049**	**29,184**	**29,210**	**29,225**

Water Reliability & Drought Risk Assessment

- City supplies meet demands in normal, single dry, and five-consecutive years of drought through 2050



Water Reliability & Drought Risk Assessment

		2030	2035	2040	2045	2050
First	Supply Totals, AFY	30,507	31,049	29,184	29,210	29,403
Year	Demand Totals, AFY	29,727	29,442	28,986	28,954	29,403
	DIFFERENCE:	**780**	**1,606**	**198**	**256**	**0**
Second	Supply Totals, AFY	30,507	31,049	29,184	29,210	29,403
Year	Demand Totals, AFY	27,594	27,298	26,953	27,012	27,407
	DIFFERENCE:	**2,913**	**3,751**	**2,232**	**2,198**	**1,997**
Third	Supply Totals, AFY	30,507	31,049	29,184	29,210	29,403
Year	Demand Totals, AFY	24,916	24,619	24,378	24,513	24,849
	DIFFERENCE:	**5,591**	**6,429**	**4,806**	**4,697**	**4,554**
Fourth	Supply Totals, AFY	30,507	31,049	29,184	29,210	29,403
Year	Demand Totals, AFY	24,882	24,556	24,386	24,602	24,917
	DIFFERENCE:	**5,625**	**6,493**	**4,798**	**4,608**	**4,486**
Fifth	Supply Totals, AFY	28,607	29,244	27,470	27,496	27,511
Year	Demand Totals, AFY	25,657	25,290	25,189	25,495	25,799
	DIFFERENCE:	**2,950**	**3,953**	**2,281**	**2,000**	**1,711**

Demand Management Measures (DMM)

DMM	Status
1. Water waste prevention ordinances	✓
2. Metering	✓
3. Conservation pricing	✓
4. Public education and outreach	✓
5. Real water loss management programs and systems	✓
6. Water conservation program and staffing support	✓
7. Other Demand Management Measures ➢ Residential Plumbing Retrofit ➢ School Education Programs ➢ Rebates ➢ Water Neutrality Policy	✓

Water Shortage Contingency Plan (WSCP) Elements

Water Supply Reliability Analysis	Legal Authority
Annual Water Supply and Demand Assessment Procedures	Financial Consequences of WSCP Implementation
Six Standard Shortage Stages	Monitoring and Reporting
Shortage Response Actions	WSCP Refinement Procedures
Communication Protocols	Special Water Features Distinctions
Compliance and Enforcement	Plan Adoption, Submittal, and Availability

Water Shortage Contingency Plan (WSCP)

- Provides flexible guidelines for the City Council, staff, and the public for identifying anticipated water shortages and response actions to allow for efficient management of any water shortage
- Oxnard Stages Translated to State's Six standard stages:

CITY OF OXNARD SHORTAGE LEVEL	PERCENT REDUCTION GOAL
1	≤15%
2	15 - 25%
3	25 - 35%
4	>35%

STANDARD WSCP LEVEL	PERCENT SHORTAGE LEVEL
1	10%
2	20%
3	30%
4	40%
5	50%
6	>50%

- WSCP is considered a standalone document and can be amended separately from the UWMP, if needed.

2025 UWMP Conclusions

- Expanding local water supplies, improving drought resilience, and reducing dependence on imported water
- Supply is expected to meet current and projected demands through 2050 with continued water use efficiency and increased recycled water recharge for indirect potable reuse
- Achieved 2020 SBx7-7 compliance in 2025 & the City is positioned to comply with State-mandated Urban Water Use Objective by 2040
- The UWMP is anticipated to meet all DWR requirements



Questions?

Submit Feedback

Abraham Maldonado

Water Resources Manager

Public Works Department, Water Division

abraham.maldonado@oxnard.org

For more details, visit the City's website:

https://www.oxnard.org/city-department/public-works/water/uwmp/


wsc

CITY OF OXNARD CALIFORNIA

PUBLIC WORKS AND TRANSPORTATION COMMITTEE AGENDA REPORT

REPORTS
AGENDA ITEM NO. D.3

DATE: May 26, 2026

TO: Public Works and Transportation Committee

FROM: Michael Wolfe, Public Works Director, (805) 385-8055, michael.wolfe@oxnard.org

SUBJECT: Purchase Order with Quinn Company for One Caterpillar 950 Wheel Loader for the Environmental Resources Division.

RECOMMENDATION

That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute a Purchase Order with Quinn Company in an amount not to exceed $573,818.15 for the purchase of one new Caterpillar Inc. Model 950 Wheel Loader, utilizing the Sourcewell cooperative purchasing agreement (#011723-CAT), for use by the Environmental Resources Division.

Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/3CaYcs3sgzQ

BACKGROUND

The City of Oxnard Environmental Resources Division (ER) provides municipal solid waste (MSW) collection and processing services, including garbage, recyclable materials, and organic waste to approximately 41,077 customer accounts as of April 2026. The Division processes approximately 297,000 tons of material annually, including refuse, recyclables, and organic waste streams that must be received, sorted, and transferred six days a week.

To support these daily operations, the Division relies on heavy-duty equipment, including wheel loaders, to perform essential functions such as unloading, stockpiling, and transporting materials. Due to the high volume of materials handled and the demanding operating conditions, this equipment experiences significant wear and must be replaced periodically.

The Division's existing wheel loader (ID# 14304), purchased in 2014, has reached the end of its useful service life, has high operating hours, and has increasing maintenance costs. Wheel loaders used in solid waste environments have an expected useful life of approximately 10,000 to 15,000 hours of operation. Equipment (ID# 14304) has reached 23,681 hours and is operating beyond its economic life and incurring elevated maintenance costs, reduced efficiency, and increased risk of operational disruption. Replacement of the unit is necessary to maintain reliable service levels and support ongoing compliance with Local and State waste diversion and organics recycling requirements.

DISCUSSION

In alignment with the 2024 ER Cost of Service Study, the Environmental Resources Division obtained a

cooperative purchase quotation through Sourcewell from Quinn Company for the acquisition of one new 2026 Caterpillar 950 Wheel Loader to replace the existing unit (ID# 14304). The proposed equipment is specifically configured for solid waste operations and includes a high-lift linkage and waste handling package designed to perform efficiently in high-volume material processing environments such as the Del Norte Regional Recycling and Transfer Station.

The quoted unit includes all standard features, along with additional enhancements designed specifically for solid waste operations, such as collision warning, surround-view cameras, rearview monitoring, a reversing fan, a trash air precleaner, a fire suppression system, and an industrial lighting package. These features are intended to improve operator safety, minimize downtime, and extend the life of the equipment. No additional costs were associated with these features in the quote.

The total purchase price of the equipment is $636,253.17. Through the use of the Sourcewell cooperative purchasing contract (#011723-CAT), the City will receive an 18 percent discount, resulting in a net purchase price of $525,227.60, excluding taxes and fees. Including applicable sales tax, tire fees, and delivery costs, the total cost of the equipment is $573,818.15. The equipment includes a standard 12-month full machine warranty, along with extended coverage of 36 months or 5,000 hours for the powertrain, hydraulics, and technology components.

The City Purchasing Policy allows for the use of governmental cooperative contracts for the purchase of goods, equipment and contractual services when the contract has been competitively bid and awarded in accordance with local, State, and Federal laws that govern public procurement. Quinn Company holds a cooperative contract with Sourcewell #011723-CAT with a current expiration date of April 14, 2027, and may be extended one additional year. Sourcewell offers government agencies a cooperative purchasing program that provides competitively solicited cooperative contracts and allows the City to “piggyback” on the agreement and obtain the rentals at a discounted price.

STRATEGIC PRIORITIES

This agenda item is a routine operational item or does not relate to the four strategic plans adopted by City Council on May 17, 2016.

FINANCIAL IMPACT

The total cost for the purchase of one Caterpillar 950 Wheel Loader shall not exceed $573,818.15 and will be funded through the Environmental Resources Division’s adopted Fiscal Year 2025-2026 budget and also use of the Fleet Replacement Fund (742) in project C1837 that has one-time funds as outlined below. The use of the Sourcewell cooperative purchasing contract (# 011723-CAT) provides a cost savings of approximately $114,525.57, or 18 percent off the list price.

Account (Capex- Machinery/Equipment)	**Amount**
7423750-56040-C1837	$ 327,172.00
6313636-56040	$ 246,646.15
Total	**$ 573,818.15**

Prepared by: Brian Yanez, Assistant Public Works Director

ATTACHMENTS

1. CAT 950 Wheel Loader Quote

2. Sourcewell - Cooperative Agreement
3. Presentation

194846-01

Apr 30, 2026

CITY OF OXNARD - DEL NORTE RECYCLING
ATTN ABEL DELGADILLO
111 S DEL NORTE BLVD
OXNARD, California 93030

Attention: ABEL DELGADILLO

We would like to thank you for your interest in our company and our products, and are pleased to quote the following for your consideration.

One (1) New Caterpillar Inc. Model: 950 Wheel Loader including standard and optional equipment as listed below.

STOCK NUMBER: NS0025136 **SERIAL NUMBER:** 0TN210841 **YEAR:** 2026 **SMU:** 7

We wish to thank you for the opportunity of quoting on your equipment needs. This quotation is valid for 90 days, Subject to availability after which time we reserve the right to re-quote. If there are any questions, please do not hesitate to contact me.

Sincerely,

Jaime Llamas
Machine Sales Representative
(805) 856-8926
Jaime.llamas@Quinncompany.com

One (1) New Caterpillar Inc. Model: 950 Wheel Loader including standard and optional equipment as listed below.

STANDARD EQUIPMENT

POWERTRAIN -Engine, Cat C7.1 –Tier 4 Final Emissions rating -- Auto Idle shutdown --Fuel priming pump (electric) --Fuel/Water separator --Engine air intake with strata-tubes --Ether Aid ready -Standard (low fuel) & Peformance (best -production) Power modes -Cat Clean Emissions Module (CEM) with -Diesel Particulate Filter (DPF) and -remote Diesel Exhaust Fluid (DEF) tank - Tranmission countershaft, automatic, -powershift (5F/3R) -Torque converter, locking clutch with -free wheel stator -Fan, radiator, electronically -controlled, hydraulically driven, -temperature sensing, on demand -Brakes, full hydraulic enclosed wet-disc -with Integrated Braking System (IBS) -Brake wear indicators -Parking brake, disk & dual caliper

ELECTRICAL -Alarm, back-up -Alternator, 115-amp brushed -Batteries (2), maintenance free 1400 CCA -Ignition - push to start - Lighting system: --2 halogen tower mounted work lights -beam with turn signals) --2 rear facing halogen lights in hood --2 LED position/stop lights --4 halogen work lights on the cab -Main disconnect switch -Receptacle start (cables not included) -Starter, electric, heavy duty -Starting and charging system (24-volt)

OPERATOR ENVIRONMENT -Automatic climate control with Air -conditioner, heater & defroster -Beverage holders (2) with storage -compartment for cell phone/MP3 player -Bucket/Work tool function lockout -Cab, pressurized and sound suppressed, - (ROPS/FOPS), radio ready -(entertainment) includes antenna, -speakers, & converter (12-volt 10-amp) -Coat hook (2) -EH Controls, lift and tilt function -EH Parking Brake --Application profiles --Operator profiles --Utilization, Fuel, Location & Health --Job Aids, Control help & digital O&MM --Passcode & bluetooth security -

OTHER STANDARD EQUIPMENT -Couplings, Caterpillar O-ring face seal -Hoses, Caterpillar XT -Implement Hydraulic System -- Load sensing with variable -displacement piston pump. -Oil sampling valves -Remote diagnostic pressure taps -Cooling package with swing out -second plane cores -Ecology drains for engine, transmission, -and hydraulics -Filters: fuel, engine air, engine oil, - hydraulic oil, transmission -Grease zerks -Hitch, drawbar with pin -Hood, power tilting -Kickout, lift & tilt, automatic -(adjustable in cab) -Radiator grill, airborne debris -Service Center (electrical & hydraulic) -Sight gauges: engine coolant, hydraulic -oil, and transmission oil level -Steering, load sensing -

OPERATOR ENVIRONMENT --Auto set tires & Autodig --Integrated payload with low lift weight -Cat Payload with Assist Technology -Post mounted membrane 16 switch keypad --Integrated rear-view camera --Machine settings & health parameters -- 20cm (8 in) color LCD touch screen -Information Display, right post mounted --Warning indicators -Tachometer gages -- Temperature, Fuel and -Indication Display, Front dash mounted -Viscous mounts -Window, sliding (left and right sides) -intermittent front wiper -Wet-Arm wipers/washers front & rear, -Sun visor, front -Monitored Seat belt, retractable -3 receptacles, 12-Volt - integrated spot mirrors -Mirrors, rearview external with -Light, cab dome -Horn, electric -Ergonomic cab access ladders & handrails

MACHINE SPECIFICATIONS

950 WHEEL LOADER	590-6108
LANE 3 ORDER	0P-9003
REGIONAL PKG 14B, AM-N, JSTK	633-8191
AXLE OIL COOLER READY, ED	590-6313
HYDRAULIC OIL, STANDARD	366-9912
STARTING, STANDARD	590-6272
CAB, DELUXE, STRG JOYSTICK	633-5469
JOYSTICK 3V, STEERING JOYSTICK	632-7161
STEERING SYST, STD, JSTK	590-6264
PRODUCT LINK, CELLULAR PLE643	641-7597
TECHNOLOGY, PAYLOAD, ASSIST	633-1811
FAN, REVERSING, VPF, ANSI	590-6144
ANTIFREEZE, -34C (-29F)	626-1926
TIRES, 23.5R25 MX XHA2 * L3	622-7037
SERIALIZED TECHNICAL MEDIA KIT	421-8926
ROLL ON-ROLL OFF	0P-6619
STORAGE PROTECTION	0G-4129
950 CPM	646-7625
LINKAGE, HIGH LIFT	590-6209
HYDRAULICS, 3V RC HL	590-6156
LIGHTS, LED, INDUSTRIAL	590-6403
COOLING CORES, 6 FPI	567-4726
AIR INLET PRECLEANER, TRASH	365-0121
FENDERS, NARROW	550-3413
SOUND SUPPRESSION, INDUSTRIAL	590-6242
TRANSPORT GROUP, NO WORKTOOL	361-1437
LUBRICATION, MANUAL, HL, IND	590-6414
LIGHTS, REVERSING STROBE	569-4049
LIGHT, SEAT BELT LAMP	460-7450
LIGHT, WARNING BEACON	491-7467
GUARD, HINGED, POWERTRAIN	569-8171
GUARD, TILT CYLINDER	590-6354
OIL CHANGE SYSTEM, HIGH SPEED	563-3741
TOOL BOX	558-0974
FILM, WASTE	468-0171
INDUSTRIAL PACKAGE	632-4594
AXLES, AUTO/AUTO, SGR, JSTK	633-8187
FUEL ANTIFREEZE, -25C (-13F)	0P-3978
QUICK COUPLER READY, HL	631-1552
FILTRATION, STD, ACF PRECLNR	633-1823
WINDOWS, RUBBER MTD, FNT GUARD	627-5974
DETECT, COLLISION WARNING	632-6851
CAMERA, SURROUND VISION	633-1828
COUNTERWEIGHT, REAR GUARD	632-7612
SUI Basement Bucket	
NVB Fire Suppression	
Setco Tires	

WARRANTY & COVERAGE

Standard Warranty:	12 MONTHS FULL MACHINE
Extended Coverage:	36 MO/5000 HR POWERTRAIN + HYDRAULICS + TECH

SELL PRICE	$636,253.17
EXT WARRANTY	Included
SOURCE WELL 18% DISCOUNT CONTRACT #011723-CAT	($114,525.57)
PREP AND FREIGHT	$3,500.00
NET BALANCE DUE	**$525,227.60**
TIRE FEE	$7.00
SALES TAX (9.25%)	$48,583.55
AFTER TAX BALANCE	**$573,818.15**

Accepted by_____ **on** _____

_____
Signature

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

Sourcewell

Solicitation Number: RFP # 011723

CONTRACT

This Contract is between Sourcewell, 202 12th Street Northeast, P.O. Box 219, Staples, MN 56479 (Sourcewell) and **Caterpillar Inc.**, 100 NE Adams Street, Peoria, IL 61629 (Supplier).

Sourcewell is a State of Minnesota local government unit and service cooperative created under the laws of the State of Minnesota (Minnesota Statutes Section 123A.21) that offers cooperative procurement solutions to government entities. Participation is open to eligible federal, state/province, and municipal governmental entities, higher education, K-12 education, nonprofit, tribal government, and other public entities located in the United States and Canada. Sourcewell issued a public solicitation for **Heavy Construction Equipment with Related Attachments and Technology** from which Supplier was awarded a contract.

Supplier desires to contract with Sourcewell to provide equipment, products, or services to Sourcewell and the entities that access Sourcewell's cooperative purchasing contracts (Participating Entities).

1. TERM OF CONTRACT

A. EFFECTIVE DATE. This Contract is effective upon the date of the final signature below.

B. EXPIRATION DATE AND EXTENSION. This Contract expires April 14, 2027, unless it is cancelled sooner pursuant to Article 22. This Contract may be extended one additional year upon the request of Sourcewell and written agreement by Supplier.

C. SURVIVAL OF TERMS. Notwithstanding any expiration or termination of this Contract, all payment obligations incurred prior to expiration or termination will survive, as will the following: Articles 11 through 14 survive the expiration or cancellation of this Contract. All other rights will cease upon expiration or termination of this Contract.

2. EQUIPMENT, PRODUCTS, OR SERVICES

A. EQUIPMENT, PRODUCTS, OR SERVICES. Supplier will provide the Equipment, Products, or Services as stated in its Proposal submitted under the Solicitation Number listed above. Supplier's Equipment, Products, or Services Proposal (Proposal) is attached and incorporated into this Contract.

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

Pursuant to Section 10(b), Supplier will subcontract certain obligations under this Contract to its dealers. Only those dealers that sign a Participation Agreement with Supplier obligating them to comply with the terms of this Contract will be eligible to provide Equipment, Products, or Services as a subcontractor under this Contract. In the event there is no dealer who has entered into a Participation Agreement available to provide Equipment, Products, or Services to a Participating Entity, Supplier will be under no obligation to provide Equipment, Products, or Services to such Participating Entity under this Contract. Supplier will provide a copy of this Contract to its dealers that would normally service Participating Entities and invite such dealers to enter into a Participation Agreement as a subcontractor of Supplier under the terms of this Contract.

All Equipment and Products provided under this Contract must be new and the current model. Supplier may offer close-out or refurbished Equipment or Products if they are clearly indicated in Supplier's product and pricing list. Unless agreed to by the Participating Entities in advance, Equipment or Products must be delivered as operational to the Participating Entity's site.

This Contract offers an indefinite quantity of sales, and while substantial volume is anticipated, sales and sales volume are not guaranteed.

B. WARRANTY. Supplier warrants that all Equipment, Products, and Services furnished are free from liens and encumbrances, and are free from defects in design, materials, and workmanship. In addition, Supplier warrants the Equipment, Products, and Services are suitable for and will perform in accordance with the ordinary use for which they are intended. Supplier's dealers and distributors must agree to assist the Participating Entity in reaching a resolution in any dispute over warranty terms with the manufacturer. Any manufacturer's warranty that extends beyond the expiration of the Supplier's warranty will be passed on to the Participating Entity.

C. DEALERS, DISTRIBUTORS, AND/OR RESELLERS. Upon Contract execution and throughout the Contract term, Supplier must provide to Sourcewell a current means to validate or authenticate Supplier's authorized dealers, distributors, or resellers relative to the Equipment, Products, and Services offered under this Contract, which will be incorporated into this Contract by reference. It is the Supplier's responsibility to ensure Sourcewell receives the most current information.

3. PRICING

All Equipment, Products, or Services under this Contract will be priced at or below the percentage list discount stated in the supplier's proposal.

Upon request made to a participating CAT dealer, from a Participating Entity identifying themselves as a Sourcewell member by providing their Sourcewell member number and contract number; formal quotes will list all costs, including all delivery expenses, such as freight and permits (when required).

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

Alternatively, Participating Entities may choose to make their own transportation arrangements. In such case, there would be no delivery charges from the local participating Cat dealer.
Regardless of the payment method chosen by the Participating Entity, the total cost associated with any purchase option of the Equipment, Products, or Services must always be disclosed in the pricing quote to the applicable Participating Entity at the time of purchase.

A. SHIPPING AND SHIPPING COSTS. All delivered Equipment and Products must be properly packaged. Damaged Equipment and Products may be rejected. If the damage is not readily apparent at the time of delivery, Supplier must permit the Equipment and Products to be returned within a reasonable time at no cost to Sourcewell or its Participating Entities. Participating Entities reserve the right to inspect the Equipment and Products at a reasonable time after delivery where circumstances or conditions prevent effective inspection of the Equipment and Products at the time of delivery. In the event of the delivery of nonconforming Equipment and Products, the Participating Entity will notify the Supplier as soon as possible and the Supplier will replace nonconforming Equipment and Products with conforming Equipment and Products that are acceptable to the Participating Entity.

Supplier must arrange for and pay for the return shipment on Equipment and Products that arrive in a defective or inoperable condition.

Sourcewell may declare the Supplier in breach of this Contract if the Supplier intentionally delivers substandard or inferior Equipment or Products.

B. SALES TAX. Each Participating Entity is responsible for supplying the Supplier with valid tax-exemption certification(s). When ordering, a Participating Entity must indicate if it is a tax-exempt entity.

C. HOT LIST PRICING. At any time during this Contract, Supplier may offer a specific selection of Equipment, Products, or Services at discounts greater than those listed in the Contract. When Supplier determines it will offer Hot List Pricing, it must be submitted electronically to Sourcewell in a line-item format. Equipment, Products, or Services may be added or removed from the Hot List at any time through a Sourcewell Price and Product Change Form as defined in Article 4 below.

Hot List program and pricing may also be used to discount and liquidate close-out and discontinued Equipment and Products as long as those close-out and discontinued items are clearly identified as such. Current ordering process and administrative fees apply. Hot List Pricing must be published and made available to all Participating Entities.

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

4. PRODUCT AND PRICING CHANGE REQUESTS

Supplier may request Equipment, Product, or Service changes, additions, or deletions at any time. All requests must be made in writing by submitting a signed Sourcewell Price and Product Change Request Form to the assigned Sourcewell Supplier Development Administrator. This approved form is available from the assigned Sourcewell Supplier Development Administrator. At a minimum, the request must:

- Identify the applicable Sourcewell contract number;
- Clearly specify the requested change;
- Provide sufficient detail to justify the requested change;
- Individually list all Equipment, Products, or Services affected by the requested change, along with the requested change (e.g., addition, deletion, price change); and
- Include a complete restatement of pricing documentation in Microsoft Excel with the effective date of the modified pricing, or product addition or deletion. The new pricing restatement must include all Equipment, Products, and Services offered, even for those items where pricing remains unchanged.

A fully executed Sourcewell Price and Product Request Form will become an amendment to this Contract and will be incorporated by reference.

5. PARTICIPATION, CONTRACT ACCESS, AND PARTICIPATING ENTITY REQUIREMENTS

A. PARTICIPATION. Sourcewell's cooperative contracts are available and open to public and nonprofit entities across the United States and Canada; such as federal, state/province, municipal, K-12 and higher education, tribal government, and other public entities. Supplier may not enter into a contract with a U.S. Federal Government entity prior to obtaining necessary internal approvals and shall not be obligated to provide Equipment, Products or Services to any U.S. Federal Government entity under this Contract unless separately agreed in writing. Caterpillar may work with such parties and may agree to provide equipment or services under the Contract on a case-by-case basis.

The benefits of this Contract should be available to all Participating Entities that can legally access the Equipment, Products, or Services under this Contract. A Participating Entity's authority to access this Contract is determined through its cooperative purchasing, interlocal, or joint powers laws. Any entity accessing benefits of this Contract will be considered a Service Member of Sourcewell during such time of access. Supplier understands that a Participating Entity's use of this Contract is at the Participating Entity's sole convenience and Participating Entities reserve the right to obtain like Equipment, Products, or Services from any other source.

Supplier is responsible for familiarizing its sales and service forces with Sourcewell contract use eligibility requirements and documentation and will encourage potential participating entities

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

to join Sourcewell. Sourcewell reserves the right to add and remove Participating Entities to its roster during the term of this Contract.

B. PUBLIC FACILITIES. Supplier's employees may be required to perform work at government-owned facilities, including schools. Supplier's employees and agents must conduct themselves in a professional manner while on the premises, and in accordance with Participating Entity policies and procedures, and all applicable laws.

6. PARTICIPATING ENTITY USE AND PURCHASING

A. ORDERS AND PAYMENT. To access the contracted Equipment, Products, or Services under this Contract, a Participating Entity must clearly indicate to Supplier that it intends to access this Contract; however, order flow and procedure will be developed jointly between Sourcewell and Supplier. Typically, a Participating Entity will issue an order directly to Participating Dealers with payments made to the Participating Dealers. If a Participating Entity issues a purchase order, it may use its own forms, but the purchase order should clearly note the applicable Sourcewell contract number. All Participating Entity orders under this Contract must be issued prior to expiration or cancellation of this Contract; however, Supplier performance, Participating Entity payment obligations, and any applicable warranty periods or other Supplier or Participating Entity obligations may extend beyond the term of this Contract.

Supplier's acceptable forms of payment are included in its attached Proposal. Participating Entities will be solely responsible for payment and Sourcewell will have no liability for any unpaid invoice of any Participating Entity.

B. ADDITIONAL TERMS AND CONDITIONS/PARTICIPATING ADDENDUM. Additional terms and conditions to a purchase order, or other required transaction documentation, may be negotiated between a Participating Entity and Supplier's Participating Dealer, such as job or industry-specific requirements, legal requirements (e.g., affirmative action or immigration status requirements), or specific local policy requirements. Some Participating Entities may require the use of a Participating Addendum, the terms of which will be negotiated directly between the Participating Entity and Supplier's Participating Dealer or its authorized dealers, distributors, or resellers, as applicable. Any negotiated additional terms and conditions must never be less favorable to the Participating Entity than what is contained in this Contract.

C. SPECIALIZED SERVICE REQUIREMENTS. In the event that the Participating Entity requires service or specialized performance requirements not addressed in this Contract (such as e-commerce specifications, specialized delivery requirements, or other specifications and requirements), the Participating Entity and the Supplier may enter into a separate, standalone agreement, apart from this Contract. Sourcewell, including its agents and employees, will not be made a party to a claim for breach of such agreement.

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

D. TERMINATION OF ORDERS. Participating Entities may terminate an order, in whole or in part, immediately upon notice to Supplier in the event of any of the following events:

1. The Participating Entity fails to receive funding or appropriation from its governing body at levels sufficient to pay for the equipment, products, or services to be purchased; or
2. Federal, state, or provincial laws or regulations prohibit the purchase or change the Participating Entity's requirements.

E. GOVERNING LAW AND VENUE. The governing law and venue for any action related to a Participating Entity's order will be determined by the Participating Entity making the purchase.

7. CUSTOMER SERVICE

A. PRIMARY ACCOUNT REPRESENTATIVE. Supplier will assign an Account Representative to Sourcewell for this Contract and must provide prompt notice to Sourcewell if that person is changed. The Account Representative will be responsible for:

- Maintenance and management of this Contract;
- Timely response to all Sourcewell and Participating Entity inquiries; and
- Business reviews to Sourcewell and Participating Entities, if applicable.

B. BUSINESS REVIEWS. Supplier must perform a minimum of one business review with Sourcewell per contract year. The business review will cover sales to Participating Entities, pricing and contract terms, administrative fees, sales data reports, performance issues, supply issues, customer issues, and any other necessary information.

8. REPORT ON CONTRACT SALES ACTIVITY AND ADMINISTRATIVE FEE PAYMENT

A. CONTRACT SALES ACTIVITY REPORT. Each calendar quarter, Supplier must provide a contract sales activity report (Report) to the Sourcewell Supplier Development Administrator assigned to this Contract. Reports are due no later than 45 days after the end of each calendar quarter. A Report must be provided regardless of the number or amount of sales during that quarter (i.e., if there are no sales, Supplier must submit a report indicating no sales were made).

The Report must contain the following fields:

- Participating Entity Name (e.g., City of Staples Highway Department);
- Participating Entity Physical Street Address;
- Participating Entity City;
- Participating Entity State/Province;
- Participating Entity Zip/Postal Code;

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

- Participating Entity Contact Name;
- Participating Entity Contact Email Address;
- Participating Entity Contact Telephone Number;
- Sourcewell Assigned Entity/Participating Entity Number;
- Item Purchased Description;
- Item Purchased Price;
- Sourcewell Administrative Fee Applied; and
- Date Purchase was invoiced/sale was recognized as revenue by Supplier.

B. ADMINISTRATIVE FEE. In consideration for the support and services provided by Sourcewell, the Supplier will pay an administrative fee to Sourcewell on all Equipment, Products, and Services provided to Participating Entities. The Administrative Fee must be included in, and not added to, the pricing. Supplier may not charge Participating Entities more than the contracted price to offset the Administrative Fee.

The Supplier will submit payment to Sourcewell for the percentage of administrative fee stated in the Proposal multiplied by the total sales of all Equipment, Products, and Services purchased by Participating Entities under this Contract during each calendar quarter. Payments should note the Supplier's name and Sourcewell-assigned contract number in the memo; and must be mailed to the address above "Attn: Accounts Receivable" or remitted electronically to Sourcewell's banking institution per Sourcewell's Finance department instructions. Payments must be received no later than 45 calendar days after the end of each calendar quarter.

Supplier agrees to cooperate with Sourcewell in auditing transactions under this Contract to ensure that the administrative fee is paid on all items purchased under this Contract.

In the event the Supplier is delinquent in any undisputed administrative fees, Sourcewell reserves the right to cancel this Contract and reject any proposal submitted by the Supplier in any subsequent solicitation. In the event this Contract is cancelled by either party prior to the Contract's expiration date, the administrative fee payment will be due no more than 30 days from the cancellation date.

9. AUTHORIZED REPRESENTATIVE

Sourcewell's Authorized Representative is its Chief Procurement Officer.

Supplier's Authorized Representative is the person named in the Supplier's Proposal. If Supplier's Authorized Representative changes at any time during this Contract, Supplier must promptly notify Sourcewell in writing.

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

10. AUDIT, ASSIGNMENT, AMENDMENTS, WAIVER, AND CONTRACT COMPLETE

A. AUDIT. Pursuant to Minnesota Statutes Section 16C.05, subdivision 5, the books, records, documents, and accounting procedures and practices relevant to this Contract are subject to examination by Sourcewell or the Minnesota State Auditor for a minimum of six years from the end of this Contract. This clause extends to Participating Entities as it relates to business conducted by that Participating Entity under this Contract.

B. ASSIGNMENT. Neither party may assign or otherwise transfer its rights or obligations under this Contract without the prior written consent of the other party and a fully executed assignment agreement. Such consent will not be unreasonably withheld. Any prohibited assignment will be invalid. Provided, however, that Supplier is permitted to subcontract certain of its rights and obligations to Supplier Participating Dealers for performance without Sourcewell's prior written consent.

C. AMENDMENTS. Any amendment to this Contract must be in writing and will not be effective until it has been duly executed by the parties.

D. WAIVER. Failure by either party to take action or assert any right under this Contract will not be deemed a waiver of such right in the event of the continuation or repetition of the circumstances giving rise to such right. Any such waiver must be in writing and signed by the parties.

E. CONTRACT COMPLETE. This Contract represents the complete agreement between the parties. No other understanding regarding this Contract, whether written or oral, may be used to bind either party. For any conflict between the attached Proposal and the terms set out in Articles 1-22 of this Contract, the terms of Articles 1-22 will govern.

F. RELATIONSHIP OF THE PARTIES. The relationship of the parties is one of independent contractors, each free to exercise judgment and discretion with regard to the conduct of their respective businesses. This Contract does not create a partnership, joint venture, or any other relationship such as master-servant, or principal-agent.

11. INDEMNITY AND HOLD HARMLESS

Intentionally omitted.

12. GOVERNMENT DATA PRACTICES

Supplier and Sourcewell must comply with the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13, as it applies to all data provided by or provided to Sourcewell

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

under this Contract and as it applies to all data created, collected, received, maintained, or disseminated by the Supplier under this Contract.

13. INTELLECTUAL PROPERTY, PUBLICITY, MARKETING, AND ENDORSEMENT

A. Intentionally Deleted.

B. PUBLICITY. Any publicity regarding the subject matter of this Contract must not be released without prior written approval from the Authorized Representatives. Publicity includes notices, informational pamphlets, press releases, research, reports, signs, and similar public notices prepared by or for the Supplier individually or jointly with others, or any subcontractors, with respect to the program, publications, or services provided resulting from this Contract.

C. MARKETING. Any direct advertising, marketing, or offers with Participating Entities must be approved by Sourcewell. Send all approval requests to the Sourcewell Supplier Development Administrator assigned to this Contract.

D. ENDORSEMENT. The Supplier must not claim that Sourcewell endorses its Equipment, Products, or Services.

14. GOVERNING LAW, JURISDICTION, AND VENUE

The substantive and procedural laws of the State of Minnesota will govern this Contract. Venue for all legal proceedings arising out of this Contract, or its breach, must be in the appropriate state court in Todd County, Minnesota or federal court in Fergus Falls, Minnesota.

15. FORCE MAJEURE

Neither party to this Contract will be held responsible for delay or default caused by acts of God or other conditions that are beyond that party's reasonable control. A party defaulting under this provision must provide the other party prompt written notice of the default.

16. SEVERABILITY

If any provision of this Contract is found by a court of competent jurisdiction to be illegal, unenforceable, or void then both parties will be relieved from all obligations arising from that provision. If the remainder of this Contract is capable of being performed, it will not be affected by such determination or finding and must be fully performed.

17. PERFORMANCE, DEFAULT, AND REMEDIES

A. PERFORMANCE. During the term of this Contract, the parties will monitor performance and address unresolved contract issues as follows:

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

1. *Notification.* The parties must promptly notify each other of any known dispute and work in good faith to resolve such dispute within a reasonable period of time. If necessary, Sourcewell and the Supplier will jointly develop a short briefing document that describes the issue(s), relevant impact, and positions of both parties.
2. *Escalation.* If parties are unable to resolve the issue in a timely manner, as specified above, either Sourcewell or Supplier may escalate the resolution of the issue to a higher level of management. The Supplier will have 30 calendar days to cure an outstanding issue.
3. *Performance while Dispute is Pending*. Notwithstanding the existence of a dispute, the Supplier must continue without delay to carry out all of its responsibilities under the Contract that are not affected by the dispute. If the Supplier fails to continue without delay to perform its responsibilities under the Contract, in the accomplishment of all undisputed work, the Supplier will bear any additional costs incurred by Sourcewell and/or its Participating Entities as a result of such failure to proceed.

B. DEFAULT AND REMEDIES. Either of the following constitutes cause to declare this Contract, or any Participating Entity order under this Contract, in default:

1. Nonperformance of contractual requirements, or
2. A material breach of any term or condition of this Contract.

The party claiming default must provide written notice of the default, with 30 calendar days to cure the default. Time allowed for cure will not diminish or eliminate any liability for liquidated or other damages. If the default remains after the opportunity for cure, the non-defaulting party may:

- Exercise any remedy provided by law or equity, or
- Terminate the Contract or any portion thereof, including any orders issued against the Contract.

18. INSURANCE

A. REQUIREMENTS. At its own expense, Supplier must maintain insurance policy(ies) in effect at all times during the performance of this Contract with insurance company(ies) licensed or authorized to do business in the State of Minnesota having an "AM BEST" rating of A- or better, with coverage and limits of insurance not less than the following:

1. *Workers' Compensation and Employer's Liability.*

Workers' Compensation: As required by any applicable law or regulation.

Employer's Liability Insurance: must be provided in amounts not less than listed below:

Minimum limits:
$500,000 each accident for bodily injury by accident
$500,000 policy limit for bodily injury by disease
$500,000 each employee for bodily injury by disease

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

2. *Commercial General Liability Insurance.* Supplier will maintain insurance covering its operations, with coverage on an occurrence basis, and must be subject to terms no less broad than the Insurance Services Office ("ISO") Commercial General Liability Form CG0001 (2001 or newer edition), or equivalent. At a minimum, coverage must include liability arising from premises, operations, bodily injury and property damage, independent contractors, products-completed operations including construction defect, contractual liability, blanket contractual liability, and personal injury and advertising injury. All required limits, terms and conditions of coverage must be maintained during the term of this Contract.

Minimum Limits:
$1,000,000 each occurrence Bodily Injury and Property Damage
$1,000,000 Personal and Advertising Injury
$2,000,000 aggregate for products liability-completed operations
$2,000,000 general aggregate

3. *Commercial Automobile Liability Insurance.* During the term of this Contract, Supplier will maintain insurance covering all owned, hired, and non-owned automobiles in limits of liability not less than indicated below. The coverage must be subject to terms no less broad than ISO Business Auto Coverage Form CA 0001 (2010 edition or newer), or equivalent.

Minimum Limits:
$1,000,000 each accident, combined single limit

4. *Umbrella Insurance*. During the term of this Contract, Supplier will maintain umbrella coverage over Employer's Liability, Commercial General Liability, and Commercial Automobile.

Minimum Limits:
$2,000,000

Failure of Supplier to maintain the required insurance will constitute a material breach entitling Sourcewell to immediately terminate this Contract for default.

B. CERTIFICATES OF INSURANCE. Prior to commencing under this Contract, Supplier must furnish to Sourcewell a certificate of insurance, as evidence of the insurance required under this Contract. Prior to expiration of the policy(ies), renewal certificates must be mailed to Sourcewell, 202 12th Street Northeast, P.O. Box 219, Staples, MN 56479 or sent to the Sourcewell Supplier Development Administrator assigned to this Contract. The certificates must be signed by a person authorized by the insurer(s) to bind coverage on their behalf.

Failure to request certificates of insurance by Sourcewell, or failure of Supplier to provide certificates of insurance, in no way limits or relieves Supplier of its duties and responsibilities in this Contract.

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

C. ADDITIONAL INSURED ENDORSEMENT AND PRIMARY AND NON-CONTRIBUTORY INSURANCE CLAUSE. Supplier agrees to list Sourcewell and its Participating Entities, including their officers, agents, and employees, as an additional insured under the Supplier's commercial general liability insurance policy with respect to liability arising out of activities, "operations," or "work" performed by or on behalf of Supplier, and products and completed operations of Supplier. The policy provision(s) or endorsement(s) must further provide that coverage is primary and not excess over or contributory with any other valid, applicable, and collectible insurance or self-insurance in force for the additional insureds. A Participating Dealer may name a Participating Entity as an additional insured on a case-by-case basis.

WAIVER OF SUBROGATION. Supplier waives and must require (by endorsement or otherwise) all its insurers to waive subrogation rights against Sourcewell and other additional insureds for losses paid under the insurance policies required by this Contract or other insurance applicable to the Supplier or its subcontractors. The waiver must apply to all deductibles and/or self-insured retentions applicable to the required or any other insurance maintained by the Supplier or its subcontractors.

D. UMBRELLA/EXCESS LIABILITY/SELF-INSURED RETENTION. The limits required by this Contract can be met by either providing a primary policy or in combination with umbrella/excess liability policy(ies), or self-insured retention.

19. COMPLIANCE

A. LAWS AND REGULATIONS. All Equipment, Products, or Services provided under this Contract must comply fully with applicable federal laws and regulations, and with the laws in the states and provinces in which the Equipment, Products, or Services are sold.

B. LICENSES. Supplier's Participating Dealers must maintain a valid and current status on all required federal, state/provincial, and local licenses, bonds, and permits required for the operation of the business that the Participating Dealer conducts with Sourcewell and Participating Entities.

20. BANKRUPTCY, DEBARMENT, OR SUSPENSION CERTIFICATION

Supplier certifies and warrants that it is not in bankruptcy or that it has previously disclosed in writing certain information to Sourcewell related to bankruptcy actions. If at any time during this Contract Supplier declares bankruptcy, Supplier must immediately notify Sourcewell in writing.

Caterpillar: Confidential Green

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

Supplier certifies and warrants that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from programs operated by the State of Minnesota; the United States federal government or the Canadian government, as applicable; or any Participating Entity. Supplier certifies and warrants that neither it nor its principals have been convicted of a criminal offense related to the subject matter of this Contract. Supplier further warrants that it will provide immediate written notice to Sourcewell if this certification changes at any time.

21. PROVISIONS FOR NON-UNITED STATES FEDERAL ENTITY PROCUREMENTS UNDER UNITED STATES FEDERAL AWARDS OR OTHER AWARDS

Intentionally omitted.

22. CANCELLATION

Sourcewell or Supplier may cancel this Contract at any time, with or without cause, upon 60 days' written notice to the other party. However, Sourcewell may cancel this Contract immediately upon discovery of a material defect in any certification made in Supplier's Proposal. Cancellation of this Contract does not relieve either party of financial, product, or service obligations incurred or accrued prior to cancellation.

Sourcewell

DocuSigned by:
By: Jeremy Schwartz
C0FD2A139D06489...
Jeremy Schwartz
Title: Chief Procurement Officer

Date: 5/5/2023 | 9:41 AM CDT

Approved:

DocuSigned by:
By: Chad Coauette
7E42B8F817A64CC...
Chad Coauette
Title: Executive Director/CEO

Date: 5/24/2023 | 12:16 PM CDT

Caterpillar Inc.

DocuSigned by:
By: Patrick Kearns
68A87926721B4E0...
Patrick Kearns
Title: Vice President Sales & Marketing, Construction Industries

Date: 5/24/2023 | 9:13 AM PDT

Caterpillar: Confidential Green

RFP 011723 - Heavy Construction Equipment with Related Attachments and Technology

Vendor Details

Company Name:	Caterpillar Inc
Address:	100 NE Adams St Peoria, IL 61629
Contact:	Sean Egel
Email:	egel_sean_j@cat.com
Phone:	309-675-1399
HST#:	

Submission Details

Created On:	Tuesday November 15, 2022 14:22:18
Submitted On:	Tuesday January 17, 2023 16:10:22
Submitted By:	Sean Egel
Email:	egel_sean_j@cat.com
Transaction #:	aeaa61ae-0c73-4610-8208-b80e2e0b4448
Submitter's IP Address:	192.189.129.23

Specifications

Table 1: Proposer Identity & Authorized Representatives

General Instructions (applies to all Tables) Sourcewell prefers a brief but thorough response to each question. Do not merely attach additional documents to your response without also providing a substantive response. Do not leave answers blank; respond “N/A” if the question does not apply to you (preferably with an explanation).

Line Item	Question	Response *	
1	Proposer Legal Name (one legal entity only): (In the event of award, will execute the resulting contract as "Supplier")	Caterpillar Inc.	*
2	Identify all subsidiary entities of the Proposer whose equipment, products, or services are included in the Proposal.	N/A	*
3	Identify all applicable assumed names or DBA names of the Proposer or Proposer's subsidiaries in Line 1 or Line 2 above.	N/A	*
4	Provide your CAGE code or Unique Entity Identifier (SAM):	11083	*
5	Proposer Physical Address:	5212 N O'Connor Blvd Ste. 1100, Irving, TX 75039	*
6	Proposer website address (or addresses):	https://www.caterpillar.com/, https://www.cat.com/en_US.html	*
7	Proposer's Authorized Representative (name, title, address, email address & phone) (The representative must have authority to sign the “Proposer’s Assurance of Compliance” on behalf of the Proposer and, in the event of award, will be expected to execute the resulting contract):	Primary Contact: Patrick Kearns Title: Vice President Sales & Marketing Address: 100 NE Adams St, Peoria, IL 61629 Email: Kearns_Patrick@Cat.Com Phone: (309) 675-5181	*
8	Proposer's primary contact for this proposal (name, title, address, email address & phone):	Primary Contact: Sean Egel Title: Governmental Sales Consultant Address: 100 NE Adams St, Peoria, IL 61629 Email: Egel_Sean_J@Cat.Com Phone: (309) 675-1399	*
9	Proposer's other contacts for this proposal, if any (name, title, address, email address & phone):	Primary Contact: Marta Sevilla Title: Governmental Marketing Manager Address: 100 NE Adams St, Peoria, IL 61629 Email: Sevilla_Marta_E@Cat.com Phone: (309) 578-1150	

Table 2: Company Information and Financial Strength

Line Item	Question	Response *	

10	Provide a brief history of your company, including your company's core values, business philosophy, and industry longevity related to the requested equipment, products or services.	The history of Caterpillar is all about doing: creating, building, problem solving, innovating, testing, servicing and improving. We're proud of the ingenious machines that are part of our rich heritage. More importantly, we are proud of the people who founded and built the company one breakthrough at a time. Beginning with Benjamin Holt and C. L. Best, the people of Caterpillar have always been - and continue to be - extraordinary. In 1925, when Holt and Best merged to form their new tractor company, they used the name so familiar to people around the world: Caterpillar. The Caterpillar Tractor Company is today known as Caterpillar Inc. With 2021 sales and revenues of $51.0 billion, Caterpillar Inc. is the world's leading manufacturer of construction and mining equipment, off-highway diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. For nearly 100 years, we've been helping customers build a better, more sustainable world and are committed and contributing to a reduced-carbon future. Our innovative products and services, backed by our global dealer network, provide exceptional value that helps customers succeed. Caterpillar does business on every continent, principally operating through three primary segments – Construction Industries, Resource Industries and Energy & Transportation – and providing financing and related services through our Financial Products segment. Our Worldwide Code of Conduct, first published in 1974, defines what we stand for and believe in, documenting the uncompromisingly high ethical standards our company has upheld since its founding in 1925. The Code helps Caterpillar employees put our values and principles into action every day by providing detailed guidance on the behaviors and actions that support our values of Integrity, Excellence, Teamwork, Commitment and Sustainability. Caterpillar's Code of Conduct that can be found at https://www.caterpillar.com/en/company/code-of-conduct.html	*
11	What are your company's expectations in the event of an award?	Caterpillar is honored to have served Sourcewell and its members who have purchased Cat® construction equipment, attachments (work tools), and electrical power generation products through Sourcewell since 2008. Furthermore, we are proud to have earned the Sourcewell Legacy Award in 2019, and have recently been awarded contracts 060122-CAT and 092222-CAT. Caterpillar's expectations in the event of an award would be to focus on customer needs and continued growth across all governmental segments. Sourcewell has built a strong reputation within the industry that has shown the importance of how this cooperative contract delivers upon customer needs. This contract will be a top factor in our go to market strategy within our strong Cat dealer network. If awarded, we will send out an email to our entire sales force, applicable to governmental, introducing the contract along with ways to train our salesforce, market, and grow the contract. We look forward to the opportunity to further grow business and serve member needs together in this new Heavy Construction Equipment RFP opportunity.	*
12	Demonstrate your financial strength and stability with meaningful data. This could include such items as financial statements, SEC filings, credit and bond ratings, letters of credit, and detailed reference letters. Upload supporting documents (as applicable) in the document upload section of your response.	Caterpillar Inc. is a publicly traded company, and as such, its financial information is updated quarterly and available at: https://investors.caterpillar.com/overview/default.aspx Caterpillar's 2021 Annual Report provides details about our financial position. Our SEC filing documents can be found at: https://investors.caterpillar.com/financials/sec-filings/default.aspx. Both documents are included as attachments in our Financial Strength and Stability Documents. As 2022 results are yet to be released, below you can find a summary of our full year 2021 financials. In 2021 full year sales and revenues were $51B of which, North American sales were $22B. Operating profit was $6.9B with a profit per share of USD $11.83. Dividends paid per share of USD $4.28.	*
13	What is your US market share for the solutions that you are proposing?	Caterpillar is a significant contributor to the overall Heavy Equipment sector within the US and Canada. Market share information beyond what is made publicly available through our annual reports is considered confidential.	*
14	What is your Canadian market share for the solutions that you are proposing?	Caterpillar is a significant contributor to the overall Heavy Equipment sector within the US and Canada. Market share information beyond what is made publicly available through our annual reports is considered confidential.	*
15	Has your business ever petitioned for bankruptcy protection? If so, explain in detail.	No.	*

16	How is your organization best described: is it a manufacturer, a distributor/dealer/reseller, or a service provider? Answer whichever question (either a) or b) just below) best applies to your organization. a) If your company is best described as a distributor/dealer/reseller (or similar entity), provide your written authorization to act as a distributor/dealer/reseller for the manufacturer of the products proposed in this RFP. If applicable, is your dealer network independent or company owned? b) If your company is best described as a manufacturer or service provider, describe your relationship with your sales and service force and with your dealer network in delivering the products and services proposed in this RFP. Are these individuals your employees, or the employees of a third party?	Caterpillar is a world class manufacturer which distributes products through a vast and capable independent dealer network. Our dealers are strong independently owned companies and in North America alone our 47 dealers have a combined net worth of billions of dollars. Their large valuation is a competitive advantage because it allows them to have the infrastructure to support customers regardless of location, industry, fleet size, or application. Another advantage of independently owned dealers is that they know their customers and market well. They tailor their services specifically to their customers' needs. Although we will sign this contract as a manufacturer, our Cat dealers will be given the opportunity to avail themselves of the opportunity presented by the contract and will execute all the transactions with governmental customers as they do today. This includes but is not limited to consultation, quoting, accepting payment, delivery, warranty support, parts sales, and service. Caterpillar dealers heartily embrace the other Sourcewell contracts currently available to them (032119-CAT, 092222-CAT, 062320-CAT, 060122-CAT). They have all been trained on contract usage. In fact, the current Heavy Equipment contract is leveraged by 95% of our dealers in North America. Caterpillar offers specific discounts to Sourcewell members. By using any Sourcewell Contract, our dealers agree to honor those discounts.	*
17	If applicable, provide a detailed explanation outlining the licenses and certifications that are both required to be held, and actually held, by your organization (including third parties and subcontractors that you use) in pursuit of the business contemplated by this RFP.	Caterpillar and its subsidiaries operate across the globe in a variety of markets that require Caterpillar to adhere to all locally mandated laws and regulations in order to do business. With regards to the territories covered by this RFP, Caterpillar will comply with applicable laws in order to do business in the territories described herein. As an equipment manufacturer focused on quality, Caterpillar created the Caterpillar Quality Management System, which is a process-based, ISO 9001:2015 compliant quality management system used throughout Caterpillar to continually improve the quality of our products and services to meet customer, statutory, and regulatory requirements. It is registered with IRCA (International Register of Certificated Auditors) as Caterpillar Quality Management System CAT791A.	*
18	Provide all “Suspension or Debarment” information that has applied to your organization during the past ten years.	N/A	*

Table 3: Industry Recognition & Marketplace Success

Line Item	Question	Response *	

19	Describe any relevant industry awards or recognition that your company has received in the past five years	Please note: To list all the awards received in the past 5 years would unnecessarily lengthen our response. For brevity, we are highlighting some recognition received in 2020, 2021 and 2022. Also note there are many global awards. Fortune Magazine #78 on the Fortune 500 2021 Fortune Magazine World's Most Admired Companies World & North America Dow Jones Sustainability Index Forbes Best Employers for diversity 2020 and 2021 #82 Best Global Brands- Interbrand 2021 The Wall Street Journal Best Managed Companies in 2020 and 2021 The Wall Street Journal World's Most Sustainably Managed Companies Human Rights Campaign Foundation Corporate Equality Index Dow Jones Sustainability Index (World and North America) 21 years World's Most Sustainably Managed Companies – The Wall Street Journal United Way World Wide's Global Corporate Leadership Program U.S. President's Volunteer Service Award from Junior Achievement Corporate Equality Index – Human Rights Campaign Foundation CSR China Top 100 – the 4th CSR China Education Award (China) China CSR Excellence Award – China Philanthropy Times (China) Corporate Social Responsibility Research Center of Southern Weekly (China) Outstanding Contribution to Poverty Alleviation – China Foundation for Poverty Alleviation (China) 2020 Global 500 – Fortune Magazine America's Most Responsible Companies 2020, 2021 & 2022 – Newsweek Best-Managed Companies of 2020 & 2021 – The Wall Street Journal Top Companies for Customer Satisfaction – The Wall Street Journal The CEO Leaderboard: COVID-19 Reputation Rankings – SJR All-America Executive Team – Institutional Investor Top 150 Global Licensors – Global License Best Global Brands Top 100 – Interbrand World's Most Valuable Brands 2020 – Forbes 2020 Best Places to Work for Disability Inclusion – Disability Equality Index World's Best Employers 2020 – Forbes Best Employers for Women 2020 – Forbes America's Best Employers by State 2020 – Forbes America's Best Employers for Diversity 2020 – Forbes Best Employers for New Grads 2020 – Forbes Global 2000 – Forbes 2020, 2021 & 2022 Best Employers for Veterans 2020 and 2021– Forbes Top Veteran-Friendly Company – U.S. Veterans Magazine #1 Great Place to Work – Great Place to Work Institute (Brazil) #1 Great Place to Work in the Ag Business - Great Place to Work Institute (Brazil) Chile's 20 Best Places in 2020 to Work for LGBTQ Equality, pwc Human Rights Campaign Top of Mind Company "Industry category" (Piracicaba, Brazil) Certification on Promoting Work-Life Balance in Hyogo Prefecture – Hyogo Work and Life Center (Japan) Hyogo's Women's Success in Business Promotion Company – Hyogo Women Empowerment & Promotion Center (Japan) Hanada Award for WIN Akashi – Hyogo Women and Future Association (Japan) Hyogo Childcare Supporting Company Award (Japan) Science & Technology Industry Summit: Outstanding Contribution – The Economic Observer (China)	*
20	What percentage of your sales are to the governmental sector in the past three years	The governmental and educational sector is extremely important to Caterpillar. We have a dedicated team to support governmental customers and their specific needs. However, percentage of sales to governmental is considered confidential.	*
21	What percentage of your sales are to the education sector in the past three years	The governmental and educational sector is extremely important to Caterpillar. We have a dedicated team to support governmental customers, including the education sector, and their specific needs. However, percentage of sales to education is considered confidential.	*
22	List any state, provincial, or cooperative purchasing contracts that you hold. What is the annual sales volume for each of these contracts over the past three years?	While Cat dealers would typically hold contracts with states and provinces, as an exception Caterpillar holds the state contract with Ohio and NY. Additionally, we are contract holders with OMNIA and NASPO ValuePoint. Just as we would never share Sourcewell sales information with other cooperatives, we also keep the sales volumes from other cooperatives confidential.	*

23	List any GSA contracts or Standing Offers and Supply Arrangements (SOSA) that you hold. What is the annual sales volume for each of these contracts over the past three years?	Listed below are the current GSA contracts that Caterpillar holds: SIN 333924 Utility Trucks and Tractors: 2020=$6,857,211 2021=$14,071,364 SIN 333120 Street Repair and Cleaning Equipment and Attachments: 2020=$0 / 2021=$143,837 SIN 335999 Power Distribution Equipment: 2020=$151,267.70 / 2021=$9,473.07 These contracts are used by Caterpillar, but we do not allow our dealers to use GSA contracts. Final sales for the year 2022 have yet to be fully reported.	*

Table 4: References/Testimonials

Line Item 24. Supply reference information from three customers who are eligible to be Sourcewell participating entities.

Entity Name *	Contact Name *	Phone Number *	
Baltimore County, MD	Jamie Donahue	410-952-6981	*
Washington DC Fleet	Greg Harrelson	202-437-3799	*
Town of Scituate Mass.	Kevin Cafferty	781-545-8732	*

Table 5: Top Five Government or Education Customers

Line Item 25. Provide a list of your top five government, education, or non-profit customers (entity name is optional), including entity type, the state or province the entity is located in, scope of the project(s), size of transaction(s), and dollar volumes from the past three years.

Entity Name	Entity Type *	State / Province *	Scope of Work *	Size of Transactions *	Dollar Volume Past Three Years *	
Virginia Department of Transportation - Central	Government	Virginia - VA	State Department of Transportation for Virginia. Caterpillar requests that Sourcewell treat the information in this table as confidential.	Purchased 41 units.	$12,321,972	*
State of Idaho	Government	Idaho - ID	State of Idaho. Caterpillar requests that Sourcewell treat the information in this table as confidential.	Purchased 39 units.	$10,304,218	*
Alaska Department of Transportation	Government	Alaska - AK	State Department of Transportation for Alaska. Caterpillar requests that Sourcewell treat the information in this table as confidential.	Purchased 37 units.	$12,176,875	*
Arkansas State	Government	Arkansas - AR	State of Arkansas. Caterpillar requests that Sourcewell treat the information in this table as confidential.	Purchased 28 units.	$10,053,000	*
Suwannee County	Government	Florida - FL	A county local to Florida. Caterpillar requests that Sourcewell treat the information in this table as confidential.	Purchased 26 units.	$6,567,420	*

Table 6: Ability to Sell and Deliver Service

Describe your company's capability to meet the needs of Sourcewell participating entities across the US and Canada, as applicable. Your response should address in detail at least the following areas: locations of your network of sales and service providers, the number of workers (full-time equivalents) involved in each sector, whether these workers are your direct employees (or employees of a third party), and any overlap between the sales and service functions.

Line Item	Question	Response *	

26	Sales force.	The Cat dealer salesforce is highly capable and trained in the construction industry. The Cat dealer salespeople are consultants to their customers and advise their customers on the best solutions for their application and job. As a manufacturer we request our dealers to follow strict training protocols to ensure our sales force remains current on all product updates. Specifically, as it relates to governmental sales, each dealer has one or more people named to be a key liaison between us as manufacturer and their dealer sales team. They're offered additional in depth training on Sourcewell and ensures that all contract terms are followed. Caterpillar has Operational Excellence Programs that recognize dealers' excellence in marketing and sales processes and operations, among other areas of the business. In North America, our dealers employ more than 53,000 people across the machine, energy, parts and service divisions. The dealer sales teams are supported by a network of Caterpillar professionals. Each dealer has in territory support of 5 to 8 Caterpillar sales/marketing employees. It is the responsibility of these people to ensure that the dealer and Caterpillar are working well together to constantly improve and to adapt to marketplace changes. Beyond the territory experts, the sales and marketing department at Caterpillar is staffed by more than 600 people whose mission is to focus on customer satisfaction. Even more are employed "behind-the scenes" to ensure industry leading product design, up to date product information, and maintaining the ease of doing business in an increasingly connected marketplace.	*
27	Dealer network or other distribution methods.	The Cat dealer network is key to the success of our company. Boasting over 160 dealers throughout 193 countries worldwide, the Cat dealer network is widely considered to be the best in industry. Within Canada and the United States, we have 47 dealers and more than 800 dealer owned locations that sell and rent equipment. Please refer to our directory listing of Cat dealer locations and our easy to view locations map in the attached "Additional Documents" zip file. Cat dealers are independently-owned. Each dealer has multiple branches and a mobile service fleet than can serve customers regardless of location. These are full physical locations our governmental customers can use. Because of the size of Cat dealers, they are exceptionally capable to serve governmental customers. Dealers have trained specialists that cover many industries including heavy equipment. Collectively, Cat dealers' large net worth permits them to stock a high volume of replacement parts - allowing governmental customers the fastest turnaround on parts availability and repair time. Cat dealers recognize the importance of governmental business to their overall success and they each have one or more governmental specialists whose job it is to serve governmental agencies well. Please refer to the Cat dealer locations map included in "Additional Documents". Additionally, you can leverage https://www.cat.com/en_US/support/dealer-locator.html to locate dealers by location.	*

28	Service force.	At Caterpillar we are very proud of the saying "The sales department sells the first machine; the service department sells every one after that." The Cat dealer network in North America collectively employs more than 20,000 factory trained technicians, parts experts, product support managers and other service-oriented staff. These subject matter experts are supported by the best repair shop equipment and materials. As machines and engines are constantly updated, so too are our service experts. We conduct product-specific training every week of the year. Technician shortage is an industry-wide concern, but because Cat dealers are large, long established companies, they can offer strong compensation and benefit packages that encourage the best people to seek employment and to retain them once hired. Caterpillar works very closely with dealers and through a program called "ThinkBIG", we are able to keep the pipeline of high quality employees full. ThinkBIG is a Caterpillar-specific instructional program that pays the student while they train to become a technician. It is a 2-year program with lab and classroom work, and a paid internship at a sponsoring Cat Dealer. As a result, the student will graduate with an accredited degree backed with over 2,000 hours of work experience. In addition to the technicians and mechanics that work on the machines directly, each dealer has a service support staff that includes customer-facing consultants who are responsible for working with customers to set up maintenance and repair schedules to ensure the best possible up-time. Collectively, service support staff makes up the bulk of each dealers' staff. Roughly half of their personnel investment goes to ensuring customer success via product support. The dealer service teams are supported by a network of Caterpillar professionals. Each dealer has in territory support of 5 to 8 Caterpillar parts/service employees. It is the responsibility of these specialists to ensure that the dealer and Caterpillar are working well together to constantly improve and to adapt to marketplace changes. Beyond the territory experts, the service and support groups at Caterpillar are staffed by thousands of people whose mission is to focus on post-sale customer satisfaction. Even more are employed "behind-the-scenes" to ensure technical literature is up to date, service standards are adhere to and repair questions are answered quickly. We exceed our 95% 2-hour response rate target in responding to dealer service inquiries.	*
29	Describe the ordering process. If orders will be handled by distributors, dealers or others, explain the respective roles of the Proposer and others.	Our simple order process has been and will continue to be well appreciated by Sourcewell and Sourcewell members: 1) When a member decides to purchase a new Cat machine, they simply include their Sourcewell member number on the Purchase Order they issue to the Cat dealer. 2) The Cat dealer then accepts the PO, issues the invoice, accepts payment and delivers the machine. 3) After the machine has been delivered, the dealer, as part of their normal process, includes the member number when filing their sales claims with Caterpillar. 4) At month's end, Caterpillar aggregates these reports and sends the sales information quarterly to Sourcewell along with the administrative fee. IMPORTANT NOTE: Should a member wish to include additional terms and conditions to this contract, or to otherwise request a Participating Addendum, that agreement / PA should be executed between the member and Cat dealer directly.	*

30	Describe in detail the process and procedure of your customer service program, if applicable. Include your response-time capabilities and commitments, as well as any incentives that help your providers meet your stated service goals or promises.	We are proud that our reputation stands on having the best customer support in the industry. In fact, our capabilities are industry leading. In the event a customer ever has a problem or issue with a machine, their Cat dealer is empowered to resolve that issue locally. If the problem is a result of a defect in material or workmanship, within the standard warranty period, the local Cat dealer will work with Caterpillar to apply the appropriate warranty, and keep the customer informed. Every Cat dealer has a common detailed service process in place. Caterpillar supports and verifies that all the dealer service technicians are supplied with the tools and equipment needed to repair all Cat products. Technicians have access to an electronic library of technical information including Service Letters, Technical Information Bulletins, System Operations, Troubleshooting and Disassembly and Assembly manuals. These manuals are provided for every Cat product. Each dealer also has one or more "Technical Communicators" who are dedicated to supporting the service technicians by acting as a liaison between the shop personnel and Caterpillar. The service technicians also have a dealer support network (DSN) system with direct access to Caterpillar's Service Engineers. Caterpillar responds to more than 95% of all high priority tickets within one hour. Caterpillar is got everything customers need to keep their Cat machines in top shape. Whether they want Genuine Cat parts, manuals and resources to do maintenance and repairs themselves, or prefer to have one of our expert dealer technicians do the work. We make it easy to keep their Cat equipment running. Some of our service solutions include: -Cat Fleet Management (Condition Monitoring) - Lowers the total cost of ownership of machine. By connecting your fleet, you will be able to: track the location of your assets, monitor & manage the fuel consumption, identify the operators who would need extra training, and plan & schedule your maintenance. All of which will maximize your uptime. -Customer Value Agreements (CVA) - Customizable plans for your equipment new or used - to do more work with lower, more predictable costs. It's a convenient plan to get the most from your equipment throughout its life. Examples of CVAs may include but are not limited to: Maintenance CVAs, Component CVAs, and Machine CVAs. -S•O•S SM Services - A fluid analysis program that provides results that you can trust including trend analysis that provides benefit to your machine and fleet. -Cat Inspect - A digital way to perform checklists, pre-work inspections, annual inspections and PM checklists. All of which can be captured in the easy to use app.	*
31	Describe your ability and willingness to provide your products and services to Sourcewell participating entities in the United States.	We are proud to serve all geographic areas and all Sourcewell member sectors within the United States to offer our complete products and services. Caterpillar has successfully and proudly utilized Sourcewell to sell machines in all 50 states. Caterpillar's global reach and presence is unmatched in the industry, and we serve customers around the globe. Our manufacturing, marketing, logistics, services, research and development and related facilities, along with our dealer locations, total more than 500 locations worldwide. North America specifically is home to 47 factories and 10 parts distribution centers, which make up 40% of our global footprint! The Caterpillar parts network delivers 98% of the parts orders within 24 hours. In addition to our facilities listed above, Cat Parts are available through the Cat dealer network in at different price points, including: Cat New, Cat General Duty and Cat Reman. The Cat dealer network also have the capability to provide dealer exchange components, dealer rebuilt components and used parts when available. Each dealer can match the appropriate parts offering to match the customers application and productivity. For example, Cat dealers offer Cat factory remanufactured parts (Cat reman) to follow the same quality, performance, and reliability as Cat new parts. This product line provides the same as new parts warranty, includes critical engineering changes, reduces waste, and protects the environment and saves critical repair time on machines. Cat reman also uses 100% Cat parts in the remanufacture process. Our 1.4 million parts are available to order 24/7 on Parts.Cat.Com.	*

32	Describe your ability and willingness to provide your products and services to Sourcewell participating entities in Canada.	We are serve all geographic areas and all Canoe member sectors within Canada with our complete product and service offerings. In fact, we see the Canadian market as a significant growth opportunity for Canoe through Sourcewell contract usage. We have gained momentum with our current contract 032119-CAT in Canada. Caterpillar's global reach and presence is unmatched in the industry, and we serve customers around the globe. Our manufacturing, marketing, logistics, services, research and development and related facilities, along with our dealer locations, total more than 500 locations worldwide. North America specifically is home to 47 factories and 10 parts distribution centers, which make up 40% of our global footprint! The Caterpillar parts network delivers 98% of the parts orders within 24 hours. In addition to our facilities listed above, Cat Parts are available through the Cat dealer network in at different price points, including: Cat New, Cat General Duty and Cat Reman. The Cat dealer network also have the capability to provide dealer exchange components, dealer rebuilt components and used parts when available. Each dealer can match the appropriate parts offering to match the customers application and productivity. For example, Cat® dealers offer Cat® factory remanufactured parts (Cat reman) to follow the same quality, performance, and reliability as Cat new parts. This product line provides the same as new parts warranty, includes critical engineering changes, reduces waste, and protects the environment and saves critical repair time on machines. Cat reman also uses 100% Cat parts in the remanufacture process. Our 1.4 million parts are available to order 24/7 on Parts.Cat.Com.	*
33	Identify any geographic areas of the United States or Canada that you will NOT be fully serving through the proposed contract.	We are proud to serve all geographic areas of the United States and Canada.	*
34	Identify any Sourcewell participating entity sectors (i.e., government, education, not-for-profit) that you will NOT be fully serving through the proposed contract. Explain in detail. For example, does your company have only a regional presence, or do other cooperative purchasing contracts limit your ability to promote another contract?	We are proud to serve all Sourcewell Member sectors within the United States and Canada with our complete product and service offering through Sourcewell. Caterpillar's cooperative purchasing contracts are non-exclusive; i.e. none of them restrict Caterpillar from promoting our Sourcewell contracts.	*
35	Define any specific contract requirements or restrictions that would apply to our participating entities in Hawaii and Alaska and in US Territories.	There are no restrictions or limitations for sales to members in Hawaii, Alaska or U.S. Territories.	*

Table 7: Marketing Plan

Line Item	Question	Response *	
36	Describe your marketing strategy for promoting this contract opportunity. Upload representative samples of your marketing materials (if applicable) in the document upload section of your response.	Our current marketing strategy with Sourcewell contract 032119-CAT proves to be effective with year over year sales growth. Our primary strategy to promote this contract with participating entities is through our Cat dealers' sales force. We provide group and individual training to our dealer sales reps, focusing on benefits from selling through cooperative contracts vs bids. We proudly announce the award publicly through our multiple customer facing touchpoints which may include: 1) Press Release 2) Government Solutions Magazine (Caterpillar produced magazine distributed to governmental customers in the US and Canada) 3) Government Training & Safety Days (Government customer training events at Caterpillar facilities) 4) Announcement in our governmental customer e-newsletter 5) Feature on our governmental focused website: www.cat.com/governmental 6) Announcement on our social media channels (FB, Instagram, LinkedIn) 7) Display mentions at all governmental tradeshows we attend. (NACE Annual Conference, APWA Snow Show, Waste EXPO, GFX, NIGP Annual Forum & Products Expo, and APWA PWX & Annual Roadeo) 8) Update literature with the new contact information. (An updated version can be found within our attached marketing plan attachment.)	*
37	Describe your use of technology and digital data (e.g., social media, metadata usage) to enhance marketing effectiveness.	Caterpillar and the Cat dealer network are leaders in using technologies to reach our customers. - Focus on organic search and Search Engine Optimization (SEO) to help our customers digitally find our products and the information they need. - Leverage Caterpillar's social media platforms (YouTube, Facebook, LinkedIn, Instagram, etc) and ability to target governmental segments. - Leverage predictive data analytics (past purchase history and financing information) to recognize in advance when customers may be considering replacing machines they currently own. - Leverage Deltek's GovWIN data in the US and Canada for governmental lead generation. Caterpillar has a Customer Interaction Center available 24/7 who handles digital leads received from cat.com, social media, etc. Our team qualifies those leads and passes them on to our Cat Dealer network using the Salesforce platform (Customer Relationship Management system). We have processes that allows us to confirm our Cat dealers have reached out to those customers.	*
38	In your view, what is Sourcewell's role in promoting contracts arising out of this RFP? How will you integrate a Sourcewell-awarded contract into your sales process?	Sourcewell is a well-respected contracting agency within the public procurement industry. It is important, in the event of an award, that our products and logos be included in Sourcewell marketing and website. We believe that the most important role that Sourcewell can play in marketing our contract and products, is to market themselves and promote contract purchasing across the industry. In the event of an award, Caterpillar will put high priority in building awareness and enthusiasm within our dealer network and customer base to leverage the Sourcewell contract as our go to market strategy.	*
39	Are your products or services available through an e-procurement ordering process? If so, describe your e-procurement system and how governmental and educational customers have used it.	We do offer a e-procurement ordering process for parts via parts.cat.com. We can also integrate into a variety of procurement systems for high volume customers. Our wide machine portfolio and multiple configurations per machine model allows us to provide the best machine for the customer need. Our Cat dealers are trained to configure our equipment and advise the customer on the best machine and configuration for their application. Therefore, a consultative salesperson is integral in this process, and we do not use an e-procurement machine ordering process.	*

Table 8: Value-Added Attributes

Line Item	Question	Response *	

40	Describe any product, equipment, maintenance, or operator training programs that you offer to Sourcewell participating entities. Include details, such as whether training is standard or optional, who provides training, and any costs that apply.	All dealers offer basic operation, safety, and maintenance training with every sale. Should a customer desire more advanced training, such as productivity improvement or advanced repairs, each of our dealers can supply that training. Often there is a cost associated with that specific training and it would be negotiated between the dealer and the customer. Caterpillar also offers training programs directly to customers in three areas: operation, safety and service. Members may access courses online, via CD's, or through instructor-led classes leading to operator certifications. The fees for these services vary depending on the depth of training desired. These high-level instruct-led courses can be conducted at one of our dedicated training facilities in the US or on a customer's local site using their own equipment. Caterpillar also has a licensed supplier that offers Cat Simulators to teach operational techniques from real job sites. For more information visit: https://catsimulators.com/	*

41	Describe any technological advances that your proposed products or services offer.	Cat technology gives you the power to track, monitor, automate and manage all types of assets- from a single machine, engine, to an entire fleet. We even offer technologies that protect your people. Listed below are a few technology offerings (standard and optional) that are used throughout the world in our Cat equipment. Next Generation Excavators: Cat Vision Link - Delivering valuable data with connected machine. Cat Payload - Precisely load targets every time for faster cycle times. Cat Skid Steer and Compact Track Loaders: Electronic Torque Management System - Helps maximize performance, minimize fuel consumption. Sealed and Pressurized Cabs - Provides a cleaner, quieter work environment. Cat Backhoe Loaders: Selectable Power Management Modes - Saves fuel while maintaining machine performance. Load-Sensing Hydraulic System - Provides excellent response for improved hoe and loader productivity and greater bucket breakout force. Cat Tractors: Stable Blade - Produces a smoother surface finish. Autocarry - Automatic raising and lowering of blade to maximize pushing capacity and prevent excessive track slippage. Cat Wheel Loaders: Operator Assist - Helps the operator reduce tire slippage, automatic rimpull management and provides up to 10% better cycle time resulting in higher productivity. Autodig - consistent high bucket fill factors delivers up to 10% more productivity. Cat Off Highway Trucks: Adaptive Economy Mode - Automatically optimizes fuel consumption without affecting productivity just pressing a button. Truck Production Management System (TPMS) - Weighting system with side indicator lights showing the operator when they are on last pass and when the truck is fully loaded. Cat Articulated Trucks: Advanced Automatic Traction Control (AATC) - Technology that proactively applies inter- and cross-axle differential locks ‘on-the-go’ when needed without assistance from operator's interaction. Cat Detect with Stability Assist - Warns the operator if machine is approaching a pre-set angle during operation, when driving and tipping. Machine/Operator Safety Technology: Machine Security System - Gives you control over who can operate your machines and when. Prevents theft. Seat Belt Reminder - Cost effective safety upgrade that significantly improves operator safety. Cat Detect for Personnel - Alert ground crews in close proximity to mobile equipment. Cat® Detect for Personnel sounds an immediate, unique alert that cuts through the white noise of engines, generators, cell phones and job site chatter to protect ground workers from equipment backing incidents. Cat Command - Remote control in operations where an operator could be at safety risk. Whether you're looking to add technology to your current machine, or want new ways to get more value out of the technology on your equipment, we have options for you.	*

42	Describe any “green” initiatives that relate to your company or to your products or services, and include a list of the certifying agency for each.	Caterpillar shares the concerns of governments and the public about the risks of climate change and supports global efforts to mitigate its impact. We are committed to contributing to a reduced-carbon future. We demonstrate this in many ways including through our significant progress in reducing greenhouse gas (GHG) emissions from our operations and our continued investment in new products, technologies and services. Caterpillar is engineering a brighter future through: - Product innovations - Advanced technologies leveraging know-how and R&D - Usage of renewable fuels and fluids - Solutions to improve jobsite efficiency - Maintenance solutions - Manufacturing operations’ carbon efficiency Caterpillar's long-standing commitment to sustainability inspires us to set and achieve meaningful environmental, social and governance (ESG) goals and develop innovative products, technologies and services to support our customers on their sustainability journey. Caterpillar is fully committed to our customers’ success by not only the design and manufacture of durable, reliable, innovative and rebuildable construction equipment, but also through our extensive and unmatched dealer network that provides you the best service and support to keep your equipment running, regardless of the environment or challenges. We consider this as we work toward a vision of a world in which people's basic needs - such as shelter, clean water, education, and reliable energy - are fulfilled. We provide work environments, products, services, and solutions that make productive and efficient use of resources as we strive to achieve our vision. We believe this commitment supports the enduring success of our customers, stockholders, dealers, and our people. Caterpillar is a proud 20-year member of the Dow Jones Sustainability Indices, including both the World and North America Indices. The annuals DJSI process follows a best-in-class approach, evaluating numerous corporate economic, environmental, and social performance factors. For more on sustainability please visit our full report attached in the Financial and Stability attachment section.	*
43	Identify any third-party issued eco-labels, ratings or certifications that your company has received for the equipment or products included in your Proposal related to energy efficiency or conservation, life-cycle design (cradle-to-cradle), or other green/sustainability factors.	Plants certified with IDO 14001:2004 Environmental Management System include: 1) Anchor Coupling - Goldsboro NC, ISO 14001:2004- Sept 2018 2) Anchor Coupling - Menominee - ISO 14001: 2015 - Jan. 2021 3) Gen Sets - Newberry 0 ISO 14001:2004 - Nov. 2017 4) Mapleton - 14001:2004 self-certification issued Jan 2013 5) Reman Services - Corinth MS - ISO 14001-2015- Sept. 2021 6) Reman Services - Franklin - ISO 14001:2004-May 2017	*

44	Describe any Women or Minority Business Entity (WMBE), Small Business Entity (SBE), or veteran owned business certifications that your company or hub partners have obtained. Upload documentation of certification (as applicable) in the document upload section of your response.	Caterpillar has long drawn on the diversity of its people as a source of innovation and competitive advantage. We are proud that our people come from across the globe, with diverse backgrounds, experiences and perspectives. Despite our differences – in geography, culture, language and business – we are one Caterpillar, one company united by these common principles with a shared commitment to the highest standards of conduct. For example: Foley Equipment, a Cat® dealer, with territory primarily in Kansas and Missouri, is woman owned. In addition to Foley equipment, there are 31 other women in our North American dealer network who hold the titles of President, Vice President or Director. One of the more recognized initiatives within Caterpillar's Global Supply Network Division is the Caterpillar Inc. Proprietary Information Supplier Diversity Program which spurs economic growth by increasing business opportunities to minority-owned, women-owned, veteran and service disabled veteran-owned, small disadvantaged businesses and those certified in HUBZones, all while ensuring expectations are met with regards to quality, velocity, capacity, and cost. Currently more than 37% of our direct and indirect purchasing is conducted with suppliers in these categories. Caterpillar is a proud member of the National Minority Supplier Development Council (NMSDC). We also use the System for Aware Management (SAM), SBA, and NMSDC databases to locate SDB, VOSB, SDVOSB and HUBZone suppliers. Supplier Diversity is discussed with Global Supply Network Division leadership during the Monthly Operating Results Review meetings. This in turn forces accountability for supplier inclusion by measuring drivers, such as the number of sourcing projects, which include Divers Suppliers and the values of the projects in which they participate. The goal is to create greater transparency to determine which teams are creating inclusive environments and which are not. For more detail, please see our attached 2021 Global Diversity & Inclusion Report in the Additional Documents folder.	*

45	What unique attributes does your company, your products, or your services offer to Sourcewell participating entities? What makes your proposed solutions unique in your industry as it applies to Sourcewell participating entities?	BEST OVERALL VALUE / LOWEST LIFE CYCLE COST: Cat products deliver the best value for the money. While we rarely have the lowest initial purchase price, we are happy to demonstrate to customers that our machines offer the lowest overall owning and operating costs when factors such as fuel efficiency, repair frequency, productivity, and resale value are factored in. We believe that government agencies are tasked to be the best stewards of taxpayer funds and our products can prove that they are the best solution. Sourcewell members are in the best position to allow these discussions to take place in contrast to a local bid situation where the focus is often only on initial price. CAT SAFETY SERVICES / SAFETY FEATURES: In addition to the tangible, measurable aspects of the life cycle cost equation, we also bring our focus on safety to every product that we manufacture. Quantifying a human life or debilitating injury is impossible, but each machine has industry-leading features that strive to minimize the possibility for accidents. In addition to built-in safety features, we also offer products and services that are unique in the industry. Cat Safety Services include, but are not limited to, the following: Safety Perception Survey - Used to establish a baseline safety-culture assessment by measuring employee perceptions and gaps in beliefs between management and employees on the front line across 20 Safety Culture Indicators. Safety Leadership Assessment - Used to measure individual safety leadership capability around four domains of safety leadership. Worksite Assessment - Compares onsite observations of safety practices and employee interview data to the documented processes and procedures. Continuous Improvement Process - Involving all levels of the organization to generate engagement, involvement, and ownership in the safety improvement process. Training - can be conducted with e-learning courses on http://safelyhome.cat.com, instructor-led training products or as Supplier-facilitated workshops. Topics available include, but are not limited to, safety culture, effective communication, supervisor safety training, recognition, etc. Fleet Management & Services through Caterpillar Job Site Solutions: We leverage the power of Caterpillar and our dealers by designing innovative solutions that solve customer problems and that have a positive impact on their bottom line. We approach each site differently, striving to deliver exactly what's needed — no more, no less. Every solution includes a unique mix of Caterpillar and dealer capabilities using industry best products, technology, services and expertise necessary to meet the customer's definition of success. The goal is to leave customers better off tomorrow than they are today. Details on products and services are available at www.cat.com/safety. More information can be found in the additional document section. Pricing can be found in the pricing document section.	*

Table 9: Warranty

Describe in detail your manufacturer warranty program, including conditions and requirements to qualify, claims procedure, and overall structure. You may upload representative samples of your warranty materials (if applicable) in the document upload section of your response in addition to responding to the questions below.

Line Item	Question	Response *	
46	Do your warranties cover all products, parts, and labor?	Caterpillar has extensive warranty coverage. Please see our warranty statements attached in the warranty information documents.	*
47	Do your warranties impose usage restrictions or other limitations that adversely affect coverage?	Please see applicable warranty statements in the attached documents.	*
48	Do your warranties cover the expense of technicians' travel time and mileage to perform warranty repairs?	Caterpillar does not cover travel time and mileage. Dealer territories vary considerably from state to state as do their policies about travel time and mileage during the warranty period.	*
49	Are there any geographic regions of the United States or Canada (as applicable) for which you cannot provide a certified technician to perform warranty repairs? How will Sourcewell participating entities in these regions be provided service for warranty repair?	One of our key differentiating strengths is our ability to service equipment regardless of where it is located. Please see applicable warranty statements in the attached documents.	*
50	Will you cover warranty service for items made by other manufacturers that are part of your proposal, or are these warranties issues typically passed on to the original equipment manufacturer?	Warranty service for machines ordered from a Caterpillar facility are generally provided by Caterpillar and performed by Cat dealers. Some items, such as tires, are covered under their manufacturers' warranties.	*
51	What are your proposed exchange and return programs and policies?	Please see applicable warranty statements in the attached documents.	*
52	Describe any service contract options for the items included in your proposal.	We have a large variety of service contract options which can all be customized according to customer needs. Below are just two examples. More solutions are available and we encourage members and dealers to explore all options. 1) Equipment Protection Plans (EPP): After the initial warranty period ends, members may choose to purchase additional protection plans to reduce their exposure to unplanned costs. These policies are written based on months and hours of operation. There are four standard levels of coverage: 1) Powertrain 2) Powertrain + Hydraulics 3) Powertrain + Hydraulics + Technology 4) Premier A description of all these options is included in the attached Equipment Protection Plans document. EPP can be purchased at the same time as the machine purchase, or anytime before the standard warranty expires. 2) Customer Value Agreements (CVA's): A member may choose to enter into an agreement with their Cat dealer to perform routine maintenance and/or repairs. These contracts are customizable based on member needs. The selling Cat dealer can take responsibility for some or all the required service and maintenance needs to allow the agency to gain efficiency by focusing on the performance demands more than maintenance. CVA's are a useful tool to manage expenses. CVAs can be purchased at the same time as the machine purchase, or anytime after. Cat Financial also offers CVAs, which can be performed by Cat dealers in the United States, and are particularly helpful for customers who move their machine fleet to multiple locations which may have different servicing Cat dealers.	*

Table 10: Payment Terms and Financing Options

Line Item	Question	Response *	
53	Describe your payment terms and accepted payment methods.	Cat dealers are independently owned businesses. As such their payment terms and accepted payment methods vary, but all will be stated on individual invoices. The most common terms are net 30.	*
54	Describe any leasing or financing options available for use by educational or governmental entities.	We offer both leasing and financing options to governmental members of Sourcewell at rates lower than available to the general public. Caterpillar has its own financing arm, Cat Financial. Cat Financial was founded in 1981 and serves Cat customers and dealers. With over 1,900 employees, Cat Financial is active in more than 40 countries covering more than 148,000 customers worldwide. Cat Financial offers you a complete solution for your acquisition needs: - Equipment & Attachments - Parts - Service - Rebuilds Financial products are aligned and customized with the project and work site requirements such as operating lease, loan or finance lease. Find more information from Cat Financial here: https://www.cat.com/en_US/support/financing-protection.html	*
55	Describe any standard transaction documents that you propose to use in connection with an awarded contract (order forms, terms and conditions, service level agreements, etc.). Upload a sample of each (as applicable) in the document upload section of your response.	Cat dealers are independently owned businesses. As such their standard transaction documents will vary.	*
56	Do you accept the P-card procurement and payment process? If so, is there any additional cost to Sourcewell participating entities for using this process?	Because Cat dealers will be receiving payments directly from members, accepting P-card procurement will be at their discretion. Many dealers do accept this method without additional fees. Some have limitations on the amount that can be processed.	*

Table 11: Pricing and Delivery

Provide detailed pricing information in the questions that follow below. Keep in mind that reasonable price and product adjustments can be made during the term of an awarded Contract as described in the RFP, the template Contract, and the Sourcewell Price and Product Change Request Form.

Line Item	Question	Response *	
57	Describe your pricing model (e.g., line-item discounts or product-category discounts). Provide detailed pricing data (including standard or list pricing and the Sourcewell discounted price) on all of the items that you want Sourcewell to consider as part of your RFP response. If applicable, provide a SKU for each item in your proposal. Upload your pricing materials (if applicable) in the document upload section of your response.	We offer a deep list discount off the current Caterpillar machine and work tool list prices to all Sourcewell members. We have provided base machine list pricing in the document pricing section. Base machines must be properly configured with other mandatory and optional items from the price list before they are considered operational. For the execution of the agreement we will ask our Cat dealer and Sourcewell member to use the Caterpillar price list that is current at the time of the quote. Dealers, in consultation with the member, will configure the machine to the desired specifications and apply the stated list discount to that configured list price amount. Dealer and members should remember to factor in any expected price increases if a machine will be built to order. The pricing document, in the applicable pricing document attachment section, shows the list discount offered for each new machine. Additionally, we are pleased to offer a list discount of 15% off all products and consulting services under Cat Safety Services.	*
58	Quantify the pricing discount represented by the pricing proposal in this response. For example, if the pricing in your response represents a percentage discount from MSRP or list, state the percentage or percentage range.	Pricing in this proposal is a percentage discount from list on current machine and work tools list prices. Our discount range varies between 3 - 34% off of the list price depending on the product family or model.	*
59	Describe any quantity or volume discounts or rebate programs that you offer.	Our dealers are empowered to consider purchase order volume, repeat purchases, etc. They may offer members additional discounts and /or services at their discretion.	*
60	Propose a method of facilitating “sourced” products or related services, which may be referred to as “open market” items or “nonstandard options”. For example, you may supply such items “at cost” or “at cost plus a percentage,” or you may supply a quote for each such request.	Sourced goods / Open Market Items are available to members from Cat dealers. The prices for these good or services will represent fair marketing value and will be determined between the member and the selling dealer. We encourage our dealers and members to use these options as it facilitates complimentary products and streamlines the procurement process. Customers and dealers are responsible for including their Sourcewell member numbers on all documentation related to these purchases. Caterpillar Inc. is not a party to these sales and is exempted from including them in quarterly reports. For audits, inclusion of a customer's Sourcewell member number on the PO and /or invoice shall be deemed sufficient.	*
61	Identify any element of the total cost of acquisition that is NOT included in the pricing submitted with your response. This includes all additional charges associated with a purchase that are not directly identified as freight or shipping charges. For example, list costs for items like pre-delivery inspection, installation, set up, mandatory training, or initial inspection. Identify any parties that impose such costs and their relationship to the Proposer.	Machines are unique in their requirements for preparation prior to use. Some may require local final assembly due to their large size others may have locally installed options (fire suppression, beacons, auto lube systems for example). When a dealer issues a quote for a machine, any dealer costs (like pre-delivery inspection, installation, set up, training, etc.) will be itemized separately and are not subject to the Caterpillar list discount for Sourcewell members.	*
62	If freight, delivery, or shipping is an additional cost to the Sourcewell participating entity, describe in detail the complete freight, shipping, and delivery program.	There is no additional cost to members who choose to pick up their machines from the Cat dealer. Dealers may charge fees for delivery to the Sourcewell member's location.	*
63	Specifically describe freight, shipping, and delivery terms or programs available for Alaska, Hawaii, Canada, or any offshore delivery.	Just as for members in the 48 contiguous states, there is no additional cost to members who choose to pick up their machine from their Cat dealer. Dealers may charge fees for delivery to the Sourcewell members' location.	*
64	Describe any unique distribution and/or delivery methods or options offered in your proposal.	Machines are large purchases and if there are unique Sourcewell member requirements our dealers will be happy to discuss on a case by case basis.	*

Table 12: Pricing Offered

Line Item	The Pricing Offered in this Proposal is: *	Comments
65	b. the same as the Proposer typically offers to GPOs, cooperative procurement organizations, or state purchasing departments.	Caterpillar wants to provide the governmental customer the best list discount possible to allow them to be good stewards of tax-payers funds. We want our governmental customers to have the ability to choose which cooperative contract better fits their needs.

Table 13: Audit and Administrative Fee

Line Item	Question	Response *	
66	Specifically describe any self-audit process or program that you plan to employ to verify compliance with your proposed Contract with Sourcewell. This process includes ensuring that Sourcewell participating entities obtain the proper pricing, that the Vendor reports all sales under the Contract each quarter, and that the Vendor remits the proper administrative fee to Sourcewell. Provide sufficient detail to support your ability to report quarterly sales to Sourcewell as described in the Contract template.	We plan to continue our very robust process to ensure reporting speed, accuracy, and contract compliance. Caterpillar and our Cat dealers have very close and trusting relationships. Our dealers are long-established, and the current process (under contract #032119-CAT) is working well. 1) To ensure pricing accuracy, we maintain our current Sourcewell customer discount sheet on our dealer facing pricing pages. Dealers integrate these numbers automatically in their quoting software. 2) To ensure new machines and work tool sales are recorded properly, we use our post-sale credit system. In a nutshell, this means that we corporately support the pricing offered in this contract at a level below what's available to other customers. To receive this additional monetary support after the machine is delivered, dealers must supply the member's name, address, and member number. There is no additional burden or cost to our dealers to use the Sourcewell contract and this is part of the reason for their high engagement and our high reporting accuracy. 3) At month end, we gather the new machine and work tool sales data attributed to Sourcewell and aggregate it for our reporting. 4) After quarter end, we will send the quarterly sales report and administration fee payment to Sourcewell for all items that are subject to the administrative fee.	*
67	If you are awarded a contract, provide a few examples of internal metrics that will be tracked to measure whether you are having success with the contract.	We regularly track the % of sales that are sold using a cooperative contract. We will continue this practice if we are awarded a contract for RFP 011723.	*
68	Identify a proposed administrative fee that you will pay to Sourcewell for facilitating, managing, and promoting the Sourcewell Contract in the event that you are awarded a Contract. This fee is typically calculated as a percentage of Vendor's sales under the Contract or as a per-unit fee; it is not a line-item addition to the Member's cost of goods. (See the RFP and template Contract for additional details.)	Per amendment #1 to Contract #032119-CAT, we will be pleased to offer an administrative fee of 0.33% of Caterpillar's list price for each piece of new equipment and serialized work tools purchased by Sourcewell's Participating Entities. Caterpillar will pay this fee and will not ask dealers or members to pay the fee.	*

Table 14A: Depth and Breadth of Offered Equipment Products and Services

Line Item	Question	Response *	
69	Provide a detailed description of the equipment, products, and services that you are offering in your proposal.	The Cat equipment product line, consisting of more than 300 machines, sets the standard for our industry. We plan to help you meet your needs with our equipment, with our distribution and product support system, and the continual introduction and updating of products. Caterpillar is pleased to offer a wide variety of products for Sourcewell members. Excluding paving products, equipment and services awarded on 060122-CAT these include: - Cat Backhoe Loaders (9 models offered) - Cat Compact Track Loader/Skid Steer Loader (14 models offered) - Cat Track/Wheel Hydraulic Excavators (41 models offered) - Cat Motor Graders (7 models offered) - Cat Telehandlers (8 models offered) - Cat Track Loaders (3 models offered) - Cat Track/Wheel Dozers (15 models offered) - Cat Wheel Loaders (19 models offered) - Cat Wheel Tractor Scrapers (7 models offered) - Cat Articulated Trucks (5 models offered) - Cat Rigid Frame Trucks (2 models offered) - Cat Material Handlers (3 models offered) - Cat Landfill Compactors (3 models offered) - Product offerings by model and discount can be found in the pricing attachment within the applicable proposal pricing section. Services and support include: - Cat Attachments (Worktools) - Cat Technology - Cat Safety Services - Cat Job Site Solutions - Product offerings by model and discount can be found in the pricing attachment within the applicable proposal pricing section. - Services and support brochures can be found in the additional documents section by name of offering. For more detailed information on each of these products/offerings see the following website: https://www.cat.com/en_US.html	*
70	Within this RFP category there may be subcategories of solutions. List subcategory titles that best describe your products and services.	N/A	*

Table 148: Depth and 8readth of Offered Equipment Products and Services

Indicate below if the listed types or classes of equipment, products, and services are offered within your proposal. Provide additional comments in the text box provided, as necessary.

Line Item	Categor\ or T\pe	Offered	Comments
71	Wheeled, tracked, and backhoe loaders	(•) Yes ( ) No	Manufactured by Caterpillar. Offerings listed in applicable pricing attachment section.
7	Motor Graders	(•) Yes ( ) No	Manufactured by Caterpillar. Offerings listed in applicable pricing attachment section.
73	Wheeled and tracked excavators	(•) Yes ( ) No	Manufactured by Caterpillar. Offerings listed in applicable pricing attachment section.
74	Bulldozers, compactors, scapers, articulated and rigid haulers	(•) Yes ( ) No	Manufactured by Caterpillar. Offerings listed in applicable pricing attachment section.
75	Cranes	( ) Yes (•) No	NIA
76	Accessories or attachments for the offering in #71-75 above	(•) Yes ( ) No	Manufactured by Caterpillar. Offerings listed in applicable pricing attachment section.
77	Technology or services for the offering in #71-75 above	(•) Yes ( ) No	Manufactured or offered by Caterpillar. Offerings listed in applicable pricing attachment section.

Table 14C: Required Offering of Equipment

Indicate below if the proposer's proposal includes at least one (1) of the following listed types or classes of equipment. Provide additional comments in the text box provided, as necessary.

Line Item	Categor\ or T\pe	Offered	Comments
78	Wheel loader with published net horsepower (HP) of at least 300 HP	(•) Yes ( ) No	Manufactured by Caterpillar. Offerings listed in applicable pricing attachment section.
79	Wheeled or tracked excavator with a published net horsepower (HP) of at least 150 HP	(•) Yes ( ) No	Manufactured by Caterpillar. Offerings listed in applicable pricing attachment section.
80	Motor Grader with a published maximum operating weight of at least 30,000 lbs.	(•) Yes ( ) No	Manufactured by Caterpillar. Offerings listed in applicable pricing attachment section.
81	Rough terrain, all terrain, crawler, floating, lattice, or telescopic crane with a published maximum lifting capacity of at least 300 tons and a published maximum boom length of at least 150 feet	( ) Yes (•) No	NIA

Exceptions to Terms, Conditions, or Specifications Form

Only those Proposer Exceptions to Terms, Conditions, or Specifications that have been accepted by Sourcewell have been incorporated into the contract text.

Documents

Ensure your submission document(s) conforms to the following:

1. Documents in PDF format are preferred. Documents in Word, Excel, or compatible formats may also be provided.

2. Documents should NOT have a security password, as Sourcewell may not be able to open the file. It is your sole responsibility to ensure that the uploaded document(s) are not either defective, corrupted or blank and that the documents can be opened and viewed by Sourcewell.

3. Sourcewell may reject any response where any document(s) cannot be opened and viewed by Sourcewell.

4. If you need to upload more than one (1) document for a single item, you should combine the documents into one zipped file. If the zipped file contains more than one (1) document, ensure each document is named, in relation to the submission format item responding to. For example, if responding to the Marketing Plan category save the document as "Marketing Plan."

- Pricing - Machine Pricing.zip - Tuesday January 17, 2023 15:29:45
- Financial Strength and Stability - Fin Strength and Stability.zip - Tuesday January 17, 2023 10:31:16
- Marketing PlanISamples - Marketing Plan.pdf - Tuesday January 17, 2023 14:53:49
- WMBEIMBEISBE or Related Certificates (optional)
- Warranty Information - Warranty Combined.pdf - Monday January 16, 2023 10:36:31
- Standard Transaction Document Samples (optional)
- Upload Additional Document - Additional Documents.zip - Tuesday January 17, 2023 16:05:29

Addenda, Terms and Conditions

PROPOSER AFFIDAVIT AND ASSURANCE OF COMPLIANCE

I certify that I am the authorized representative of the Proposer submitting the foregoing Proposal with the legal authority to bind the Proposer to this Affidavit and Assurance of Compliance:

1. The Proposer is submitting this Proposal under its full and complete legal name, and the Proposer legally exists in good standing in the jurisdiction of its residence.

2. The Proposer warrants that the information provided in this Proposal is true, correct, and reliable for purposes of evaluation for contract award.

3. The Proposer, including any person assisting with the creation of this Proposal, has arrived at this Proposal independently and the Proposal has been created without colluding with any other person, company, or parties that have or will submit a proposal under this solicitation; and the Proposal has in all respects been created fairly without any fraud or dishonesty. The Proposer has not directly or indirectly entered into any agreement or arrangement with any person or business in an effort to influence any part of this solicitation or operations of a resulting contract; and the Proposer has not taken any action in restraint of free trade or competitiveness in connection with this solicitation. Additionally, if Proposer has worked with a consultant on the Proposal, the consultant (an individual or a company) has not assisted any other entity that has submitted or will submit a proposal for this solicitation.

4. To the best of its knowledge and belief, and except as otherwise disclosed in the Proposal, there are no relevant facts or circumstances which could give rise to an organizational conflict of interest. An organizational conflict of interest exists when a vendor has an unfair competitive advantage or the vendor's objectivity in performing the contract is, or might be, impaired.

5. The contents of the Proposal have not been communicated by the Proposer or its employees or agents to any person not an employee or legally authorized agent of the Proposer and will not be communicated to any such persons prior to Due Date of this solicitation.

6. If awarded a contract, the Proposer will provide to Sourcewell Participating Entities the equipment, products, and services in accordance with the terms, conditions, and scope of a resulting contract.

7. The Proposer possesses, or will possess before delivering any equipment, products, or services, all applicable licenses or certifications necessary to deliver such equipment, products, or services under any resulting contract.

8. The Proposer agrees to deliver equipment, products, and services through valid contracts, purchase orders, or means that are acceptable to Sourcewell Members. Unless otherwise agreed to, the Proposer must provide only new and first-quality products and related services to Sourcewell Members under an awarded Contract.

9. The Proposer will comply with all applicable provisions of federal, state, and local laws, regulations, rules, and orders.

10. The Proposer understands that Sourcewell will reject RFP proposals that are marked "confidential" (or "nonpublic," etc.), either substantially or in their entirety. Under Minnesota Statutes Section 13.591, subdivision 4, all proposals are considered nonpublic data until the evaluation is complete and a Contract is awarded. At that point, proposals become public data. Minnesota Statutes Section 13.37 permits only certain narrowly defined data to be considered a "trade secret," and thus nonpublic data under Minnesota's Data Practices Act.

11. Proposer its employees, agents, and subcontractors are not:
    1. Included on the "Specially Designated Nationals and Blocked Persons" list maintained by the Office of Foreign Assets Control of the United States Department of the Treasury found at: https://www.treasury.gov/ofac/downloads/sdnlist.pdf;

    2. Included on the government-wide exclusions lists in the United States System for Award Management found at: https://sam.gov/SAM/; or

    3. Presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from programs operated

by the State of Minnesota; the United States federal government or the Canadian government, as applicable; or any Participating Entity. Vendor certifies and warrants that neither it nor its principals have been convicted of a criminal offense related to the subject matter of this solicitation.

☑ By checking this box I acknowledge that I am bound by the terms of the Proposer's Affidavit, have the legal authority to submit this Proposal on behalf of the Proposer, and that this electronic acknowledgment has the same legal effect, validity, and enforceability as if I had hand signed the Proposal. This signature will not be denied such legal effect, validity, or enforceability solely because an electronic signature or electronic record was used in its formation. - Sean Egel, Sales Support Consultant, Caterpillar Inc.

The Proposer declares that there is an actual or potential Conflict of Interest relating to the preparation of its submission, and/or the Proposer foresees an actual or potential Conflict of Interest in performing the contractual obligations contemplated in the bid.

○ **Yes** ◉ **No**

The Bidder acknowledges and agrees that the addendum/addenda below form part of the Bid Document.

Check the box in the column "**I have reviewed this addendum"** below to acknowledge each of the addenda.

File Name	I have reviewed the below addendum and attachments (if applicable)	Pages
Addendum_5_Heavy_Construction_Equipment_RFP_011723 Tue January 10 2023 08:47 AM	☑	1
Addendum_4_Heavy_Construction_Equipment_RFP_011723 Fri January 6 2023 09:51 AM	☑	2
Addendum_3_Heavy_Construction_Equipment_RFP_011723 Thu December 29 2022 12:33 PM	☑	2
Addendum_2_Heavy_Construction_Equipment_RFP_011723 Wed December 21 2022 01:49 PM	☑	1
Addendum_1_Heavy_Construction_Equipment_RFP 011723 Thu December 15 2022 09:27 AM	☑	1

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

SOURCEWELL TRADEMARK LICENSE ADDENDUM

This Addendum is by and between **SOURCEWELL**, 202 – 12th Street NE, PO Box 219, Staples, Minnesota 56479 ("Sourcewell") and **Caterpillar Inc.**, having its principal place of business at 5212 N. O'Connor Blvd., Suite 1100, Irving, TX 75039, and offices at 100 NE Adams Street, Peoria, Illinois, 61629 ("Caterpillar" or "Vendor"). Sourcewell and Caterpillar may be referred to in this Agreement as a "Party" and collectively as the "Parties."

The Parties maintain a contractual relationship for Vendor to provide equipment, products, or services to Sourcewell's cooperative purchasing contracts as follows:

Sourcewell Contract 011723 – CAT (Solicitation Number: 011723)

Sourcewell and Vendor each own all right, title, and interest in their respective names, trademarks, service marks, related logos, and all other rights in the names, designs, likenesses and visual representations thereof ("Licensed Trademarks"), and desire to grant each other a royalty-free license to use certain Licensed Trademarks owned by the other Party under the terms and conditions set forth herein.

ARTICLE I: GRANT OF LICENSE

A. GRANT OF LICENSE. During the term of the Contract:

1. Sourcewell grants to Vendor a royalty-free, worldwide, non-exclusive right and license to use Sourcewell's Licensed Trademarks provided to Vendor by Sourcewell in advertising and promotional materials for the purpose of marketing Sourcewell's relationship with Vendor.

2. Vendor grants to Sourcewell a royalty-free, worldwide (except for those jurisdictions that are prohibited by applicable Anti-Corruption and International Trade Laws), non-exclusive right and license to use Vendor's Licensed Trademarks provided to Sourcewell by Vendor in advertising and promotional materials for the purpose of marketing Vendor's relationship with Sourcewell.

"Anti-Corruption and International Trade Laws" means all statutes, regulations, rules, executive orders, supervisory requirements, directives, ordinances, circulars, opinions, interpretive letters, and official releases of or by any government, or any authority, department or agency thereof or self-regulatory organization related to bribery, fraud, corruption, or international trade.

3. The Parties agree that each is the owner of all rights, including without limitation common law rights and goodwill, in relation to their respective Licensed Trademarks, and that any goodwill derived from the use of Licensed Trademarks by the other Party shall inure to the owner of the respective Licensed Trademarks.

B. LIMITED RIGHT OF SUBLICENSE. The rights and licenses granted herein includes a limited right of each Party to grant sublicenses to its and their respective distributors, marketing representatives, and agents (collectively "Permitted Sublicensees") in advertising and promotional materials for the purpose of marketing the Contract. Any sublicense granted will be subject to the terms and conditions of this Addendum. Each Party will be responsible for any breach of this Article by any of their respective sublicensees.

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

C. USE; QUALITY CONTROL.

1. Neither Party may alter the other Party's Licensed Trademarks from the form provided by the other Party and must comply with the other Party's removal requests as to specific uses of its Licensed Trademarks.

2. Each Party agrees to use, and to cause its Permitted Sublicensees to use, the other Party's Licensed Trademarks only in good faith and in a dignified manner consistent with such Party's use of the Licensed Trademarks. Upon written notice to the breaching Party, the breaching Party or their Permitted Sublicensees have thirty (30) days of the date of the written notice to cure the breach or the license will be terminated.

3. Beyond what is permitted in this Addendum, neither Party will:

a. attempt to register, or register any trademark, service mark, symbol, logo, get-up or device which is confusingly similar to any of the other Party's Licensed Trademarks in any jurisdiction;

b. represent that it has any rights of any nature in the Licensed Trademarks other than those enjoyed under the terms of this Agreement;

c. use the other Party's trademarks, service marks or copyrights, translations thereof or marks similar thereto, as part of its corporate name, trade name or a d/b/a name, favicons, social media names/handles, email addresses, email extensions, or domain names without prior written approval from the other Party; or

d. use the other Party's trade names, trademarks, or service marks on any collateral business materials (e.g., business cards, letterhead, invoices, pens, notepads, fax cover sheets, etc.), unless otherwise approved in writing by the other Party.

ARTICLE II: TERM, TERMINATION, AND MISCELLANEOUS.

A. EFFECTIVE DATE. This Addendum is effective upon the date of the final signature below.

B. TERMINATION. Unless earlier terminated in accordance with this Article, this Addendum expires immediately upon the expiration or termination of the Contract.

1. *Termination for Convenience*. This Addendum may be terminated by either Party at any time upon ninety (90) days' prior written notice to the other Party.

2. *Termination for Breach*. This Addendum may be terminated by either Party upon a breach of the terms of this Addendum by the other Party, upon written notice of breach to the breaching Party, and only if such breach is not cured within thirty (30) days of the date of the written notice.

3. *Effect of Termination*. Upon the termination of this Addendum for any reason, each Party will have thirty (30) days to, and require its Permitted Sublicensees to, remove all Licensed Trademarks from signage, websites, and the like bearing the other Party's name or logo

DocuSign Envelope ID: 9AA872AA-9802-4A6D-8065-BECD9EB74C88

(excepting Sourcewell's pre-printed catalog of vendors which may be used until the next printing). Vendor must return all marketing and promotional materials, including signage, provided by Sourcewell, or dispose of it according to Sourcewell's written directions.

4. Miscellaneous. The terms and conditions of this Addendum shall have no effect on the terms and conditions of any other trademark licenses signed by the Parties.

All other terms of the Contract remain in full force and effect, unless otherwise terminated.

SOURCEWELL	Caterpillar Inc.
DocuSigned by: Jeremy Schwartz C0FD2A139D06489...	DocuSigned by: Patrick Kearns 68A87926721B4E0...
By:	By:
Name: Jeremy Schwartz	Name: Patrick Kearns
Title: Director of Operations and Procurement/CPO	Title: Vice President Sales & Marketing - North America
Date: 5/24/2023 | 2:45 PM CDT	Date: 5/24/2023 | 12:48 PM PDT

2025 Sourcewell Caterpillar Cooperative Contract Discounts by Model

Machine Model*	New Equipment
2025	Discount to Customer (Off List Price)
Track Type Tractors	
D1	23.00%
D1 Fire Dozer	23.00%
D2	23.00%
D2 Fire Dozer	23.00%
D3	23.00%
D3 Fire Dozer	23.00%
D4	23.00%
D5	23.00%
D5 Fire Dozer	23.00%
D6	23.00%
D7	19.00%
D8	19.00%
D9	One Time Only
D10	One Time Only
Wheeled Excavators	
M314	26.00%
M315	26.00%
M316	26.00%
M317	26.00%
M318	26.00%
M320	26.00%
M322	26.00%
Material Handlers	
MH3022	26.00%
MH3024	26.00%
MH3026	26.00%
MH3040	26.00%
MH3050	26.00%
MH3250	26.00%
MH3260	26.00%
Telehandlers	
TH255	23.00%
TH408	24.00%
TL642	24.00%
TL943	24.00%
TL1055	24.00%
TL1255	24.00%
Motor Graders	
120	34.00%
120GC	34.00%
140	30.00%
140GC	30.00%
150	30.00%
160	30.00%
14	19.00%
Skid Steer Loaders	
226	21.00%
232	21.00%
236	21.00%
242	21.00%
246	21.00%
250	21.00%
260	21.00%
262	21.00%
270	21.00%
272	21.00%
Compact Track Loaders	
239	21.00%
249	21.00%
255	21.00%
259	21.00%
265	21.00%
275	21.00%
279	21.00%
285	21.00%
289	21.00%
299	21.00%
299XE Land Management	21.00%

Note

Base machines must be properly configured with other mandatory and optional items from the price list before they are considered operational.
All new machines are subject to a commodity surcharge of up to 20% (In some cases, increased tire costs may cause this number to be greater)
All new attachments (CAT work tools) are subject to a commodity surcharge of up to 25%
Dealer costs (example: pre delivery inspection, assembly, freight to final location, etc.) are not subject to list discount
Attachments (CAT work tools) purchased with new machine on same invoice are subject to same list discount as machine
Non-Attached CAT OEM Work Tools are attachments sold on a standalone order without a machine purchase
Parts and Service is offered by the servicing dealer at local rates

Machine Model*	New Equipment
2025	Discount to Customer (Off List Price)
Excavators	
300.9	20.00%
301.5	20.00%
301.7	20.00%
301.8	20.00%
301.9	20.00%
302	20.00%
302.7	20.00%
303	20.00%
303.5	20.00%
304	20.00%
305	20.00%
306	20.00%
307.5	20.00%
308	20.00%
309	20.00%
310	20.00%
313	15.00%
313GC	16.00%
315	19.00%
315GC	20.00%
317	19.00%
317GC	20.00%
320	15.00%
320GC	16.00%
323	15.00%
325	15.00%
326	15.00%
330	15.00%
330GC	16.00%
335	15.00%
336	15.00%
340	16.00%
350	10.00%
352	10.00%
374	10.00%
395	10.00%
Forest Machines	
538	15.00%
548	15.00%
558	15.00%
568	15.00%
Backhoe Loaders	
415	22.00%
416	22.00%
420	22.00%
428 Side Shift	22.00%
430	22.00%
432 Side Shift	22.00%
434 Side Shift	22.00%
440	22.00%
450	22.00%
Wheel Tractor Scrapers	
621	18.00%
623	18.00%
627	18.00%
631	18.00%
637	18.00%
651	18.00%
657	18.00%
Articulated Trucks	
725	17.00%
730	17.00%
735	17.00%
740GC	17.00%
745	17.00%
Rigid Frame Trucks	
770	3.00%
773	3.00%
775	3.00%
Landfill Compactors	
816	12.00%
826	12.00%
836	12.00%
Wheel Dozers and Soil Compactors	
814	15.00%
815	13.00%
824	15.00%
825	13.00%
834	One Time Only

Machine Model*	New Equipment
2025	Discount to Customer (Off List Price)
Wheel Loaders	
903	23.00%
906	23.00%
907	23.00%
908	23.00%
910	23.00%
914	23.00%
920	24.00%
926	24.00%
930	24.00%
938	24.00%
950GC	20.00%
950	18.00%
962	18.00%
966GC	20.00%
966	15.00%
972	11.00%
980	11.00%
982	11.00%
988	11.00%
988GC	11.00%
Track Loaders	
953	19.00%
963	22.00%
973	23.00%
Non-Attached CAT OEM Worktools	15.00%
Parts & Service	N/A
Technology Solutions	N/A
Caterpillar Safety Services	15.00%
Job Site Solutions	N/A

Purchase Order with Quinn Company for One Caterpillar 950 Wheel Loader for the Environmental Resources Division

Public Works and Transportation Committee
May 26, 2026

Nicole Riley
Environmental Resources Manager

CITY OF OXNARD CALIFORNIA

RECOMMENDATION

That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute a Purchase Order with Quinn Company in an amount not to exceed $573,818.15 for the purchase of one new Caterpillar Inc. Model 950 Wheel Loader, utilizing the Sourcewell cooperative purchasing agreement (#011723-CAT), for use by the Environmental Resources Division.

BACKGROUND

- The City of Oxnard Environmental Resources Division (ER) provides municipal solid waste (MSW) collection and processing services, including garbage, recyclable materials, and organic waste to approximately 41,077 customer accounts as of April 2026.

- The Division processes approximately 297,000 tons of material annually, including refuse, recyclables, and organic waste streams that must be received, sorted, and transferred six days a week.

- To support these daily operations, the Division relies on heavy-duty equipment, including wheel loaders, to perform essential functions such as unloading, stockpiling, and transporting materials. Due to the high volume of materials handled and the demanding operating conditions, this equipment experiences significant wear and must be replaced periodically.

BACKGROUND

- Wheel loaders used in solid waste environments have an expected useful life of approximately 10,000 to 15,000 hours of operation.

- Equipment (ID# 14304) has reached 23,681 hours and is operating beyond its economic life and incurring elevated maintenance costs, reduced efficiency, and increased risk of operational disruption.

- Replacement of the unit is necessary to maintain reliable service levels and support ongoing compliance with Local and State waste diversion and organics recycling requirements.

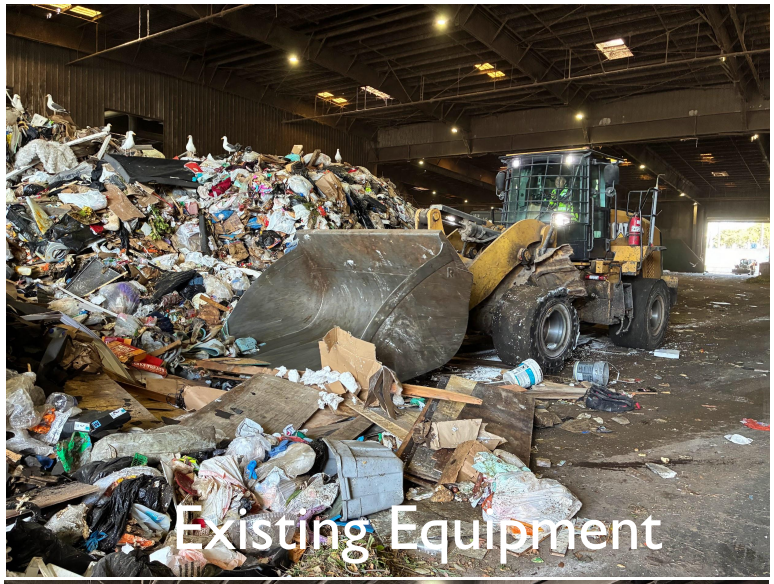
DISCUSSION

- In alignment with the 2024 ER Cost of Service Study, ER Division obtained a cooperative purchase quotation through Sourcewell from Quinn Company for the acquisition of one new 2026 Caterpillar 950 Wheel Loader to replace the existing unit (ID# 14304).

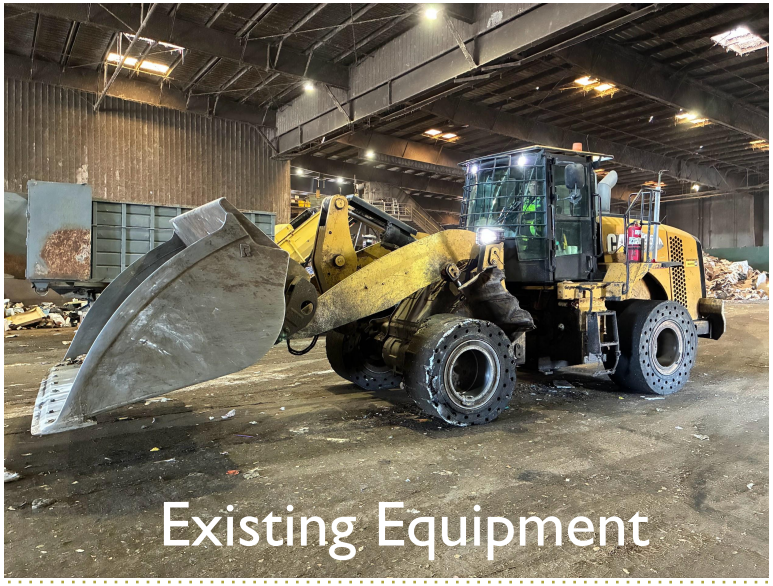
- Proposed equipment is specifically configured for solid waste operations and includes a high-lift linkage and waste handling package designed to perform efficiently in high-volume material processing environments such as the Del Norte Regional Recycling and Transfer Station.

- The quoted unit includes all standard features, along with additional enhancements designed specifically for solid waste operations, such as collision warning, surround-view cameras, rearview monitoring, a reversing fan, a trash air precleaner, a fire suppression system, and an industrial lighting package.

DISCUSSION


Existing Equipment


Existing Equipment


Existing Equipment


New Equipment

DISCUSSION

- Through the use of the Sourcewell cooperative purchasing contract (#011723-CAT), the City will receive an 18 percent discount, resulting in a net purchase price of $525,227.60, excluding taxes and fees. Including applicable sales tax, tire fees, and delivery costs, the total cost of the equipment is $573,818.15.

- The equipment includes a standard 12-month full machine warranty, along with extended coverage of 36 months or 5,000 hours for the powertrain, hydraulics, and technology components.

DISCUSSION

- City's Purchasing Policy allows for the use of governmental cooperative contracts for the purchase of goods, equipment and contractual services when the contract has been competitively bid and awarded in accordance with local, State, and Federal laws that govern public procurement. Quinn Company holds a cooperative contract with Sourcewell #011723-CAT with a current expiration date of April 14, 2027 and may be extended one additional year.
- Sourcewell offers government agencies a cooperative purchasing program that provides competitively solicited cooperative contracts and allows the City to "piggyback" on the agreement and obtain the Rentals at a discounted price.

FINANCIAL IMPACT

Total cost for the purchase of one Caterpillar 950 Wheel Loader shall not exceed $573,818.15 and will be funded through the Environmental Resources Division's adopted Fiscal Year 2025-2026 budget and also use of the Fleet Replacement Fund (742) in project C1837.

Use of the Sourcewell cooperative purchasing contract (#011723-CAT) provides a cost savings of approximately $114,525.57, or 18 percent off the list price.

CITY OF OXNARD CALIFORNIA

End of Presentation

CITY OF OXNARD CALIFORNIA

PUBLIC WORKS AND TRANSPORTATION COMMITTEE AGENDA REPORT

REPORTS
AGENDA ITEM NO. D.4

DATE: May 26, 2026

TO: Public Works and Transportation Committee

FROM: Michael Wolfe, Public Works Director, (805) 385-8055, michael.wolfe@oxnard.org

SUBJECT: Multiple Agreements for On-Call Construction Management and Inspection Services.

RECOMMENDATION

That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute the following Agreements, each with an initial term of three years from July 1, 2026, to June 30, 2029, with an option for two consecutive one-year period extensions ending June 30, 2031, for on-call construction management and inspection services:

1. Agreement 32600484 with Filippin Engineering, Inc., for a total amount not to exceed $500,000.00;
2. Agreement 32600485 with Michael K. Nunley & Associates, LLP, for a total amount not to exceed $500,000.00;
3. Agreement 32600486 with MNS Engineers, Inc. for a total amount not to exceed $500,000.00; and
4. Agreement 32600488 with Turner & Townsend Heery, LLC, for a total amount not to exceed $500,000.00.

Please click the following link to view the required Measure M pre-recorded presentation video: https://youtu.be/BZHYgn2V1jw

BACKGROUND

The Public Works Department (PW) often utilizes professional consulting firms to provide licensed and/or technical expertise to perform work that supplements City staffing resources or that provides highly specialized knowledge and experience beyond the City's in-house capabilities.

Pre-approved on-call professional service agreements reduce the amount of time necessary to procure service contractors and thus facilitate the timely completion of certain categories of CIP and other construction/engineering projects. The services covered under this request apply to projects involving public buildings, housing facilities, public works infrastructure, public parks, water and wastewater infrastructure, and other such City projects that may require professional construction management and inspection services. Examples of services to be provided include management and inspection functions such as contract management, coordination of contractor, coordination of grants, pay quantity review and approvals, field changes, technical and material inspections, responding to requests for information (RFIs), negotiating change orders, inspection of work performed, plan compliance, as-built development and approvals, and other related functions.

DISCUSSION

On November 25, 2025, the Purchasing Division issued a Request for Proposals (RFP) 26-47 for On-Call Construction Management and Inspection Services. The RFP was directly sent to 6 potential service providers and published on www.publicpurchase.com as well as the City's Purchasing website. The deadline for proposal submissions was January 22, 2026, and the City received a total of eleven proposals.

A rating and selection process of the proposals was then performed by a panel that consisted of a Senior Civil Engineer, a Senior Construction Project Manager, and a Construction Project Manager. Scoring criteria consisted of company profile, qualifications of proposed staff, relevant professional experience and performance, and overall responsiveness that best met the RFP criteria while being consistent with the City's municipal code. After a thorough review, the panel selected four firms to recommend for Agreement awards, with a determination that these vendors are the highest-ranked proposers based on the scoring criteria listed in the RFP and are consistent with the City's Purchasing Policy. The four recommended firms are:

Filippin Engineering, Inc.
Michael K. Nunley & Associates, LLP
MNS Engineers, Inc.
Turner & Townsend Heery, LLC

Following further review by the Purchasing Division, it was determined that these vendors meet all required City contractual requirements, including possession of a City business tax certificate, insurance certificates, and corporate filing with the California Secretary of State. Therefore, based upon the analysis and research performed to date, staff believes that the four recommended vendors are capable of successfully performing on-call construction management and inspection services to the City of Oxnard.

Services under these agreements will be acquired on an as-needed basis, with individual task orders issued for each identified work requirement (task). These will be issued and managed by the Project Manager (PM) assigned to the project. Once a new requirement is identified, all contractors will be provided the Task Order requirement on which to provide a proposal, if they so choose. The contractors will then submit their respective proposals, which will include a description of the scope of work to be performed, the method by which the consultant plans on completing the work, and a cost and schedule for completion. It is the consultant's responsibility to determine the best and most cost-effective method to complete the work. Once the City has received all proposals, it will review each and make a selection of the firm based on factors that include price, experience, methods, and schedule.

STRATEGIC PRIORITIES

This agenda item supports the Infrastructure and Natural Resources strategy. The purpose of the Infrastructure and Natural Resources strategy is to preserve and improve our roads, utilities, parks, trees, water supply and natural resources through effective planning, prioritization, and an equitable and efficient use of available funding.

FINANCIAL IMPACT

The total cost for each individual agreement shall not exceed $500,000 for up to five years if all options to extend are exercised. Funding for individual tasks will be sourced from projects identified in the City Council-approved CIP or, on rarer occasions, for City Divisions with non-CIP project requirements (e.g., Parks division for structures at City parks). The respective Project Manager will ensure sufficient funding is available in the approved budget for related tasks before initiating work orders or services performed. Subsequent fiscal year allocations will be requested during the annual budget process.

Prepared by: Morgan Kessler, City Engineer

ATTACHMENTS

1. Agreement 32600484
2. Agreement 32600485
3. Agreement 32600486
4. Agreement 32600488
5. Presentation

ON-CALL PROFESSIONAL SERVICES AGREEMENT
BETWEEN
THE CITY OF OXNARD AND FILIPPIN ENGINEERING, INC.

By This On-Call Professional Services Agreement ("Agreement"), the City of Oxnard ("City") agrees to engage the Services of Filippin Engineering, Inc. ("Consultant"), and Consultant agrees to perform the Services for City as herein described, for the compensation, during the term, and otherwise subject to the covenants and conditions herein set forth. City and Consultant may be individually referred to as "Party" or collectively as the "Parties."

1. [INTENTIONALLY OMITTED]

2. SUMMARY DESCRIPTION OF SERVICES.

The Services to be performed pursuant to this agreement will be limited to the particular professional services that are identified in the Scope of Services, attached hereto as Exhibit A. Consultant has been prequalified to perform the particular services required by the City and the City shall issue Task Orders describing the particular project or services required by the City to the prequalified consultants and consultants shall submit a responsive proposal to the City's Project Manager.

Consultant is not to be the exclusive provider of services to the City. The City does not guarantee a specified amount of work under this on-call agreement.

3. PARTIES.

City of Oxnard, a general law and municipal corporation of the State of California, located at 300 West Third Street, Oxnard California 93030.

Filippin Engineering, Inc. , a corporation of the State of California, located at 354 South Fairview, Suite D, Goleta, CA 93117

4. TERM OF AGREEMENT: From: July 1, 2026 To: June 30, 2029

A. Time is of the essence in this Agreement
B. The City shall have the option to exercise two (2) consecutive one-year (1) term extensions, in accordance with the scope of work and terms and conditions of this Agreement. Any price negotiations, if allowed, shall be negotiated at the time of contract extension.

C. This Agreement shall not exceed a total of five (5) years (including the initial term and any options to extend). The City in its sole discretion may exercise the option terms upon sixty (60) days written notice to the Consultant (or any other time if the parties so agree) in accordance with Section 12 of this Agreement. The option term shall be commenced by an amendment to this agreement.
D. All Services required of Consultant under this Agreement shall be completed on or before the end of the term of the Agreement.

5. AGREEMENT AMOUNT NOT TO EXCEED: $500,000.00.[1]

6. AGREEMENT EXHIBITS. The following documents memorialized below are the only exhibits to this Agreement and are incorporated by reference as though fully set forth herein. In the event of a conflict between the Exhibits and this Agreement, the Agreement controls.

Exhibit A: Scope of Services and Task Order Template
Exhibit B: Schedule of Compensation
Exhibit C: Insurance Requirements: City Insurance Exhibit INS-A
Exhibit D: [RESERVED]
Exhibit E: Living Wage Policy
Exhibit F: Prevailing Wage Policy

7. DESIGNATED REPRESENTATIVES. The Designated Representatives listed below shall be authorized to act on behalf of the named Party, be responsible for negotiations and contractual matters, and coordinate with each other to perform the Services under this Agreement. Additionally, Consultant's Services shall be performed or immediately supervised by the Consultant's Representative:

City Designated Representative	Consultant Designated Representative
Name: Abe Anbessaw Title: Engineer Division Manager Phone: 805-385-7675 Email: abebaw.anbessaw@oxnard.org Address: 305 West Third Street, Third Floor, Oxnard, CA 93030	Name Gino Filippin Title President Phone 805-729-0041 Email gino@fecivil.com Address: 354 South Fairview, Suite D Goleta, CA 93117

[1] This is not a guaranteed dollar amount. No services or work performed pursuant to a Task Order shall exceed the "Not to Exceed" Amount of the Contract or the agreed upon amount stated in the Task Order.

8. **CONTRACTUAL PREREQUISITIES.** This Agreement must first be executed by the Consultant, after which the Agreement shall be approved as to form by the City Attorney, then executed by the Mayor, or an authorized person on behalf of the City, and if executed by the Mayor shall also be executed by the City Clerk.

    A. Consultant is advised that any recommendation for Agreement award is not binding on City until the Agreement is fully executed and approved by the City.
    B. All proof of a City tax certificate, insurance, and W-9 forms is required prior to execution of this Agreement.
    C. Consultant shall not perform any work under this Agreement until a proof of insurance has been provided to the City as required under Section 24 of this Agreement.

9. **CONSULTANT'S SERVICES.**

    A. Consultant shall perform only the type or category of services as set forth in the "Scope of Services," and pursuant to the information contained in the Task Orders issued pursuant to this agreement.
    B. Task Orders may only be modified in writing by the City's Project Manager or Designated Representative.
    C. The Services issued pursuant to a Task Order shall be coordinated with the designated City Project Manager set forth in Exhibit A and are subject to the direction of the City Manager or Department Director. Consultant hereby designates as its Project Manager, the individual identified in Section 7 of this Agreement, as the person responsible for the Services who shall coordinate with City's Project Manager in executing the Scope of Services and Task Order(s) under this Agreement.
    D. Under no circumstances shall the Consultant exceed the amount stated in the City's Task Order or perform additional work or services that are not included in the Task Order

10. **COMPENSATION.** City shall pay Consultant for the Services performed pursuant to the terms of this Agreement and based on the hourly rates and fees set forth in the "Schedule of Compensation," attached to and incorporated into this Agreement as "Exhibit B." Consultant's compensation shall not to exceed amount stated in the Task Order. Under no circumstances shall the Consultant perform work in excess of the amount stated in the Task Order or the not to exceed amount listed in Section 5 of this Agreement. Once this Agreement is executed, the Schedule of Compensation

may only be modified by written Amendment pursuant to Section 13 of this Agreement, and may be subject to approval by the City Council.

A. The maximum not to exceed amount for any individual Task Order issued pursuant to this Agreement shall be $100,000.00 per Task Order.

B. Unless stated otherwise elsewhere in this document, prices shall be firm for the duration of this agreement. No price increases will be permitted during the first year of this Agreement. All price decreases (for example, if Vendor/Contractor offers lower prices to another governmental entity) will automatically be extended to the City. The City requires written proof satisfactory to the City, upon the City's acceptance, of cost increases prior to any approved price adjustment. After the first year of the award, a minimum of 60-days advance notice in writing is required to be considered and approved by the City. No retroactive price adjustments will be considered. For Contracts, any price increases must be stated in a written amendment. The net dollar amount of profit will remain firm during the period of the Agreement. Annual increases shall not exceed the Consumer Price Index- All Consumers, All Items, less food and energy – Los Angeles and be subject to satisfactory performance review by the City and approved (if needed) for budget funding by City Council.

11. PAYMENT and INVOICES. The City shall pay all undisputed portions of any applicable invoice within thirty (30) days after receipt of an invoice. In the event the City disputes one or more items in an invoice, the City shall, within thirty (30) days after receipt of such invoice, notify the Consultant of the item(s) being disputed and the reason(s) therefore. The City may withhold payment for such disputed items until resolution of the dispute.

A. **Payment Request.** Consultant shall submit a payment request to CITY by the end of each calendar month listing the Services provided, costs of those Services, and total amount due for the month. Invoices may be emailed to: **pwengineeringAP@oxnard.org .**

B. Consultant's acceptance of final payment made pursuant to this Agreement shall constitute a release of City from all claims and liabilities for compensation to Consultant for anything completed, finished or relating to the Services. City's payment shall not constitute nor be deemed a release of the responsibility and liability of Consultant for the

accuracy and competency of the information provided and/or the Services performed hereunder, nor shall such payment be deemed to be an assumption of responsibility or liability by City for any defect or error in the Services performed by Consultant and its employees, agents and subcontracted Consultants.

C. Consultant shall provide City with a completed Request for Taxpayer Identification Number and Certification, as issued by the Internal Revenue Service. If any sales tax is due for the Services performed by Consultant or materials or products provided to City by Consultant, Consultant shall pay the sales tax. City shall not reimburse Consultant for sales taxes paid by Consultant.

D. **Non-Appropriation of Funds.** Payments to be made to Consultant by City for the Services performed within the current fiscal year are within the current fiscal budget and within an available, unexhausted and unencumbered appropriation of City. In the event City does not appropriate sufficient funds for payment of the Services beyond the current fiscal year, this Agreement shall cover payment for the Services only up to the conclusion of the last fiscal year in which City appropriated sufficient funds and shall automatically terminate at that fiscal year's conclusion.

12. OPTION TO EXTEND AGREEMENT. When in the City's best interest, this Agreement may only be extended, if the City, in its discretion, exercises an option term in accordance with Section 4 subparagraphs (B) and (C) of this Agreement. The initial term, plus any option to extend shall not exceed a total of five (5) years. **If no option to extend the Agreement appears in section 4(B), then this Agreement shall not be extended.**

13. MODIFICATION OF AGREEMENT. This Agreement may be amended, modified, or otherwise altered, or its provisions waived, only upon mutual consent of the Parties by written amendment. The City may request that the Consultant perform Extra Services. As used herein, "Extra Services" means any services, which are determined by the City to be necessary for the proper completion of the project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement or any Task Order issued under this Agreement. A written amendment signed by both Parties shall be required to authorize performance of and payment for Extra Services under this Agreement or Task Order.

14. TERMINATION OF AGREEMENT. City may terminate this Agreement at any time, with or without cause and without penalty, upon fifteen (15) calendar days' prior written notice pursuant to Section 22 of this Agreement. Such termination shall be effective on the date specified in the notice, or if no date is specified, then fifteen (15) calendar days from the date of the notice. City shall be liable to Consultant only for work done by Consultant up to and including the date of termination of this Agreement unless the termination is for cause, in which event Consultant need be compensated only to the extent required by law. Consultant may terminate this Agreement at any time during the term of the Agreement by giving the City sixty (60) calendar days' prior written notice.

15. [RESERVED]

16. INDEPENDENT CONTRACTOR. Consultant is and shall at all times remain, as to City, a wholly independent contractor. Neither City nor any of its employees or agents shall have control over the conduct of Consultant or any of its employees, except as stated in this Agreement. Consultant has and shall retain the right to exercise full control over the employment, direction, means of performance, location, compensation and discharge of all persons assisting Consultant. This Agreement shall not be interpreted to prevent or preclude Consultant from rendering any Services for Consultant's own account or to any other person or entity as Consultant in its sole discretion shall determine; provided, however, that performing such Services shall not materially interfere with the Services the Consultant shall perform for the City. The City retains the right to provide general instructions to and observe the Consultant in the performance of all Services done on behalf of the City.

Consultant and its employees, subconsultants, and agents have no authority, express or implied, to act on behalf of City in any capacity, to incur any debt, obligation or liability on behalf of City, bind City in any manner, or otherwise act on behalf of City as an agent. Consultant T and its employees are not employees of City. Consultant and its employees are not entitled to receive from City any of the benefits or rights afforded employees of City, including but not limited to reserve leave, sick leave, vacation leave, holiday leave, compensatory leave, Public Employees Retirement System benefits, and health, life, dental, long-term disability and workers' compensation insurance benefits. Consultant shall not, at any time or in any manner, represent that it or any of its agents, subconsultants, or employees are in any manner agents, subconsultants, or employees of City.

17. **LAWFUL PERFORMANCE.** Consultant shall abide by all federal, state, and local laws and regulations as may be related to the performance of duties under this Agreement. Consultant, at its sole expense, shall obtain and maintain during the term of this Agreement, all appropriate permits, licenses, and certificates that may be required in connection with the performance of Services under this Agreement.

18. **SAFETY REQUIREMENTS.** Consultant shall not perform any Services for the City when the Consultant is impaired by alcohol or a controlled substance. When there is reasonable cause to believe that any person has violated this provision, that person shall be immediately removed from the premises and be subject to any applicable civil and/or criminal penalties under the City's Code and/or under state law. All work performed under this Agreement shall be performed in such a manner as to provide safety to the public. The City reserves the right to issue restraining or cease and desist orders to Consultant when unsafe or harmful acts are observed or reported relative to the performance of the work under this Agreement. The acceptance of Consultant 's work by City shall not operate as a release of the Consultant from such standard of care and workmanship.

19. **STANDARD OF PERFORMANCE; WARRANTY.** Consultant agrees to perform all Services required by this Agreement in a professional and competent manner, in accordance with the degree of skill and diligence which is normally employed by reputable professionals performing similar Services under similar conditions in the same or similar locality. Such Services shall also be performed in a manner which is reasonably satisfactory to City Project Manager, or designee (hereinafter the "Project Manager"), provided that discretion in determining what is satisfactory shall not alter the foregoing standard of care.

    A. In accordance with the standard of care set forth in the first sentence of Section 19, the Consultant agrees that it:
    (1) Has thoroughly reviewed and considered the services and work to be performed; and
    (2) Has reviewed the issues regarding the Scope of Services and Task Orders to be provided; and
    (3) Has carefully considered how the services and related work should be performed; and
    (4) Fully understands the facilities, difficulties and restrictions associated with performance of the services required by this Agreement.

20. OWNERSHIP OF CONSULTANT'S WORK PRODUCT, CONFIDENTIALITY & DISCLOSURE, RECORDS & WARRANTY. City shall be the owner of any and all technical documents and records, including, computations, plans, correspondence, and/or other pertinent data and information, both hard copy and electronic, gathered or prepared by Consultant in performance of this Agreement and shall be entitled to immediate possession of the same upon completion of the work under this Agreement, or at any earlier or later time when the same may be requested by City.

A. Ownership of Documents. Every report, draft, work product, map, record, and other document reproduced, prepared, or caused to be prepared by the Consultant pursuant to or in connection with this Agreement shall be the exclusive property of the City.

B. Deliverables. Consultant shall deliver to the City the studies, plans, specifications, or other documents as are identified in the Scope of Services or Task Order; and Consultant shall, upon completion of all work or termination of this Agreement, submit to the City all information developed in the course of the Consultant 's services. Consultant shall, in such time and in such form as the City may require, furnish reports concerning the status of Services required under this Agreement. Consultant shall, upon request by City and upon completion or termination of this Agreement, deliver to the City all material furnished to Consultant by the City.

C. Records and Inspections**.** The Consultant shall maintain full and accurate records, with respect to all Services and matters covered under this Agreement. Books and records pertaining to costs shall be kept and prepared in accordance with generally accepted accounting principles. The City shall have free access at all reasonable times to such records, both hard copy and electronic, and the right to examine and audit the same and to make transcripts therefrom, and to inspect all program data, documents, proceedings, and activities.

D. Confidentiality. Information that is exempt from disclosure to the public is confidential. This includes information relating to the past, present, or future affairs of the City or information belonging to a third party whose information is in the City's possession or control under obligations of confidentiality. Consultant may be granted access to information that is exempt from disclosure to the public (Government Code Section 7920.505) and may contain "trade secrets" (see Government Code Section 7924.510(f)) when it is necessary for Consultant to perform its obligations pursuant to this Agreement. If Consultant is granted such

access to confidential information, Consultant shall not be considered to be a member of the public as that term is used in Government Code Section 7920.515.

E. Disclosure of Information. Consultant shall not disclose, publish, or authorize others to disclose or publish, design data, drawings, specifications, reports, or other information pertaining to the projects assigned to Consultant by the City or other information to which the Consultant has had access during the term of this Agreement without the prior written approval of the City's Designated Representative during the term of this Agreement and for a period of two (2) years after the termination of this Agreement.

F. No Warranty. Other than an obligation upon the City to deal in good faith, the City makes no warranties and shall bear no liability or responsibility for errors or omissions in any Confidential Information disclosed under this Agreement or for any business decisions made by Consultant in reliance on any Confidential Information disclosed under this Agreement.

21. NOTICE OF BREACH AND OPPORTUNITY TO CURE. Neither Party will be in breach of this Agreement where the breach is capable of being cured, or until written notice of the breach is received from the non-breaching Party. The Party charged with breach will have fifteen (15) calendar days from the date of receiving such notice in which to cure the breach or otherwise respond. If the circumstances leading to the charge that the Agreement was breached have not been cured or explained to the satisfaction of the other Party within fifteen (15) days from the date on which the breaching Party received notice of breach, the non-breaching Party may terminate this Agreement. Notice shall be given in the manner set forth in section 22.

22. NOTICE. All notices given or required to be given pursuant to this Agreement shall be in writing and may be given by personal delivery or by first-class mail. Notice sent by mail shall be addressed to each Party's Designated Representative as set forth above in Section 7. When addressed in accordance with this Section, such notice shall be deemed given upon deposit in the United States mail, postage prepaid. In all other instances, notices shall be deemed given at the time of actual delivery. Changes may be made in the names or addresses of persons to whom notices are to be given by giving notice in the manner prescribed in this Section.

23. INDEMNIFICATION, HOLD HARMLESS & DEFENSE. Except as set forth in Subsection A of this Section 23, and to the fullest extent permitted by law, Consultant shall immediately defend, indemnify, and hold harmless the City, its officers, employees, representatives, and agents (the "City Indemnitees"), from and against those actions, suits, proceedings, claims, demands, losses, costs, and expenses, including legal costs and reasonable attorneys' fees, for any personal injuries, deaths, or property damage, including property owned by the City (collectively "Claims") which may arise out of Consultant's negligence or willful misconduct in the performance of the services described in this Agreement, unless such Claims are proven to be caused by the negligence or willful misconduct of the City Indemnitees.

A. The provisions of this Subsection apply only in the event that Consultant is a design professional within the meaning of California Civil Code section 2782.8 ("Design Professional"). The term Design Professional, as defined in said section, is limited to licensed architects, licensed landscape architects, registered professional engineers, professional land surveyors, and the business entities that offer such services in accordance with the applicable provisions of the California Business and Professions Code.

   (1) Notwithstanding the provisions of Section 23 above, to the extent that the services to be provided under this Agreement are those of a Design Professional, Consultant's duty to indemnify, hold harmless, and defend the City Indemnitees shall be limited to the extent that any Claims arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, its officers, agents, employees or subconsultants in the performance of the services described in this Agreement.

   (2) In no event shall the costs of defense charged to Consultant exceed the Consultant's proportionate percentage of fault, except as otherwise set forth in said Civil Code section 2782.8, the provisions of which are incorporated into this Agreement by this reference. Nothing in this Subsection b shall be construed to require Consultant to provide indemnification for Claims caused by the active negligence or willful misconduct of the City Indemnitees

B. The City does not and shall not waive any rights that it may have against Consultant under this Section, because of the acceptance by the City, or the deposit with the City, of any insurance policy or certificate required pursuant to this Agreement. The hold harmless and indemnification

provisions of this Section 23 shall apply regardless of whether said insurance policies are determined to be applicable to the claim, demand, damage, liability, loss, cost, or expense described herein.

C. The obligation to indemnify and defend, as set forth in this Section 23, is binding on the successors, assigns, or heirs of Consultant and shall survive the expiration or any early termination of this Agreement.

24. INSURANCE. Consultant shall obtain and maintain during the performance of any Services under this Agreement the insurance coverages listed within "Exhibit C", which is attached hereto and incorporated herein by this reference, unless the Risk Manager waives, in writing, the requirement that Consultant obtain and maintain such insurance coverages. Such insurance must be issued by a company satisfactory to the Risk Manager. Consultant shall, before performance of any Services pursuant to this Agreement, file with the Risk Manager evidence of insurance coverage as specified in "Exhibit C". Maintenance of insurance coverages by Consultant is a material element of this Agreement. Consultant's failure to maintain or renew insurance coverages or to provide renewal evidence shall be considered a material breach of this Agreement.

25. LIVING WAGE REQUIREMENTS. During the term of this Agreement, Consultant understands and agrees that if Living Wages are applicable, subject to the 2002 Oxnard City Council Living Wage Policy, attached as "Exhibit E" to this Agreement, Consultant will pay and/or provide the wages and/or benefits required therein to all of its employees engaged in whole or in part in performing the Services provided for by this Agreement. The Living Wage is updated on July 1 of each year, and the duty to pay the correct wage is the responsibility of the Consultant.

26. PREVAILING WAGE REQUIREMENTS. The payment of State prevailing wages as designated for Ventura County shall apply to public works projects. However, this section shall not apply to work performed on a public works project of twenty-five thousand dollars ($25,000) or less when the project is for construction, alteration, demolition, installation, or repair work; or to work performed on a public works project of fifteen thousand dollars ($15,000) or less when the project is for maintenance work. Prevailing wages are required to be paid to all workers, including subcontracted employees. For further information regarding Prevailing Wage Requirements please refer to Exhibit "F" attached to this Agreement.

A. To determine if this Agreement is subject to compliance monitoring and enforcement, go to:

https://www.dir.ca.gov/Public-Works/PublicWorksSB854FAQ.html

B. It is unlawful to split, or separate into small portions, work orders, projects, purchases, or public works projects for the purpose of evading these prevailing wage requirements.

C. In the event that there is a difference between the amount of wages to be paid under the City of Oxnard's local Living Wage requirements and the requirements of this provision, the wage rate that is the higher of the two shall be applicable to this Agreement. The duty to pay the correct wage is the responsibility of the Consultant.

27. [RESERVED]

28. SUBCONTRACTING. If Consultant requires the assistance of a subcontractor to render any Services under this Agreement, Consultant shall obtain prior written consent from the City before a subcontractor performs any service pursuant to this Agreement. All subcontractors shall be identified in the Scope of Work or Task Order attached to this Agreement as "Exhibit A". Consultant is fully responsible for satisfactory completion of all its subcontractors' work. All subcontractors shall be properly licensed and insured; and bonded, if applicable. Consultant shall be responsible for all liabilities regardless of nature, type, or cause, arising out of or resulting from or in connection with subcontractors performance pursuant to this Agreement or subcontractors failure to comply with any of its obligations in connection with this Agreement.

29. CONFLICT OF INTEREST. Consultant covenants that it does not have any interest, nor shall it acquire any interest, directly or indirectly, which would conflict in any manner with the performance of Consultant's Services under this Agreement. Consultant further covenants that in the performance of Services under this Agreement, no officer, employee or agent of Consultant having such interest shall be employed by it. In the event the City determines that Consultant must disclose its financial interests by completing and filing a Fair Political Practices Commission Form 700, Statement of Economic Interests, Consultant shall file such Form 700 with the City Clerk's Office pursuant to the written instructions provided by the City Clerk. Acquisition or maintenance of a conflicting interest by Consultant may result in termination of this Agreement by the City.

30. DISPUTES. Except as otherwise provided in these provisions, any dispute concerning a question of fact arising under this Agreement, shall be decided by the City's Designated Representative, who shall reduce this decision to writing and mail

a copy to the Consultant. The decision of the City's Designated Representative shall be final and conclusive unless Consultant requests mediation within ten (10) calendar days. Pending final decision of a dispute, the Consultant shall proceed diligently with the performance of the Agreement and in accordance with the decision of the City's Designated Representative.

31. DISPUTE RESOLUTION. Should an unresolved dispute arise out of this Agreement, any Party may request that it be submitted to mediation. The Parties shall meet in mediation within a reasonable time not to exceed forty five (45) days of a request. The mediator shall be agreed to by the mediating Parties. In the absence of an Agreement on a mediator, the Parties shall each submit one name from mediators listed by the American Arbitration Association, the California State Board of Mediation and Conciliation, or other agreed-upon service. The mediator shall be selected by a "blindfold" process. The cost of mediation shall be borne equally by both Parties. Neither Party shall be deemed the prevailing Party. No Party shall be permitted to file a legal action without first meeting in mediation and making a good faith attempt to reach a mediated settlement. The mediation process, once commenced by a meeting with the mediator, shall last until Agreement is reached by the Parties but not more than sixty (60) calendar days, unless the maximum time is extended in writing by both Parties.

32. ASSIGNMENT. This Agreement is for the professional Services of Consultant. Any attempt by Consultant to assign the benefits or burdens of this Agreement without the prior written approval of City shall be prohibited and shall be null and void. Consultant's Services pursuant to this Agreement shall be provided by the Consultant's Designated Representative or directly under his/her supervision, and Consultant shall not assign another to supervise the Consultant 's performance of this Agreement without the prior written approval of City, by and through the City's Designated Representative.

33. CARE OF WORK. Should Consultant discover any latent or unknown conditions materially differing from those inherent in the Services or as represented by the City, Consultant shall immediately inform the City of such fact and shall not provide any Services, except at Consultant's risk, until written instructions are received from the Project Manager.

34. REPORTS. Upon request by the Project Manager or as otherwise required by this Agreement, including but not limited to, the Scope of Services or Task Orders set

forth in Exhibit “A”, Consultant shall prepare and submit reports to the City concerning Consultant's performance of the Services required by this Agreement.

35. AUDIT. City shall have the option of inspecting, auditing and/or reproducing all records and other written materials used by Consultant in preparing its billings to City as a condition precedent to any payment to Consultant, or for other purposes relating to the Agreement. Consultant will promptly furnish all documents requested by City. Additionally, if this Agreement is in excess of $10,000, the State Auditor may examine and audit Consultant for a period of 3 years after final payment under the Agreement. Regardless of whether a State audit is permitted, Consultant shall maintain and preserve all such records for a period of at least 3 years after final payment under the Agreement or until an audit has been completed and accepted by City, whichever occurs later. Consultant shall maintain all such records in City or to promptly reimburse City for all reasonable costs incurred in conducting the audit at a location other than in City, including but not limited to expenses for personnel, salaries, private auditor, travel, lodging, meals and overhead. Consultant shall include a copy of this Section in all contracts with its subcontractors, and Consultant shall be responsible for immediately obtaining those records or other written material from its subcontractors upon a request by the State Auditor and/or City.

36. ADVERTISING AND PUBLICITY. Consultant shall not use the name of or refer to City directly or indirectly in any advertisement, news release, or professional or trade publication without prior written approval from the City Manager. This Section shall survive the termination of this Agreement.

37. NONDISCRIMINATORY EMPLOYMENT. Consultant shall not unlawfully discriminate against any individual based on race, color, religion or religious creed, national origin, ancestry, ethnic group identification, primary language, physical disability, mental disability, medical condition, genetic information, marital status, gender, gender identity, gender expression, sex, sexual orientation, age, immigration status, citizenship or military and veteran status. Consultant understands and agrees that it is bound by and will comply with all legal nondiscrimination mandates. For every subcontractor who will perform Services, Consultant shall be responsible for such subcontractor’s compliance with this Section.

38. COVENANTS AND CONDITIONS. Each term and each provision of this Agreement to be performed by Consultant shall be construed to be both a covenant and a condition.

39. **WAIVER.** City's review or acceptance of, or payment for, work product prepared by Consultant under this Agreement will not be construed to operate as a waiver of any rights City may have under this Agreement or of any cause of action arising from Consultant's performance. A waiver by City of any breach of any term, covenant, or condition contained in this Agreement will not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant, or condition contained in this Agreement, whether of the same or different character.

40. **FORCE MAJEURE.** Neither the Consultant nor the City shall be responsible for any delay caused by any contingency beyond their control, including, but not limited to, war or insurrection, walkouts by the Party's own employees, fires, natural calamities, riots, or demands or requirements of governmental agencies other than the City.

41. **GOVERNING LAW.** The terms of this Agreement shall be interpreted according to the laws of the State of California. Should litigation occur, venue shall be in the Superior Court of California, County of Ventura.

42. **SEVERABILITY.** If any portion of this Agreement is declared by a court of competent jurisdiction to be invalid or unenforceable, then such portion will be deemed modified to the extent necessary in the opinion of the court to render such portion enforceable and, as so modified, such portion and the balance of this Agreement will continue in full force and effect and be enforceable.

43. **INTEGRATED AGREEMENT.** This Agreement and the attached exhibits referenced herein to this Agreement represent the entire understanding between the Parties. No verbal Agreement or implied covenant shall be held to vary the provisions of this Agreement. This Agreement shall bind and inure to the benefit of the Parties to this Agreement and any subsequent successors and assigns.

44. **NO THIRD-PARTY BENEFICIARY.** This Agreement shall not be construed to be an Agreement for the benefit of any third-party or parties, and no third party or parties shall have any claim or right of action under this Agreement.

45. **AUTHORITY TO EXECUTE.** Each Party hereto expressly warrants and represents that the signatories to this Agreement have the authority to execute this Agreement on behalf of its corporation, partnership, business entity, or governmental entity, and warrants and represents that the signatories have the authority to bind each Party to the performance of its obligations hereunder.

46. EXECUTION – COUNTERPARTS. This Agreement may be executed in any number of counterparts and each such duplicate counterpart shall constitute an original, but they shall not be effective nor enforceable unless and until it is executed with the handwritten signature or electronic signature of an authorized representative of each of the relevant Parties. No counterpart shall be deemed to be an original or presumed delivered unless and until the counterpart executed by the other Party to this Agreement is in the physical possession of the Party seeking enforcement thereof.

47. INCONSISTENT OR CONFLICTING TERMS. In the event of any contradictions or inconsistencies between any attached documents or exhibits incorporated by reference herein and the provisions of the Agreement itself, the terms of the Agreement shall control. Any exhibit that is attached and incorporated by reference shall be limited to the purposes for which it is attached, as specified in this Agreement. Any contractual terms or conditions contained in such exhibit imposing additional obligations on the City are not binding upon the City and City's Designated Representative unless specifically agreed to in writing, and initiated by City's Designated Representative, as to each additional contractual term or condition.

48. CAPTIONS AND HEADINGS. The captions and headings contained in this Agreement are provided for identification purposes only and shall not be interpreted to limit or define the content, scope, or intent of the provisions described under the respective caption or heading.

49. ACKNOWLEDGEMENT. By signing below, Consultant acknowledges that it has reviewed the City's Professional Services Agreement terms and conditions and insurance requirements and that Consultant hereby agrees to full compliance.

[Signatures on next page]

IN WITNESS WHEREOF, the Parties have entered into this Agreement effective on the date as written in Section 4 and upon signature of all Parties.

CITY OF OXNARD

_____ _____
☐Luis A. Mc Arthur, Mayor[21] Date
☐Libertad Macias, Purchasing Manager[32]

ATTEST:

_____ _____
Lourdes A. López, City Clerk Date
(only if Mayor authorizes)

APPROVED AS TO FORM:

_____ _____
Stephen M. Fischer, Date
City Attorney (always required)

FILIPPIN ENGINEERING, INC.

_____ _____
Gino Filippin, President Date

_____ _____
Lyle Nemeth,CFO[43] Date

[21] The City Council must authorize and the Mayor must execute any agreement over $220,000.

[32] The Purchasing Agent may execute any authorized agreement up to $220,000.

[43] The City requires the following for any contract:
● For a corporation, the signatures of the Board President, CEO or Vice President and of the Board Secretary, Assistant Secretary, CFO or Assistant Treasurer;
● For an LLC, the signatures of at least two managers of the LLC (company directors, not lower-level managers); or
● For a partnership, the signature of a partner. If the partnership is a limited partnership, the signer must be a general partner.
If the company has a different structure, or if the above-listed persons are not the appropriate signers, please submit to the City Attorney legally-binding documentation stating who can sign and bind your company.

EXHIBIT A

PROFESSIONAL SERVICE AGREEMENT
(CITY of Oxnard and Filippin Engineering, Inc.)

SCOPE OF SERVICES

PROJECT MANAGER: Abe Anebessaw

General Specifications

The awarded Consultant(s) under this agreement shall provide construction management and inspection support for the City's capital and other projects, as assigned. Specific services shall include, but not be limited to, providing Construction Management / Inspection Services for projects involving public buildings, housing, public works infrastructure, public parks, and such other facilities as may be required. Each individual project assigned by the City of Oxnard (City) will be composed of task orders. The task order proposal shall identify a concise schedule for completion of the task order (Task.) It is the Consultant's responsibility to determine the best and most cost-effective method to complete the Work so that the assigned task order can be completed to the satisfaction of the City. Task orders shall be negotiated as a lump sum amount per term based upon the hourly rate fee schedule as agreed to by the City and Consultant for all services and under the agreement amount. Task order funds will be encumbered based on the quote provided to the City by Consultant per task order. This Scope of Work will allow for additional professional services offered by the Consultant and the services noted below shall not be restricted to those directly stated.

Construction Management/Inspection services shall comply and be consistent with the industry standards and practices, to the full extent any provisions thereof relate or have applicability to such Projects.

The Scope of Work for Construction Management and Inspection Services shall include, but not be limited to the following:

Task 1- Management with City Staff

- **Project Management:** The Construction Manager (CM) shall coordinate all work efforts of the project team including representatives from the City, and shall facilitate regular Project progress meetings and provide regular updates on the Project status and budget. The CM shall become familiar with City processes, procedures, and objectives to provide services and assistance as directed by City staff. The CM shall work under the direction of the City Project Manager,

develop and maintain open lines of communications and cooperation between City staff, CM staff, contractors, and the public.

- **Project Kick-off Meeting:** At the commencement of the Project, the CM shall facilitate a "kick-off" meeting with the City to discuss the scope and parameters of the Project. The CM shall prepare and distribute a draft agenda in advance of the meeting for review and comment by the Project Manager. Specific Project goals will be identified and a strategy to accomplish these goals will be developed during the kick-off meeting. The CM shall prepare and distribute meeting minutes within two (2) working days of the meeting.

- **Progress Meetings:** The CM shall conduct bi-weekly progress meetings with the City for the duration of the project, and more frequently if individual situations warrant. The CM shall prepare an agenda that will include topics such as safety, RFI, submittals, change order, schedule, and construction progress. The CM shall be responsible for preparing and distributing meeting minutes from each meeting. Meeting minutes shall be in a format acceptable to the City's Project Manager and shall be distributed within two (2) working days of the project meeting. Project progress meetings will be held at the Public Works Conference rooms and project sites. At least monthly, the CM will present a summary of the monthly progress reports and discuss outstanding or upcoming project issues with the City.

- **CM Plan:** The CM shall prepare a CM Plan utilizing the final conformed contract documents, and shall include the following elements:

    1. Organization Chart
    2. CM coordination with City team and description of duties and responsibilities
    3. Safety compliance
    4. Claims avoidance strategy
    5. Special inspection requirements
    6. Inspection procedures
    7. List of all tests required for project
    8. Materials testing location
    9. Document management system
    10. Physical office location
    11. Project close out process

- **CM Staffing:** The CM shall provide appropriate staffing to accommodate the needs of the project.

Task 2- Construction Administration

The CM shall provide a Resident Engineer (RE) to provide construction administration and direct contractor activities whenever the contractor is working onsite. If the RE

meets the certification requirements for the specialty inspectors, the RE may perform inspections, provided that the specialty inspections do not interfere with the primary resident engineering tasks. The RE shall be certified by the International Code Council (ICC) for any inspections they perform. For budgetary purposes, the CM shall assume that the RE shall be dedicated full time for the duration of the project. The Construction Administration tasks are described below.

- **Contract Administration:** The CM shall have the responsibility for the daily management of the construction project. The CM shall provide and coordinate construction management services of the following activities:

    1. **Administration:** The CM shall administer construction contracts and provide technical Construction Management support to City staff to facilitate completion of projects.

    2. **Contractor Communication:** The CM shall provide effective written and oral communication to the contractor and other stakeholders in the administration of the contract. The CM shall provide for timely, thorough, clear, effective and responsible communications to Requests for Information (RFI's), Requests for Change (RFC's), Requests for Proposal (RFP's), submittals, and other miscellaneous correspondence. CM shall receive, log, and track requests for information. CM shall provide a technical review of RFI's to determine if the issue is addressed adequately. CM shall respond where the RFI can be addressed in the Contract Documents. If the contract documents are not clear, the CM shall forward RFI’s to the Design CM. RFIs responded by the designer shall be tracked for a timely response. CM shall develop a project directory of key consulting and contractor personnel working on the project.

    3. **Quality Assurance:** The CM shall verify and manage the Contractor’s Quality Control Plan.

    4. **Substitution Requests:** The CM shall evaluate requests for material and equipment substitutions and changes based on compliance with contract specifications and taking into account the impacts to cost and schedule. Based upon the CMs evaluation of the request for substitutions, the CM shall inform the PM and Engineer of Record of the substitution request and request an evaluation and decision of the merits of the substitution.
    5. **Resource Loading:** The CM shall monitor the contractor's resource loading and advise on corrective actions needed to maintain schedule.

    6. **Submittal Review/Logging:** The CM shall receive, respond, log, and track submittals. If the contract documents are not clear, the CM shall forward submittals to the Engineer of Record. Submittals responded by the designer shall be tracked for a timely response.

7. **Project Meetings:** The CM shall conduct weekly job site construction meetings involving the project team and maintain action items, minutes of said meetings and compliance with the contract provisions. Maintain and distribute meeting minutes within two (2) working days.

- **Safety and Security Monitoring:** The Contractor is responsible for enforcing its safety program on its employees and subcontractors' employees. It is the CM's responsibility to monitor, enforce safety, and promote a safe overall environment for all workers and visitors to the project site. Safety shall comply with all Federal, State and locally accepted safety regulations and measures including:

    1. **Safety:** The CM shall be responsible for providing all necessary personal protective equipment (PPE) including hard hats, vests, footwear, lights and other safety equipment for the CM Team. The CM shall prepare a safety plan for the CM team.

    2. **Job Site Security Verification:** Routinely check job site security and measures taken to protect the public from hazards.

    3. **Emergency Response Plan Review:** Review Contractor's emergency response plans. CM shall ensure that Contractor complies with State and Federal requirements but shall not be responsible for defining Contractor's safety programs. CM shall notify the Contractor of potential unsafe working conditions.

- **Environmental Monitoring:** The CM shall review and enforce requirements stipulated in permits issued by regulatory agencies and the environmental documents as shown or referenced in the contract documents.

- **Controls and Scheduling:** CM shall provide comprehensive project scheduling and control expertise as follows:

    1. **Baseline Schedule Review:** CM shall review and comment on contractor’s baseline and project schedule critical path, and logic review. CM shall ensure that schedule meets all requirements of the contract.

    2. **Progress Schedule Review:** CM shall review and monitor contractor's schedule monthly to monitor project progress and detect early delays. Report all schedule delays to the City’s Project Manager.

    3. **Cost and Budget:** CM shall monitor project construction costs, budgets, schedule and maintain current workflow projections.

    4. **Reporting:** CM shall prepare and distribute monthly construction reports. CM shall provide at a minimum:

- Daily inspection reports
- Weekly job site meeting minutes
- Monthly report overview
- Project cost to date
- Schedule updates
- Recommendations to mitigate project delays

- **Progress Payment Review:** CM shall review and approve monthly contractor invoices, verify compliance to all terms and conditions of contract and make payment recommendations. The CM shall ensure that the contractor's request for payment does not represent more than the amount for work performed on a monthly basis.

- **Contract Extensions:** CM shall review, analyze, and make recommendations on contractor time extensions/requests.

- **Coordination with City Inspectors/PM:** CM shall coordinate with City inspection and project management resources, where applicable.

- **Miscellaneous Coordination:** CM shall coordinate and monitor work to be performed by others.

- **Project Notice Coordination:** CM shall receive and review project notices, and submit to the City with appropriate recommendations.

- **Monitor Time and Materials Work:** CM shall monitor contractor work performed on a time and materials (T&M) basis to ensure that the contractor labor charges are fair and appropriate, and that materials purchased are of quantity and quality necessary to the project, and documented on invoices.

- **Cost Estimating:** The CM shall maintain a cost estimating system that conforms to industry accepted practices and provide the following:

    1. **Contractor Proposals:** CM shall evaluate contractor cost reduction proposals in accordance with industry cost standards. CM shall provide detailed analysis of the contractor’s proposal along with a recommended outcome to the Project Manager.

    2. **Change Order Review:** The CM shall review proposed change orders. The CM shall provide a change order review standard that includes a detailed process, forms, and recommendations of actions to the PM. CM’s change order review shall provide additional analysis of both cost and time concurrently. Time impact analysis shall not be deferred to a later time.

- **Document Control:** The CM shall establish a document management system for the following:

    1. **Filing:** The CM shall utilize a filing system. CM shall use a web-based document management system as approved by the City. CM shall be responsible for the cost of the document management system and training.

    2. **Claims:** The CM shall identify, analyze and prepare construction claims and disputes by assessing or validating entitlement and quantification of damages and promoting a successful resolution within 21 calendar days (assuming the Contractor is cooperative.) The CM shall provide associated cost estimates and time impact analysis concurrently for Claims Evaluation.

    3. **Document Tracking:** All central receipts, control, storage, distribution, indexing and tracking of all documents.

    4. **Document Managing:** All documents, incoming and outgoing, associated with the construction management activity of all assigned projects, including, but not limited to submittals, requests for information (RFIs), requests for clarifications (RFCs), pay requests, change orders (COs) and correspondence.

    5. **As-Built Documents Administration:** Maintaining a current set of as built drawings and specifications.

    6. **Document Maintenance:** Maintaining all field documents, storing original documentation and furnishing to the City at project completion.

- **Operations and Maintenance Manuals:** The CM shall receive final O&M equipment manuals from contractor and coordinate their review. Final O&M manuals shall be delivered to the Operations Manager.

- **Change Order and Claims Management:** The CM shall implement a comprehensive claims management program to evaluate change order requests and recommend equitable disposition. When agreement cannot be reached, the CM shall support the City's position and assist in formulating a claims defense and participate in resolution including:

    1. **Document Managing:** Coordinate, assemble and review supporting documentation for change order processing and make final recommendations to City staff.

    2. **Contractor Request Review:** Review requests of alleged cost increases and/or time impacts for merit concurrently.

3. **Change Order Review:** Thoroughly analyze the proposal and develop a negotiating position. When necessitated by variations between contractor price for change and the CM's fair cost estimate, CM shall negotiate an equitable resolution with guidance from the City's Project Manager.

4. **Change Order Expediting:** After the equitable resolution is reached the CM shall expedite approval of the negotiated change order.

Task 3- Inspection

The CM shall provide inspection services and monitoring of construction to ensure construction is in compliance with the project construction documents. The CM's resident engineer and inspection staff shall verify construction compliance and Quality Assurance Quality Control with applicable permits, codes, construction documents and any environmental mitigation. CM shall maintain redline as-builts on a monthly basis.

- **Daily and Weekly Documentation:**

  1. **Documentation of Construction Activities:** Provide documentation of construction activities, duration of activities, labor resources, and equipment allocation.

  2. **Construction Reporting:** Provide daily construction activity reports, labor resources, on- site equipment, and work conditions.

  3. **Non-Conformance Reporting:** Provide non-conformance reports.
  4. **Photographic Records:** Provide weekly photographic/digital records of the project during construction.

- **Civil Inspections:** The CM shall provide qualified inspectors for all improvements to inspect, monitor, and report on construction improvements as required by the Plans and Technical Specifications.

- **Field Testing:** Witness field tests and startup procedures for electrical equipment as needed.

- **Soil and Materials Testing:** The CM shall provide qualified and approved testing laboratories and California registered Geotechnical Engineers and/or ICC-certified Soils Special Inspector-EC or equivalent staff to perform all necessary soils and materials testing required to verify the quality and proper placement. The Soils and Materials Inspector shall be responsible for the following:

1. **Material Sampling:** Sample on-site and imported materials for compliance with the specifications for use as backfill materials.

2. **Material Testing:** Perform maximum density tests and optimum moisture content tests on materials to be used as backfill. Examples of testing include: gradation, R-value, sand equivalence, etc.

3. **Conformance Testing:** Perform compaction tests for backfill. Separate testing shall be performed for the pavement zone, street zone, and areas of over-excavation. Provide recommendations for compaction or density testing of rock backfill materials. Sand cone test method is required for soil compaction testing. Alternate compaction testing may be utilized; including but not limited to, nuclear gauge.

4. **Data Review:** Tabulate test data and review failing tests. Provide immediate notification of any failure to meet the requirements of the project contract documents.

5. **Reporting:** Upon prior authorization from the City, prepare a final report at the completion of construction certifying that geotechnical issues comply with the contract documents.

- **Storm Water Pollution Prevention Plan Inspection:**

1. Review contractor's site-specific SWPPPs for compliance with applicable regulations.

2. Monitor contractor's activities regarding pollution prevention controls and activities for general compliance with the contractor's SWPPP Best Management Practice (BMP). The contractor is responsible for means and methods for complying with BMP's. The SWPPP inspector shall notify the contractor and the City if the pollution prevention controls are in or out of compliance with the SWPPP.

TASK 4- Construction Closeout

The CM shall manage the turnover of the assigned project to the City, including contract closeout, management of warranty period activities and demobilization of CM staff including:

- **Site Closeout:** The CM shall budget under the Task 2 Construction Administration budget to close out construction and oversee demobilization at each site. Site Closeout tasks shall include:

1. **Site Final Walk-Through:** Coordinate and conduct a site final walk-through to verify completion of contract and all related items of work within 7 days of substantial completion.

2. **Site Punch List:** Develop site punch list and verify completion and obtain final documentation and releases within 7 days of substantial completion.

3. **Site Record Drawing Preparation:** Verify and deliver contractor as-built marked up drawings for record drawing preparation within 14 calendar days of site substantial completion.

4. **Site Permitting:** Monitor permit and agency sign-offs within 14 calendar days of substantial completion.

5. **Site Final Reporting:** Prepare site summary report in accordance with the City within 7 days of final completion.

6. **Site Documentation Turnover:** Turnover site project files, contract, correspondence, and documentation within 14 calendar days of final completion.

7. **Site Warranty Coordination:** The CM shall prepare a list of warranty items, warranty period, and warranty repair procedures, and turn over to the City's Project Manager.

8. **Site Demobilization:** Demobilize the CM staff and facilities in accordance with the agreed upon plan.

- **Construction Contract Close Out:** The CM shall oversee the contract closeout process and assist in resolving O&M service disputes. The CM shall budget under the Task 3 budget for Construction Contract Close Out. The closeout shall entail sign offs by responsible parties and include:

1. **Project-wide Final Walk-Through:** Coordinate and conduct a final walk-through to verify completion of contract and all related items of work within 7 days of substantial completion. The final walk-through shall be extended to include relevant City Departments and Divisions.
2. **Project-wide Punch List:** Develop punch list and verify completion and obtain final documentation and releases within 7 days of substantial completion.

3. **Project-wide Record Drawing Review and Corrections:** Review record drawings prepared by the Design Engineer or contractor as-built marked up drawings delivered for each site for correctness and consistency within 14 calendar days of substantial completion.

4. **Final Payment/Close-Out Change Order Review:** Review final payment and close out change orders within 7 days of substantial completion.
5. Permitting: Confirm that all permits are in place within 14 calendar days of substantial completion.

6. **Final Reporting:** Prepare final summary report in accordance with the City within 7 days of final completion.

7. **Documentation Turnover:** Turnover project files, contract, correspondence, and documentation within 14 calendar days of final completion.

8. **Project Warranty Coordination:** The CM shall review and update as needed the list of warranty items, warranty period, and warranty repair procedures, and turn over to the City's Project Manager.

9. **Final Demobilization:** Demobilize the CM staff and facilities in accordance with the agreed upon plan.

City of Oxnard

Public Works Department

305 West Third Street, East Wing Oxnard, California 93030

TASK ORDER

All Task Orders must include a copy of the vendor proposal/estimate

Task Order No.:	Agreement No.:
Task Order NTE Amount:	Agreement NTE Amount:
City Purchase Order No.:	Agreement Type:
Agreement Expiration Date:	
Prime Consultant:	Subconsultant(s):

PROJECT TITLE OR SPECIFICATION NO.:

PROJECT DESCRIPTION:

DESCRIPTION OF SERVICES TO BE PERFORMED UNDER THIS TASK ORDER:

TIME FOR COMPLETION OF SERVICES UNDER THIS TASK ORDER:

COMPENSATION FOR SERVICES SHALL NOT EXCEED THE TASK ORDER NTE AMOUNT.

City Project Manager:

Consultant Project Manager:

Services under this Task Order shall not proceed until this Task Order is executed by the City and Consultant and the City issues a Notice to Proceed. This Task Order may only be modified in writing and subject to City approval. Consultant shall not exceed the scope of the task order or NTE amount.

City of Oxnard		[Consultant]	
[designated rep]	Date	[Name & Title]	Date
Insert Department Assistant Director/Director	Date	[Name & Title]	Date

For internal City Use Only

Account Number and Project Number	*Example 1011234-53200-CXXXX*

On-Call PSA/GSA 2024

EXHIBIT B

PROFESSIONAL SERVICE AGREEMENT
(CITY of Oxnard and Filippin Engineering, Inc.)

SCHEDULE OF COMPENSATION

FILIPPIN ENGINEERING, INC.
BILLING RATES EFFECTIVE JANUARY 1, 2026 to DECEMBER 31, 2026
CITY OF OXNARD ON-CALL CMIT

Engineering	
Engineering Technician	$ 136.00
Senior Engineering Technician	$ 151.00
Staff Engineer	$ 194.00
Assistant Engineer	$ 211.00
Associate Engineer	$ 216.00
Senior Engineer	$ 227.00
Principal Engineer	$ 259.00

General	
Technical/Clerical Support	$ 130.00
Public Outreach Specialist	$ 136.00
Office Engineer	$ 146.00
Billing Support	$ 151.00
IT Manager	$ 157.00
Senior Program Manager	$ 227.00

Construction Management	
Assistant Construction Manager	$ 211.00
Associate Construction Manager	$ 216.00
Senior Construction Manager	$ 227.00
Principal Construction Manager	$ 259.00
Senior Construction Inspector I (PW)	$ 194.00
Senior Construction Inspector II (PW)	$ 200.00
Chief Inspector/Owner's Rep (PW)	$ 205.00

Markup	
Sub-Consultant	0%
Reimbursable Expenses	0%
Outside Consultant	0%

Notes:

1 - For the City of Oxnard On-Call no markup on subconsultants is allowed

2 - On prevailing wage assignments, overtime rates for construction inspection = 1.5 X regular rate. Double time rates = 2.0 X regular rates. Overtime will not be performed unless authorized in writing by the client. Overtime is incurred as defined on the prevailing wage determination for construction inspector.

3 - Billing rates are subject to annual increases of 5%.

4 - Prevailing Wage rate increases are calculated at an increase of proportionate percentage from Determination SC-23-63-2-22-1D for Building/Construction Inspector and Field Soils and Material Tester, these may be higher than Note 3 and are required by the DIR.

5 - Expert Witness services are 2x the applicable classification rate.

[Continued on next page]

FILIPPIN ENGINEERING, INC.
BILLING RATES EFFECTIVE JANUARY 1, 2027 to DECEMBER 31, 2027
CITY OF OXNARD ON-CALL CMIT

Engineering	
Engineering Technician	$ 143.00
Senior Engineering Technician	$ 159.00
Staff Engineer	$ 204.00
Assistant Engineer	$ 222.00
Associate Engineer	$ 227.00
Senior Engineer	$ 239.00
Principal Engineer	$ 272.00

Construction Management	
Assistant Construction Manager	$ 222.00
Associate Construction Manager	$ 227.00
Senior Construction Manager	$ 239.00
Principal Construction Manager	$ 272.00
Senior Construction Inspector I (PW)	$ 204.00
Senior Construction Inspector II (PW)	$ 211.00
Chief Inspector/Owner's Rep (PW)	$ 216.00

General	
Technical/Clerical Support	$ 137.00
Public Outreach Specialist	$ 143.00
Office Engineer	$ 154.00
Billing Support	$ 159.00
IT Manager	$ 166.00
Senior Program Manager	$ 239.00

Markup	
Sub-Consultant	0%
Reimbursable Expenses	0%
Outside Consultant	0%

Notes:

1 - For the City of Oxnard On-Call no markup on subconsultants is allowed

2 - On prevailing wage assignments, overtime rates for construction inspection = 1.5 X regular rate. Double time rates = 2.0 X regular rates. Overtime will not be performed unless authorized in writing by the client. Overtime is incurred as defined on the prevailing wage determination for construction inspector.

3 - Billing rates are subject to annual increases of 5%.

4 - Prevailing Wage rate increases are calculated at an increase of proportionate percentage from Determination SC-23-63-2-22-1D for Building/Construction Inspector and Field Soils and Material Tester, these may be higher than Note 3 and are required by the DIR.

5 - Expert Witness services are 2x the applicable classification rate.

[Continued on next page]

FILIPPIN ENGINEERING, INC.
BILLING RATES EFFECTIVE JANUARY 1, 2028 to DECEMBER 31, 2028
CITY OF OXNARD ON-CALL CMIT

Engineering	
Engineering Technician	$ 150.00
Senior Engineering Technician	$ 168.00
Staff Engineer	$ 215.00
Assistant Engineer	$ 233.00
Associate Engineer	$ 239.00
Senior Engineer	$ 252.00
Principal Engineer	$ 286.00

Construction Management	
Assistant Construction Manager	$ 233.00
Associate Construction Manager	$ 239.00
Senior Construction Manager	$ 252.00
Principal Construction Manager	$ 286.00
Senior Construction Inspector I (PW)	$ 215.00
Senior Construction Inspector II (PW)	$ 222.00
Chief Inspector/Owner's Rep (PW)	$ 227.00

General	
Technical/Clerical Support	$ 144.00
Public Outreach Specialist	$ 150.00
Office Engineer	$ 162.00
Billing Support	$ 168.00
IT Manager	$ 175.00
Senior Program Manager	$ 252.00

Markup	
Sub-Consultant	10%
Reimbursable Expenses	10%
Outside Consultant	10%

Notes:

1 - For the City of Oxnard On-Call no markup on subconsultants is allowed

2 - On prevailing wage assignments, overtime rates for construction inspection = 1.5 X regular rate. Double time rates = 2.0 X regular rates. Overtime will not be performed unless authorized in writing by the client. Overtime is incurred as defined on the prevailing wage determination for construction inspector.

3 - Billing rates are subject to annual increases of 5%.

4 - Prevailing Wage rate increases are calculated at an increase of proportionate percentage from Determination SC-23-63-2-22-1D for Building/Construction Inspector and Field Soils and Material Tester, these may be higher than Note 3 and are required by the DIR.

5 - Expert Witness services are 2x the applicable classification rate.

EXHIBIT C

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Filippin Engineering, Inc.)

INSURANCE REQUIREMENTS

Prior to contract approval and beginning of services under this agreement, Consultant must procure, agree to maintain and supply evidence of insurance at the levels listed and in accordance with the other provisions listed in this document.

[See next pages]

Exhibit INS-A

INSURANCE REQUIREMENTS FOR CONSULTANTS
(WITH ERRORS AND OMISSIONS REQUIREMENT)

1. Consultant shall obtain and maintain during the performance of any services under this Agreement the following insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of services hereunder by Consultant, its agents, representatives, employees or subconsultants.

a. Commercial General Liability Insurance, including Contractual Liability, in an amount not less than $1,000,000 combined single limit for bodily injury and property damage for each claimant for general liability with coverage equivalent to Insurance Services Office Commercial General Liability Coverage (Occurrence Form CG 0001). If a general aggregate limit is used, that limit shall apply separately to the project or shall be twice the occurrence amount;

b. Business automobile liability insurance in an amount not less than $1,000,000 combined single limit for bodily injury and property damage for each claimant for automobile liability with coverage equivalent to Insurance Services Office automobile liability coverage (Occurrence Form CA0001) covering Code No. 1, "any auto;"

c. Professional liability/errors and omissions insurance appropriate to Consultant's profession to a minimum coverage of $1,000,000, with neither Consultant nor listed subconsultants having less than $500,000 individually. The professional liability/errors and omissions insurance must be project specific with at least a one year extended reporting period, or longer upon request.

d. Workers' compensation insurance in compliance with the laws of the State of California, and employer's liability insurance in an amount not less than $1,000,000 per claimant. Additionally, the workers' compensation policy shall include a waiver of all rights of subrogation which the insurer may have against the City.

2. Consultant shall, prior to performance of any services, file with the Risk Manager certificates of insurance with original endorsements effecting coverage required by this Exhibit INS-A. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be on the attached forms or on other forms approved by the Risk Manager. All certificates and endorsements are to be received and approved by the Risk Manager before commencement of services. City reserves the right to require complete certified copies of all required insurance policies at any time. The certificates of insurance and endorsements shall be sent via email. If you have not received your request or are having difficulty with electronic upload, contact insurance@oxnard.org

3. Consultant agrees that all insurance coverages shall be provided by a California admitted insurance carrier with an A.M. Best rating of A:VII or better and shall be endorsed to state that coverage may not be suspended, voided, canceled, or reduced in coverage or limits without 30 days' prior written notice to the Risk Manager. The Risk Manager shall not approve or accept any endorsement if the endorsement contains "best effort" modifiers or if the insurer is relieved from the responsibility to give such notice.

4. Consultant agrees that the commercial general liability and business automobile liability insurance policies shall be endorsed to name City, its City Council, officers, employees, agents and volunteers as additional insureds as respects: liability arising out of activities performed by or on behalf of Consultant; products and completed operations of Consultant; premises owned, occupied or used by Consultant; or automobiles owned, leased, hired or borrowed by Consultant. The coverage shall contain no special limitations on the scope of protection afforded to City, its City Council, officers, employees, agents and volunteers. **The General Liability Special Endorsement Form and Automobile Liability Special Endorsement Form attached to this Exhibit INS-A or substitute forms containing the same information and acceptable to the Risk Manager shall be used to provide the endorsements (ISO form CG 2010 11/85 or if not available, CG 2010 with an edition date prior to 01/04 and CG 2037).**

5. The coverages provided to City shall be primary and not contributing to or in excess of any existing City insurance or self-insurance coverages (**this must be endorsed**). Additionally, the workers' compensation policy shall include a waiver of all rights of subrogation which the insurer may have against the City. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to City, its City Council, officers, employees and volunteers. The insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

6. The insurer shall declare any deductibles or self-insured retentions to and be approved by the Risk Manager. At the option of the Risk Manager, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects City, its City Council, officers, employees and volunteers, or the Consultant shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

7. All insurance standards applicable to Consultant shall also be applicable to Consultant's subconsultants. Consultant agrees to maintain appropriate agreements with subconsultants and to provide proper evidence of coverage upon receipt of a written request from the Risk Manager.

1/23

INSTRUCTION FOR SUBMITTING INSURANCE CERTIFICATES AND ENDORSEMENT FORMS

Certificates of Insurance

The sample accord form on the following page is provided to facilitate your preparation and submission of certificates of insurance. You may use this or any industry form that shows coverage as broad as that shown on the attached sample. **Please note the certificate holder address must be as shown on the attached sample accord form with the contract number and insurance exhibit identification information completed.** Improperly addressed certificates may delay the contract start-up date because the City's practice is to return unidentifiable insurance certificates to the insured for clarification as to the contract number. **Cancellation provisions must be endorsed to the policy. Modifying the certificate does not change coverage or obligate the carrier to provide notice of cancellation.**

Endorsement Forms

Original endorsements are required for commercial general liability and business automobile liability insurance policies and must be attached to the applicable certificate of insurance. City preference is that the Consultant/insurer use the endorsement forms which are attached. Substitute forms will be accepted, however, as long as they include provisions comparable to the sample accord form.

INS-A.doc

ACORD CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
CODE SUB-CODE	**COMPANIES AFFORDING INSURANCE COVERAGE**
INSURED	COMPANY LETTER A — SPECIFY COMPANY NAMES IN THIS SPACE
	COMPANY LETTER B

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	**GENERAL LIABILITY** [x] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [x] OCCUR. [x] OWNER'S & CONTRACTOR'S PROT.				GENERAL AGGREGATE PRODUCTS COMP/OP AGG . PERSONAL & ADV. INJURY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED. EXPENSE (Any one person)	$1,000,000 $1,000,000 $1,000,000 $1,000,000 $ $
A	**AUTOMOBILE LIABILITY** [x] ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS GARAGE LIABILITY				COMBINED SINGLE LIMIT BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE	$1,000,000 $ $ $
A	**EXCESS LIABILITY** UMBRELLA FORM OTHER THAN UMBRELLA FORM				EACH OCCURRENCE AGGREGATE	$ $
A	**WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY**				STATUTORY LIMITS EACH ACCIDENT DISEASE-POLICY LIMIT DISEASE-EACH EMPLOYEE	 $1,000,000 $1,000,000 $1,000,000
A	**OTHER** Errors and omissions insurance or malpractice insurance available for the insured's profession				Minimum coverage Each consultant/ & listed sub-consultant	$1,000,000 $500,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/RESTRICTIONS/SPECIAL ITEMS

CERTIFICATE HOLDER	CANCELLATION
CITY OF OXNARD % Evident ID, Inc. **8520 Allison Pointe Blvd. Ste 223** **PMB 5210** **Indianapolis, Indiana 462500-4299 US**	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ~~ENDEAVOR TO~~ MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, ~~BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.~~ AUTHORIZED REPRESENTATIVE

GENERAL LIABILITY SPECIAL ENDORSEMENT FOR THE CITY OF OXNARD (the "City")

SUBMIT IN DUPLICATE

ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER

Telephone:

NAMED INSURED

POLICY INFORMATION:
Insurance Company:
Policy No.:
Policy Period: (from) (to)
LOSS ADJUSTMENT EXPENSE ❒ Included in Limits ❒ In Addition to Limits

❒ Deductible ❒ Self-Insured Retention (check which) of $ _____
with an Aggregate of $_____ applies to _____
coverage. ❒ Per Occurrence ❒ Per Claim (which)

APPLICABILITY. This insurance pertains to the operations, products and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ❒ in which case only the following specific agreements and permits with the City are covered

CITY AGREEMENTS/PERMITS

TYPE OF INSURANCE

GENERAL LIABILITY
❒ COMMERCIAL GENERAL LIABILITY ❒ Claims Made
❒ COMPREHENSIVE GENERAL LIABILITY Retroactive Date _____
❒ OWNERS & CONTRACTORS PROTECTIVE ❒ Occurrence

OTHER PROVISIONS

COVERAGES	LIABILITY LIMITS IN THOUSANDS $	
	EACH OCCURRENCE	AGGREGATE
❒ GENERAL		
❒ PRODUCTS/COMPLETED OPERATIONS		
❒ PERSONAL & ADVERTISING INJURY		
❒ FIRE DAMAGE		
❒ _____		
❒ _____		

CLAIMS: Underwriter's representative for claims pursuant to this insurance.

Name: _____
Address: _____
_____
Telephone: ( ) _____

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, insurance company agrees as follows:

1. **INSURED.** The City, its officers, agents, employees and volunteers are included as insureds with regard to liability and defense of suits arising from the operations, products and activities performed by or on behalf of the named insured.
2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the named insured for or on behalf of the City; or (b) products sold by the named insured to the City; or (c) premises leased by the named insured from the City, the insurance afforded by this policy shall be primary insurance as respects the City, its officers, agents, employees or volunteers; or stand in an unbroken chain of coverage excess of the named insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the City, its officers, agents, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SEVERABILITY OF INTEREST.** This insurance applies separately to each insured against whom claim is made or suit is brought except with respect to the company's limits of liability. The inclusion of any person or organization as an insured shall not affect any right which such person or organization would have as a claimant if not so included.
4. **CANCELLATION NOTICE.** With respect to the interests of the City, this insurance shall not be canceled, or materially reduced in coverage or limits except after thirty (30) days prior written notice by receipted delivery has been given to the City.
5. **PROVISIONS REGARDING THE INSURED'S DUTIES.** Any failure to comply with reporting provisions of the policy or breaches or violations of warranties shall not affect coverage provided to the City, its officers, agents, employees or volunteers.
6. **SCOPE OF COVERAGE.** This policy, if primary, affords coverage at least as broad as:
   a. Insurance Services Office Commercial General Liability Coverage, "occurrence" form CG0001; or
   b. If excess, affords coverage which is at least as broad as the primary insurance form CG0001.

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER

CITY OF OXNARD % Evident ID, Inc.
8520 Allison Pointe Blvd. Ste 223
PMB 5210
Indianapolis, Indiana 462500-4299 US

AUTHORIZED REPRESENTATIVE

❒ Broker/Agent ❒ Underwriter ❒ _____

I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement.

Signature _____
(original signature required)
Telephone: ( ) _____ Date Signed: _____

AUTOMOBILE LIABILITY SPECIAL ENDORSEMENT FOR THE CITY OF OXNARD (the "City")	**SUBMIT IN DUPLICATE**	
	ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER	POLICY INFORMATION:
	Insurance Company: Policy No.: Policy Period: (from) (to) LOSS ADJUSTMENT EXPENSE ❒ Included in Limits ❒ In Addition to Limits
Telephone:	❒ Deductible ❒ Self-Insured Retention (check which) of $ _____ with an Aggregate of $_____ applies to coverage. ❒ Per Occurrence ❒ Per Claim (which)
NAMED INSURED	**APPLICABILITY**. This insurance pertains to the operations, products and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ❒ in which case only the following specific agreements and permits with the City are covered: CITY AGREEMENTS/PERMITS

TYPE OF INSURANCE	**OTHER PROVISIONS**
❒ COMMERCIAL AUTO POLICY ❒ BUSINESS AUTO POLICY ❒ OTHER	
LIMIT OF LIABILITY	
$ _____ per accident, for bodily injury and property damage.	**CLAIMS:** Underwriter's representative for claims pursuant to this insurance. Name: _____ Address: _____ _____ Telephone: (_____) _____

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, insurance company agrees as follows:

1. **INSURED.** The City, its officers, agents, volunteers and employees are included as insureds with regard to liability and defense of suits arising from the operations, products and activities performed by or on behalf of the named insured.
2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the named insured for or on behalf of the City; or (b) products sold by the named insured to the City; or (c) premises leased by the named insured from the City, the insurance afforded by this policy shall be primary insurance as respects the City, its officers, agents, employees or volunteers; or stand in an unbroken chain of coverage excess of the named insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the City, its officers, agents, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SEVERABILITY OF INTEREST.** This insurance applies separately to each insured against whom claim is made or suit is brought except with respect to the company's limits of liability. The inclusion of any person or organization as an insured shall not affect any right which such person or organization would have as a claimant if not so included.
4. **CANCELLATION NOTICE.** With respect to the interests of the City, this insurance shall not be canceled, or materially reduced in coverage or limits except after thirty (30) days prior written notice by receipted delivery has been given to the City.
5. **PROVISIONS REGARDING THE INSURED'S DUTIES.** Any failure to comply with reporting provisions of the policy or breaches or violations of warranties shall not affect coverage provided to the City, its officers, agents, employees or volunteers.
6. **SCOPE OF COVERAGE.** This policy, if primary, affords coverage at least as broad as:
   a. Insurance Services Office Automobile Liability Coverage, "occurrence" form CA0001, code ("any auto"); or
   b. If excess, affords coverage which is at least as broad as the primary insurance form referenced in the preceding section (1).

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER	
CITY OF OXNARD % Evident ID, Inc. **8520 Allison Pointe Blvd. Ste 223** **PMB 5210** **Indianapolis, Indiana 462500-4299 US**	**AUTHORIZED REPRESENTATIVE** ❒ Broker/Agent ❒ Underwriter ❒ _____ I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement. Signature _____ *(original signature required)* Telephone: ( ) Date Signed _____

EXHIBIT D

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Filippin Engineering, Inc.)

[RESERVED]

EXHIBIT E

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Filippin Engineering, Inc.)

LIVING WAGE POLICY

Pursuant to the Living Wage Policy adopted July 9, 2002 by the City Council and effective October 1, 2002, the City Manager and City Attorney are directed to include the following language in all standard Consultant/Professional Services contracts that may be governed by the Living Wage Policy.

A. Consultant shall compensate any employee of Consultant who provides Services under this Agreement in accordance with the Living Wage Policy, attached hereto and incorporated herein by reference as the Living Wage Policy Exhibit. While this Agreement is in effect, Consultant shall pay such employee no less than $20.06 per hour for each hour that such employee provides Services under this Agreement. In addition, while this Agreement is in effect, Consultant shall provide to such employee no less than 96 hours of paid leave per calendar year.

B. Consultant agrees to post, at a location readily accessible to those employees providing Services to the City, a copy of the Living Wage Policy adopted by City Council on July 9, 2002 and effective October 1, 2002.

C. If Consultant fails to compensate such employee pursuant to the Living Wage Policy, the City Manager or designee shall terminate this Agreement on written notice to Consultant, effective immediately.

D. In addition, if Consultant fails to comply with the Living Wage Policy in any manner, Consultant shall pay to City a fine of $500 and shall pay to any employee providing Services under this Agreement a penalty of three times the amount or value of the compensation owed to such employee under the Living Wage Policy. Consultant shall pay such fine and penalty within fifteen (15) calendar days after the City Manager or designee provides written notice to Consultant of the amount owed.

CITY OF OXNARD LIVING WAGE REQUIREMENTS
EFFECTIVE JULY 1, 2025

Consultant shall compensate any employee of Consultant who provides Services under this Agreement in accordance with the Living Wage Policy, attached hereto and incorporated herein by reference as Exhibit E. While this Agreement is in effect, Consultant shall pay such employee no less than $20.06 per hour for each hour that such employee provides Services under this Agreement. This hourly rate shall be adjusted on July 1, 2026, and each July 1 thereafter, according to the percentage change in the Consumer Price Index, all items, prepared by the Bureau of Labor Statistics for the Los Angeles area relating to all urban consumers (CPI-U), index base 1982-84=100, comparing May of the previous year to May of the current year. In addition, while this Agreement is in effect, Consultant shall provide to such employee no less than 96 hours of paid leave per calendar year.

a. Consultant agrees to post, at a location readily accessible to those employees providing Services to the City, a copy of the Living Wage Policy adopted by the Oxnard City Council on July 9, 2002 and effective October 1, 2002.

b. If Consultant fails to compensate such employee pursuant to the Living Wage Policy, the City Manager or designee shall terminate this Agreement on written notice to Consultant, effective immediately.

c. In addition, if Consultant fails to comply with the Living Wage Policy in any manner, Consultant shall pay to City a fine of $500 and shall pay to any employee providing Services under this Agreement a penalty of three times the amount or value of the compensation owed to such employee under the Living Wage Policy. Consultant shall pay such fine and penalty within fifteen (15) calendar days after the City Manager or designee provides written notice to Consultant of the amount owed.

EXHIBIT F

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Filippin Engineering, Inc.)

PREVAILING WAGE

1. Consultant acknowledges that the Project defined in the Agreement between Consultant and City is a "public work" as defined in Division 2, Part 7, Chapter 1 of the California Labor Code ("Chapter 1"), and that this Agreement is subject to Chapter 1 and the rules and regulations established by the Director of Industrial Relations ("DIR") implementing such statutes. Consultant shall perform the Project as a public work. Consultant shall comply with and be bound by all the terms, rules and regulations described in Chapter 1 and the DIR's rules and regulations as though set forth in full herein.

2. Pursuant to Labor Code Section 1773.2, copies of the prevailing rate of per diem wages for each craft, classification, or type of worker needed to perform the Agreement are on file at City Hall and will be made available to any interested party on request. Consultant acknowledges receipt of a copy of the DIR determination of such prevailing rate of per diem wages, and Consultant shall post such rates at each job site covered by this Agreement.

3. Consultant is required to post job site notices, as prescribed by regulation. See Labor Code Section 1771.4(a)(2).

4. Consultant shall comply with and be bound by the provisions of Labor Code Sections 1774 and 1775 concerning the payment of prevailing rates of wages to workers and the penalties for failure to pay prevailing wages. Consultant shall, as a penalty to City, forfeit not more than $200 for each calendar day or portion thereof for each worker paid less than the DIR's determined prevailing rates for the work or craft in which the worker is employed pursuant to this Agreement by Consultant or any subcontractor. The Labor Commissioner shall determine the amount of the penalty as described in Section 1775.

5. Consultant shall comply with Labor Code Section 1776, which requires Consultant and each subcontractor to (1) keep accurate payroll records and verify such records in writing under penalty of perjury, (2) certify and make such payroll records available for inspection, and (3) inform City of the location of the records.

6. Consultant shall comply with Labor Code Sections 1777.5, 1777.6 and 1777.7 and California Administrative Code Title 8, Section 200 et seq. concerning the employment of apprentices on public works projects for all apprenticeable occupations. Before commencing work under this Agreement, Consultant shall provide City with a copy of the information submitted to any applicable apprenticeship program. Within 60

days after concluding the Project, Consultant and each of its subcontractors shall submit to City a verified statement of the journeyman and apprentice hours performed under this Agreement.

7. Consultant may not be debarred or suspended throughout the Agreement Term pursuant to Labor Code Section 1777.1 or 1777.7. If he, she or it becomes debarred or suspended in the Agreement Term, Consultant must immediately notify City.

8. Consultant is not qualified to bid on, be listed in a Bid proposal, or engage in the performance of any contract for public work, as defined in Labor Code Sections 1720 through 1861, unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. Consultant shall continue without interruption to stay registered and qualified to perform public work pursuant to Section 1725.5 for the duration of the term of this Agreement. This provision does not apply to construction, alteration, demolition, installation or repair work of $25,000 or less or to maintenance work of $15,000 or less.

9. Consultant acknowledges that 8 hours labor constitutes a legal day's work. Consultant shall comply with and be bound by Labor Code Section 1810.

10. Consultant shall comply with and be bound by Labor Code Section 1813 concerning penalties for workers who work excess hours. Consultant shall, as a penalty to City, forfeit $25 for each worker employed in the performance of this Agreement by Consultant or by any subcontractor for each calendar day during which such worker is required or permitted to work more than 8 hours in any calendar day and 40 hours in any one calendar week in violation of the provisions of Division 2, Part 7, Chapter 1, Article 3 of the Labor Code. Pursuant to Labor Code Section 1815, work performed by Consultant's employees in excess of 8 hours per day and 40 hours per week shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1 ½ times the basic rate of pay.

11. The Project listed in the Agreement is subject to compliance monitoring and enforcement by the DIR.

12. Consultant shall be responsible for each and every one of its subcontractors' compliance with Chapter 1, the DIR's rules and regulations, and Labor Code Sections 1860 and 3700. Consultant shall include in the written contract between it and each subcontractor a copy of, and a requirement that each subcontractor shall comply with, those statutory provisions. Consultant shall be required to take all actions necessary to enforce such contractual provisions and ensure subcontractors' compliance, including without limitation, conducting a periodic review of the certified payroll records of each subcontractor, and upon becoming aware of the failure of the subcontractor to pay its workers the specified prevailing rate of wages, Consultant shall diligently take corrective action to halt or rectify any failure.

13. To the maximum extent, Consultant shall hold harmless, defend (with counsel approved by the City Attorney) and indemnify City, its legislative bodies, and its officials, officers, employees and agents from any demand or claim for damages, compensation, fines, penalties or other amounts arising out of or incidental to any acts or omissions listed above by any person or entity (including Consultant, its subcontractors, and each of their officials, officers, employees and agents) in connection with any work undertaken or in connection with the Agreement, including without limitation the payment of all attorneys' fees and other related costs. All duties of Consultant under this Section shall survive Agreement termination.

ON-CALL PROFESSIONAL SERVICES AGREEMENT
BETWEEN
THE CITY OF OXNARD AND MICHAEL K. NUNLEY & ASSOCIATES, LLP

By This On-Call Professional Services Agreement ("Agreement"), the City of Oxnard ("City") agrees to engage the Services of Michael K. Nunley & Associates, LLP ("Consultant"), and Consultant agrees to perform the Services for City as herein described, for the compensation, during the term, and otherwise subject to the covenants and conditions herein set forth. City and Consultant may be individually referred to as "Party" or collectively as the "Parties."

1. [INTENTIONALLY OMITTED]

2. SUMMARY DESCRIPTION OF SERVICES.

The Services to be performed pursuant to this agreement will be limited to the particular professional services that are identified in the Scope of Services, attached hereto as Exhibit A. Consultant has been prequalified to perform the particular services required by the City and the City shall issue Task Orders describing the particular project or services required by the City to the prequalified consultants and consultants shall submit a responsive proposal to the City's Project Manager.

Consultant is not to be the exclusive provider of services to the City. The City does not guarantee a specified amount of work under this on-call agreement.

3. PARTIES.

City of Oxnard, a general law and municipal corporation of the State of California, located at 300 West Third Street, Oxnard California 93030.

Michael K. Nunley & Associates, LLP, a LLP of the State of California, located at 354 Pacific Street, San Luis Obispo, CA 93401

4. TERM OF AGREEMENT: From: July 1, 2026 To : June 30, 2029

A. Time is of the essence in this Agreement
B. The City shall have the option to exercise two (2) consecutive one-year (1) term extensions, in accordance with the scope of work and terms and conditions of this Agreement. Any price negotiations, if allowed, shall be negotiated at the time of contract extension.

C. This Agreement shall not exceed a total of five (5) years (including the initial term and any options to extend). The City in its sole discretion may exercise the option terms upon sixty (60) days written notice to the Consultant (or any other time if the parties so agree) in accordance with Section 12 of this Agreement. The option term shall be commenced by an amendment to this agreement.
D. All Services required of Consultant under this Agreement shall be completed on or before the end of the term of the Agreement.

5. AGREEMENT AMOUNT NOT TO EXCEED: $500,000.00.[1]

6. AGREEMENT EXHIBITS. The following documents memorialized below are the only exhibits to this Agreement and are incorporated by reference as though fully set forth herein. In the event of a conflict between the Exhibits and this Agreement, the Agreement controls.

Exhibit A: Scope of Services and Task Order Template
Exhibit B: Schedule of Compensation
Exhibit C: Insurance Requirements: City Insurance Exhibit INS-A
Exhibit D: [RESERVED]
Exhibit E: Living Wage Policy
Exhibit F: Prevailing Wage Policy

7. DESIGNATED REPRESENTATIVES. The Designated Representatives listed below shall be authorized to act on behalf of the named Party, be responsible for negotiations and contractual matters, and coordinate with each other to perform the Services under this Agreement. Additionally, Consultant's Services shall be performed or immediately supervised by the Consultant's Representative:

City Designated Representative	Consultant Designated Representative
Name: Abe Anbessaw Title: Engineer Division Manager Phone: 805-385-7675 Email: abebaw.anbessaw@oxnard.org Address: 305 West Third Street, Third Floor, Oxnard, CA 93030	Name: Mike Nunley Title: Vice President Phone: 805-574-3202 Email: mnunley@mknassociates.us Address: 354 Pacific Street, San Luis Obispo, CA 93401

[1] This is not a guaranteed dollar amount. No services or work performed pursuant to a Task Order shall exceed the "Not to Exceed" Amount of the Contract or the agreed upon amount stated in the Task Order.

8. **CONTRACTUAL PREREQUISITIES.** This Agreement must first be executed by the Consultant, after which the Agreement shall be approved as to form by the City Attorney, then executed by the Mayor, or an authorized person on behalf of the City, and if executed by the Mayor shall also be executed by the City Clerk.

    A. Consultant is advised that any recommendation for Agreement award is not binding on City until the Agreement is fully executed and approved by the City.
    B. All proof of a City tax certificate, insurance, and W-9 forms is required prior to execution of this Agreement.
    C. Consultant shall not perform any work under this Agreement until a proof of insurance has been provided to the City as required under Section 24 of this Agreement.

9. **CONSULTANT'S SERVICES.**

    A. Consultant shall perform only the type or category of services as set forth in the "Scope of Services," and pursuant to the information contained in the Task Orders issued pursuant to this agreement.
    B. Task Orders may only be modified in writing by the City's Project Manager or Designated Representative.
    C. The Services issued pursuant to a Task Order shall be coordinated with the designated City Project Manager set forth in Exhibit A and are subject to the direction of the City Manager or Department Director. Consultant hereby designates as its Project Manager, the individual identified in Section 7 of this Agreement, as the person responsible for the Services who shall coordinate with City's Project Manager in executing the Scope of Services and Task Order(s) under this Agreement.
    D. Under no circumstances shall the Consultant exceed the amount stated in the City's Task Order or perform additional work or services that are not included in the Task Order

10. **COMPENSATION.** City shall pay Consultant for the Services performed pursuant to the terms of this Agreement and based on the hourly rates and fees set forth in the "Schedule of Compensation," attached to and incorporated into this Agreement as "Exhibit B." Consultant's compensation shall not to exceed amount stated in the Task Order. Under no circumstances shall the Consultant perform work in excess of the amount stated in the Task Order or the not to exceed amount listed in Section 5 of this Agreement. Once this Agreement is executed, the Schedule of Compensation

may only be modified by written Amendment pursuant to Section 13 of this Agreement, and may be subject to approval by the City Council.

A. The maximum not to exceed amount for any individual Task Order issued pursuant to this Agreement shall be $100,000.00 per Task Order.

B. Unless stated otherwise elsewhere in this document, prices shall be firm for the duration of this agreement. No price increases will be permitted during the first year of this Agreement. All price decreases (for example, if Vendor/Contractor offers lower prices to another governmental entity) will automatically be extended to the City. The City requires written proof satisfactory to the City, upon the City's acceptance, of cost increases prior to any approved price adjustment. After the first year of the award, a minimum of 60-days advance notice in writing is required to be considered and approved by the City. No retroactive price adjustments will be considered. For Contracts, any price increases must be stated in a written amendment. The net dollar amount of profit will remain firm during the period of the Agreement. Annual increases shall not exceed the Consumer Price Index- All Consumers, All Items, less food and energy – Los Angeles and be subject to satisfactory performance review by the City and approved (if needed) for budget funding by City Council.

11. PAYMENT and INVOICES. The City shall pay all undisputed portions of any applicable invoice within thirty (30) days after receipt of an invoice. In the event the City disputes one or more items in an invoice, the City shall, within thirty (30) days after receipt of such invoice, notify the Consultant of the item(s) being disputed and the reason(s) therefore. The City may withhold payment for such disputed items until resolution of the dispute.

A. **Payment Request.** Consultant shall submit a payment request to CITY by the end of each calendar month listing the Services provided, costs of those Services, and total amount due for the month. Invoices may be emailed to: **pwengineeringAP@oxnard.org .**

B. Consultant's acceptance of final payment made pursuant to this Agreement shall constitute a release of City from all claims and liabilities for compensation to Consultant for anything completed, finished or relating to the Services. City's payment shall not constitute nor be deemed a release of the responsibility and liability of Consultant for the

accuracy and competency of the information provided and/or the Services performed hereunder, nor shall such payment be deemed to be an assumption of responsibility or liability by City for any defect or error in the Services performed by Consultant and its employees, agents and subcontracted Consultants.

C. Consultant shall provide City with a completed Request for Taxpayer Identification Number and Certification, as issued by the Internal Revenue Service. If any sales tax is due for the Services performed by Consultant or materials or products provided to City by Consultant, Consultant shall pay the sales tax. City shall not reimburse Consultant for sales taxes paid by Consultant.

D. **Non-Appropriation of Funds.** Payments to be made to Consultant by City for the Services performed within the current fiscal year are within the current fiscal budget and within an available, unexhausted and unencumbered appropriation of City. In the event City does not appropriate sufficient funds for payment of the Services beyond the current fiscal year, this Agreement shall cover payment for the Services only up to the conclusion of the last fiscal year in which City appropriated sufficient funds and shall automatically terminate at that fiscal year's conclusion.

12. OPTION TO EXTEND AGREEMENT. When in the City's best interest, this Agreement may only be extended, if the City, in its discretion, exercises an option term in accordance with Section 4 subparagraphs (B) and (C) of this Agreement. The initial term, plus any option to extend shall not exceed a total of five (5) years. **If no option to extend the Agreement appears in section 4(B), then this Agreement shall not be extended.**

13. MODIFICATION OF AGREEMENT. This Agreement may be amended, modified, or otherwise altered, or its provisions waived, only upon mutual consent of the Parties by written amendment. The City may request that the Consultant perform Extra Services. As used herein, "Extra Services" means any services, which are determined by the City to be necessary for the proper completion of the project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement or any Task Order issued under this Agreement. A written amendment signed by both Parties shall be required to authorize performance of and payment for Extra Services under this Agreement or Task Order.

14. TERMINATION OF AGREEMENT. City may terminate this Agreement at any time, with or without cause and without penalty, upon fifteen (15) calendar days' prior written notice pursuant to Section 22 of this Agreement. Such termination shall be effective on the date specified in the notice, or if no date is specified, then fifteen (15) calendar days from the date of the notice. City shall be liable to Consultant only for work done by Consultant up to and including the date of termination of this Agreement unless the termination is for cause, in which event Consultant need be compensated only to the extent required by law. Consultant may terminate this Agreement at any time during the term of the Agreement by giving the City sixty (60) calendar days' prior written notice.

15. [RESERVED]

16. INDEPENDENT CONTRACTOR. Consultant is and shall at all times remain, as to City, a wholly independent contractor. Neither City nor any of its employees or agents shall have control over the conduct of Consultant or any of its employees, except as stated in this Agreement. Consultant has and shall retain the right to exercise full control over the employment, direction, means of performance, location, compensation and discharge of all persons assisting Consultant. This Agreement shall not be interpreted to prevent or preclude Consultant from rendering any Services for Consultant's own account or to any other person or entity as Consultant in its sole discretion shall determine; provided, however, that performing such Services shall not materially interfere with the Services the Consultant shall perform for the City. The City retains the right to provide general instructions to and observe the Consultant in the performance of all Services done on behalf of the City.

Consultant and its employees, subconsultants, and agents have no authority, express or implied, to act on behalf of City in any capacity, to incur any debt, obligation or liability on behalf of City, bind City in any manner, or otherwise act on behalf of City as an agent. Consultant T and its employees are not employees of City. Consultant and its employees are not entitled to receive from City any of the benefits or rights afforded employees of City, including but not limited to reserve leave, sick leave, vacation leave, holiday leave, compensatory leave, Public Employees Retirement System benefits, and health, life, dental, long-term disability and workers' compensation insurance benefits. Consultant shall not, at any time or in any manner, represent that it or any of its agents, subconsultants, or employees are in any manner agents, subconsultants, or employees of City.

17. **LAWFUL PERFORMANCE.** Consultant shall abide by all federal, state, and local laws and regulations as may be related to the performance of duties under this Agreement. Consultant, at its sole expense, shall obtain and maintain during the term of this Agreement, all appropriate permits, licenses, and certificates that may be required in connection with the performance of Services under this Agreement.

18. **SAFETY REQUIREMENTS.** Consultant shall not perform any Services for the City when the Consultant is impaired by alcohol or a controlled substance. When there is reasonable cause to believe that any person has violated this provision, that person shall be immediately removed from the premises and be subject to any applicable civil and/or criminal penalties under the City's Code and/or under state law. All work performed under this Agreement shall be performed in such a manner as to provide safety to the public. The City reserves the right to issue restraining or cease and desist orders to Consultant when unsafe or harmful acts are observed or reported relative to the performance of the work under this Agreement. The acceptance of Consultant 's work by City shall not operate as a release of the Consultant from such standard of care and workmanship.

19. **STANDARD OF PERFORMANCE; WARRANTY.** Consultant agrees to perform all Services required by this Agreement in a professional and competent manner, in accordance with the degree of skill and diligence which is normally employed by reputable professionals performing similar Services under similar conditions in the same or similar locality. Such Services shall also be performed in a manner which is reasonably satisfactory to City Project Manager, or designee (hereinafter the "Project Manager"), provided that discretion in determining what is satisfactory shall not alter the foregoing standard of care.

    A. In accordance with the standard of care set forth in the first sentence of Section 19, the Consultant agrees that it:
    (1) Has thoroughly reviewed and considered the services and work to be performed; and
    (2) Has reviewed the issues regarding the Scope of Services and Task Orders to be provided; and
    (3) Has carefully considered how the services and related work should be performed; and
    (4) Fully understands the facilities, difficulties and restrictions associated with performance of the services required by this Agreement.

20. OWNERSHIP OF CONSULTANT'S WORK PRODUCT, CONFIDENTIALITY & DISCLOSURE, RECORDS & WARRANTY. City shall be the owner of any and all technical documents and records, including, computations, plans, correspondence, and/or other pertinent data and information, both hard copy and electronic, gathered or prepared by Consultant in performance of this Agreement and shall be entitled to immediate possession of the same upon completion of the work under this Agreement, or at any earlier or later time when the same may be requested by City.

A. Ownership of Documents. Every report, draft, work product, map, record, and other document reproduced, prepared, or caused to be prepared by the Consultant pursuant to or in connection with this Agreement shall be the exclusive property of the City.

B. Deliverables. Consultant shall deliver to the City the studies, plans, specifications, or other documents as are identified in the Scope of Services or Task Order; and Consultant shall, upon completion of all work or termination of this Agreement, submit to the City all information developed in the course of the Consultant 's services. Consultant shall, in such time and in such form as the City may require, furnish reports concerning the status of Services required under this Agreement. Consultant shall, upon request by City and upon completion or termination of this Agreement, deliver to the City all material furnished to Consultant by the City.

C. Records and Inspections**.** The Consultant shall maintain full and accurate records, with respect to all Services and matters covered under this Agreement. Books and records pertaining to costs shall be kept and prepared in accordance with generally accepted accounting principles. The City shall have free access at all reasonable times to such records, both hard copy and electronic, and the right to examine and audit the same and to make transcripts therefrom, and to inspect all program data, documents, proceedings, and activities.

D. Confidentiality. Information that is exempt from disclosure to the public is confidential. This includes information relating to the past, present, or future affairs of the City or information belonging to a third party whose information is in the City's possession or control under obligations of confidentiality. Consultant may be granted access to information that is exempt from disclosure to the public (Government Code Section 7920.505) and may contain "trade secrets" (see Government Code Section 7924.510(f)) when it is necessary for Consultant to perform its obligations pursuant to this Agreement. If Consultant is granted such

access to confidential information, Consultant shall not be considered to be a member of the public as that term is used in Government Code Section 7920.515.

E. Disclosure of Information. Consultant shall not disclose, publish, or authorize others to disclose or publish, design data, drawings, specifications, reports, or other information pertaining to the projects assigned to Consultant by the City or other information to which the Consultant has had access during the term of this Agreement without the prior written approval of the City's Designated Representative during the term of this Agreement and for a period of two (2) years after the termination of this Agreement.

F. No Warranty. Other than an obligation upon the City to deal in good faith, the City makes no warranties and shall bear no liability or responsibility for errors or omissions in any Confidential Information disclosed under this Agreement or for any business decisions made by Consultant in reliance on any Confidential Information disclosed under this Agreement.

21. NOTICE OF BREACH AND OPPORTUNITY TO CURE. Neither Party will be in breach of this Agreement where the breach is capable of being cured, or until written notice of the breach is received from the non-breaching Party. The Party charged with breach will have fifteen (15) calendar days from the date of receiving such notice in which to cure the breach or otherwise respond. If the circumstances leading to the charge that the Agreement was breached have not been cured or explained to the satisfaction of the other Party within fifteen (15) days from the date on which the breaching Party received notice of breach, the non-breaching Party may terminate this Agreement. Notice shall be given in the manner set forth in section 22.

22. NOTICE. All notices given or required to be given pursuant to this Agreement shall be in writing and may be given by personal delivery or by first-class mail. Notice sent by mail shall be addressed to each Party's Designated Representative as set forth above in Section 7. When addressed in accordance with this Section, such notice shall be deemed given upon deposit in the United States mail, postage prepaid. In all other instances, notices shall be deemed given at the time of actual delivery. Changes may be made in the names or addresses of persons to whom notices are to be given by giving notice in the manner prescribed in this Section.

23. INDEMNIFICATION, HOLD HARMLESS & DEFENSE. Except as set forth in Subsection A of this Section 23, and to the fullest extent permitted by law, Consultant shall immediately defend, indemnify, and hold harmless the City, its officers, employees, representatives, and agents (the "City Indemnitees"), from and against those actions, suits, proceedings, claims, demands, losses, costs, and expenses, including legal costs and reasonable attorneys' fees, for any personal injuries, deaths, or property damage, including property owned by the City (collectively "Claims") which may arise out of Consultant's negligence or willful misconduct in the performance of the services described in this Agreement, unless such Claims are proven to be caused by the negligence or willful misconduct of the City Indemnitees.

A. The provisions of this Subsection apply only in the event that Consultant is a design professional within the meaning of California Civil Code section 2782.8 ("Design Professional"). The term Design Professional, as defined in said section, is limited to licensed architects, licensed landscape architects, registered professional engineers, professional land surveyors, and the business entities that offer such services in accordance with the applicable provisions of the California Business and Professions Code.

   (1) Notwithstanding the provisions of Section 23 above, to the extent that the services to be provided under this Agreement are those of a Design Professional, Consultant's duty to indemnify, hold harmless, and defend the City Indemnitees shall be limited to the extent that any Claims arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, its officers, agents, employees or subconsultants in the performance of the services described in this Agreement.

   (2) In no event shall the costs of defense charged to Consultant exceed the Consultant's proportionate percentage of fault, except as otherwise set forth in said Civil Code section 2782.8, the provisions of which are incorporated into this Agreement by this reference. Nothing in this Subsection b shall be construed to require Consultant to provide indemnification for Claims caused by the active negligence or willful misconduct of the City Indemnitees

B. The City does not and shall not waive any rights that it may have against Consultant under this Section, because of the acceptance by the City, or the deposit with the City, of any insurance policy or certificate required pursuant to this Agreement. The hold harmless and indemnification

provisions of this Section 23 shall apply regardless of whether said insurance policies are determined to be applicable to the claim, demand, damage, liability, loss, cost, or expense described herein.

C. The obligation to indemnify and defend, as set forth in this Section 23, is binding on the successors, assigns, or heirs of Consultant and shall survive the expiration or any early termination of this Agreement.

24. INSURANCE. Consultant shall obtain and maintain during the performance of any Services under this Agreement the insurance coverages listed within "Exhibit C", which is attached hereto and incorporated herein by this reference, unless the Risk Manager waives, in writing, the requirement that Consultant obtain and maintain such insurance coverages. Such insurance must be issued by a company satisfactory to the Risk Manager. Consultant shall, before performance of any Services pursuant to this Agreement, file with the Risk Manager evidence of insurance coverage as specified in "Exhibit C". Maintenance of insurance coverages by Consultant is a material element of this Agreement. Consultant's failure to maintain or renew insurance coverages or to provide renewal evidence shall be considered a material breach of this Agreement.

25. LIVING WAGE REQUIREMENTS. During the term of this Agreement, Consultant understands and agrees that if Living Wages are applicable, subject to the 2002 Oxnard City Council Living Wage Policy, attached as "Exhibit E" to this Agreement, Consultant will pay and/or provide the wages and/or benefits required therein to all of its employees engaged in whole or in part in performing the Services provided for by this Agreement. The Living Wage is updated on July 1 of each year, and the duty to pay the correct wage is the responsibility of the Consultant.

26. PREVAILING WAGE REQUIREMENTS. The payment of State prevailing wages as designated for Ventura County shall apply to public works projects. However, this section shall not apply to work performed on a public works project of twenty-five thousand dollars ($25,000) or less when the project is for construction, alteration, demolition, installation, or repair work; or to work performed on a public works project of fifteen thousand dollars ($15,000) or less when the project is for maintenance work. Prevailing wages are required to be paid to all workers, including subcontracted employees. For further information regarding Prevailing Wage Requirements please refer to Exhibit "F" attached to this Agreement.

A. To determine if this Agreement is subject to compliance monitoring and enforcement, go to:

https://www.dir.ca.gov/Public-Works/PublicWorksSB854FAQ.html

B. It is unlawful to split, or separate into small portions, work orders, projects, purchases, or public works projects for the purpose of evading these prevailing wage requirements.

C. In the event that there is a difference between the amount of wages to be paid under the City of Oxnard's local Living Wage requirements and the requirements of this provision, the wage rate that is the higher of the two shall be applicable to this Agreement. The duty to pay the correct wage is the responsibility of the Consultant.

27. [RESERVED]

28. SUBCONTRACTING. If Consultant requires the assistance of a subcontractor to render any Services under this Agreement, Consultant shall obtain prior written consent from the City before a subcontractor performs any service pursuant to this Agreement. All subcontractors shall be identified in the Scope of Work or Task Order attached to this Agreement as "Exhibit A". Consultant is fully responsible for satisfactory completion of all its subcontractors' work. All subcontractors shall be properly licensed and insured; and bonded, if applicable. Consultant shall be responsible for all liabilities regardless of nature, type, or cause, arising out of or resulting from or in connection with subcontractors performance pursuant to this Agreement or subcontractors failure to comply with any of its obligations in connection with this Agreement.

29. CONFLICT OF INTEREST. Consultant covenants that it does not have any interest, nor shall it acquire any interest, directly or indirectly, which would conflict in any manner with the performance of Consultant's Services under this Agreement. Consultant further covenants that in the performance of Services under this Agreement, no officer, employee or agent of Consultant having such interest shall be employed by it. In the event the City determines that Consultant must disclose its financial interests by completing and filing a Fair Political Practices Commission Form 700, Statement of Economic Interests, Consultant shall file such Form 700 with the City Clerk's Office pursuant to the written instructions provided by the City Clerk. Acquisition or maintenance of a conflicting interest by Consultant may result in termination of this Agreement by the City.

30. DISPUTES. Except as otherwise provided in these provisions, any dispute concerning a question of fact arising under this Agreement, shall be decided by the City's Designated Representative, who shall reduce this decision to writing and mail

a copy to the Consultant. The decision of the City's Designated Representative shall be final and conclusive unless Consultant requests mediation within ten (10) calendar days. Pending final decision of a dispute, the Consultant shall proceed diligently with the performance of the Agreement and in accordance with the decision of the City's Designated Representative.

31. DISPUTE RESOLUTION. Should an unresolved dispute arise out of this Agreement, any Party may request that it be submitted to mediation. The Parties shall meet in mediation within a reasonable time not to exceed forty five (45) days of a request. The mediator shall be agreed to by the mediating Parties. In the absence of an Agreement on a mediator, the Parties shall each submit one name from mediators listed by the American Arbitration Association, the California State Board of Mediation and Conciliation, or other agreed-upon service. The mediator shall be selected by a "blindfold" process. The cost of mediation shall be borne equally by both Parties. Neither Party shall be deemed the prevailing Party. No Party shall be permitted to file a legal action without first meeting in mediation and making a good faith attempt to reach a mediated settlement. The mediation process, once commenced by a meeting with the mediator, shall last until Agreement is reached by the Parties but not more than sixty (60) calendar days, unless the maximum time is extended in writing by both Parties.

32. ASSIGNMENT. This Agreement is for the professional Services of Consultant. Any attempt by Consultant to assign the benefits or burdens of this Agreement without the prior written approval of City shall be prohibited and shall be null and void. Consultant's Services pursuant to this Agreement shall be provided by the Consultant's Designated Representative or directly under his/her supervision, and Consultant shall not assign another to supervise the Consultant 's performance of this Agreement without the prior written approval of City, by and through the City's Designated Representative.

33. CARE OF WORK. Should Consultant discover any latent or unknown conditions materially differing from those inherent in the Services or as represented by the City, Consultant shall immediately inform the City of such fact and shall not provide any Services, except at Consultant's risk, until written instructions are received from the Project Manager.

34. REPORTS. Upon request by the Project Manager or as otherwise required by this Agreement, including but not limited to, the Scope of Services or Task Orders set

forth in Exhibit “A”, Consultant shall prepare and submit reports to the City concerning Consultant's performance of the Services required by this Agreement.

35. AUDIT. City shall have the option of inspecting, auditing and/or reproducing all records and other written materials used by Consultant in preparing its billings to City as a condition precedent to any payment to Consultant, or for other purposes relating to the Agreement. Consultant will promptly furnish all documents requested by City. Additionally, if this Agreement is in excess of $10,000, the State Auditor may examine and audit Consultant for a period of 3 years after final payment under the Agreement. Regardless of whether a State audit is permitted, Consultant shall maintain and preserve all such records for a period of at least 3 years after final payment under the Agreement or until an audit has been completed and accepted by City, whichever occurs later. Consultant shall maintain all such records in City or to promptly reimburse City for all reasonable costs incurred in conducting the audit at a location other than in City, including but not limited to expenses for personnel, salaries, private auditor, travel, lodging, meals and overhead. Consultant shall include a copy of this Section in all contracts with its subcontractors, and Consultant shall be responsible for immediately obtaining those records or other written material from its subcontractors upon a request by the State Auditor and/or City.

36. ADVERTISING AND PUBLICITY. Consultant shall not use the name of or refer to City directly or indirectly in any advertisement, news release, or professional or trade publication without prior written approval from the City Manager. This Section shall survive the termination of this Agreement.

37. NONDISCRIMINATORY EMPLOYMENT. Consultant shall not unlawfully discriminate against any individual based on race, color, religion or religious creed, national origin, ancestry, ethnic group identification, primary language, physical disability, mental disability, medical condition, genetic information, marital status, gender, gender identity, gender expression, sex, sexual orientation, age, immigration status, citizenship or military and veteran status. Consultant understands and agrees that it is bound by and will comply with all legal nondiscrimination mandates. For every subcontractor who will perform Services, Consultant shall be responsible for such subcontractor’s compliance with this Section.

38. COVENANTS AND CONDITIONS. Each term and each provision of this Agreement to be performed by Consultant shall be construed to be both a covenant and a condition.

39. **WAIVER.** City's review or acceptance of, or payment for, work product prepared by Consultant under this Agreement will not be construed to operate as a waiver of any rights City may have under this Agreement or of any cause of action arising from Consultant's performance. A waiver by City of any breach of any term, covenant, or condition contained in this Agreement will not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant, or condition contained in this Agreement, whether of the same or different character.

40. **FORCE MAJEURE.** Neither the Consultant nor the City shall be responsible for any delay caused by any contingency beyond their control, including, but not limited to, war or insurrection, walkouts by the Party's own employees, fires, natural calamities, riots, or demands or requirements of governmental agencies other than the City.

41. **GOVERNING LAW.** The terms of this Agreement shall be interpreted according to the laws of the State of California. Should litigation occur, venue shall be in the Superior Court of California, County of Ventura.

42. **SEVERABILITY.** If any portion of this Agreement is declared by a court of competent jurisdiction to be invalid or unenforceable, then such portion will be deemed modified to the extent necessary in the opinion of the court to render such portion enforceable and, as so modified, such portion and the balance of this Agreement will continue in full force and effect and be enforceable.

43. **INTEGRATED AGREEMENT.** This Agreement and the attached exhibits referenced herein to this Agreement represent the entire understanding between the Parties. No verbal Agreement or implied covenant shall be held to vary the provisions of this Agreement. This Agreement shall bind and inure to the benefit of the Parties to this Agreement and any subsequent successors and assigns.

44. **NO THIRD-PARTY BENEFICIARY.** This Agreement shall not be construed to be an Agreement for the benefit of any third-party or parties, and no third party or parties shall have any claim or right of action under this Agreement.

45. **AUTHORITY TO EXECUTE.** Each Party hereto expressly warrants and represents that the signatories to this Agreement have the authority to execute this Agreement on behalf of its corporation, partnership, business entity, or governmental entity, and warrants and represents that the signatories have the authority to bind each Party to the performance of its obligations hereunder.

46. EXECUTION – COUNTERPARTS. This Agreement may be executed in any number of counterparts and each such duplicate counterpart shall constitute an original, but they shall not be effective nor enforceable unless and until it is executed with the handwritten signature or electronic signature of an authorized representative of each of the relevant Parties. No counterpart shall be deemed to be an original or presumed delivered unless and until the counterpart executed by the other Party to this Agreement is in the physical possession of the Party seeking enforcement thereof.

47. INCONSISTENT OR CONFLICTING TERMS. In the event of any contradictions or inconsistencies between any attached documents or exhibits incorporated by reference herein and the provisions of the Agreement itself, the terms of the Agreement shall control. Any exhibit that is attached and incorporated by reference shall be limited to the purposes for which it is attached, as specified in this Agreement. Any contractual terms or conditions contained in such exhibit imposing additional obligations on the City are not binding upon the City and City's Designated Representative unless specifically agreed to in writing, and initiated by City's Designated Representative, as to each additional contractual term or condition.

48. CAPTIONS AND HEADINGS. The captions and headings contained in this Agreement are provided for identification purposes only and shall not be interpreted to limit or define the content, scope, or intent of the provisions described under the respective caption or heading.

49. ACKNOWLEDGEMENT. By signing below, Consultant acknowledges that it has reviewed the City's Professional Services Agreement terms and conditions and insurance requirements and that Consultant hereby agrees to full compliance.

[Signatures on next page]

IN WITNESS WHEREOF, the Parties have entered into this Agreement effective on the date as written in Section 4 and upon signature of all Parties.

CITY OF OXNARD

_____ _____
☐Luis A. Mc Arthur, Mayor[21] Date
☐Libertad Macias, Purchasing Manager[32]

ATTEST:

_____ _____
Lourdes A. López, City Clerk Date
(only if Mayor authorizes)

APPROVED AS TO FORM:

_____ _____
Stephen M. Fischer, Date
City Attorney (always required)

MICHAEL K. NUNLEY & ASSOCIATES, LLP

_____ _____
Mike Nunley, Vice President Date

_____ _____
Randal Dumas, CFO[43] Date

[21] The City Council must authorize and the Mayor must execute any agreement over $220,000.

[32] The Purchasing Agent may execute any authorized agreement up to $220,000.

[43] The City requires the following for any contract:
● For a corporation, the signatures of the Board President, CEO or Vice President and of the Board Secretary, Assistant Secretary, CFO or Assistant Treasurer;
● For an LLC, the signatures of at least two managers of the LLC (company directors, not lower-level managers); or
● For a partnership, the signature of a partner. If the partnership is a limited partnership, the signer must be a general partner.
If the company has a different structure, or if the above-listed persons are not the appropriate signers, please submit to the City Attorney legally-binding documentation stating who can sign and bind your company.

EXHIBIT A

PROFESSIONAL SERVICE AGREEMENT
(CITY of Oxnard and Michael K. Nunley & Associates, LLP)

SCOPE OF SERVICES

PROJECT MANAGER: Abe Anebessaw

General Specifications

The awarded Consultant(s) under this agreement shall provide construction management and inspection support for the City's capital and other projects, as assigned. Specific services shall include, but not be limited to, providing Construction Management / Inspection Services for projects involving public buildings, housing, public works infrastructure, public parks, and such other facilities as may be required. Each individual project assigned by the City of Oxnard (City) will be composed of task orders. The task order proposal shall identify a concise schedule for completion of the task order (Task.) It is the Consultant's responsibility to determine the best and most cost-effective method to complete the Work so that the assigned task order can be completed to the satisfaction of the City. Task orders shall be negotiated as a lump sum amount per term based upon the hourly rate fee schedule as agreed to by the City and Consultant for all services and under the agreement amount. Task order funds will be encumbered based on the quote provided to the City by Consultant per task order. This Scope of Work will allow for additional professional services offered by the Consultant and the services noted below shall not be restricted to those directly stated.

Construction Management/Inspection services shall comply and be consistent with the industry standards and practices, to the full extent any provisions thereof relate or have applicability to such Projects.

The Scope of Work for Construction Management and Inspection Services shall include, but not be limited to the following:

Task 1- Management with City Staff

- **Project Management:** The Construction Manager (CM) shall coordinate all work efforts of the project team including representatives from the City, and shall facilitate regular Project progress meetings and provide regular updates on the Project status and budget. The CM shall become familiar with City processes, procedures, and objectives to provide services and assistance as directed by City staff. The CM shall work under the direction of the City Project Manager,

develop and maintain open lines of communications and cooperation between City staff, CM staff, contractors, and the public.

- **Project Kick-off Meeting:** At the commencement of the Project, the CM shall facilitate a "kick-off" meeting with the City to discuss the scope and parameters of the Project. The CM shall prepare and distribute a draft agenda in advance of the meeting for review and comment by the Project Manager. Specific Project goals will be identified and a strategy to accomplish these goals will be developed during the kick-off meeting. The CM shall prepare and distribute meeting minutes within two (2) working days of the meeting.

- **Progress Meetings:** The CM shall conduct bi-weekly progress meetings with the City for the duration of the project, and more frequently if individual situations warrant. The CM shall prepare an agenda that will include topics such as safety, RFI, submittals, change order, schedule, and construction progress. The CM shall be responsible for preparing and distributing meeting minutes from each meeting. Meeting minutes shall be in a format acceptable to the City's Project Manager and shall be distributed within two (2) working days of the project meeting. Project progress meetings will be held at the Public Works Conference rooms and project sites. At least monthly, the CM will present a summary of the monthly progress reports and discuss outstanding or upcoming project issues with the City.

- **CM Plan:** The CM shall prepare a CM Plan utilizing the final conformed contract documents, and shall include the following elements:

    1. Organization Chart
    2. CM coordination with City team and description of duties and responsibilities
    3. Safety compliance
    4. Claims avoidance strategy
    5. Special inspection requirements
    6. Inspection procedures
    7. List of all tests required for project
    8. Materials testing location
    9. Document management system
    10. Physical office location
    11. Project close out process

- **CM Staffing:** The CM shall provide appropriate staffing to accommodate the needs of the project.

Task 2- Construction Administration

The CM shall provide a Resident Engineer (RE) to provide construction administration and direct contractor activities whenever the contractor is working onsite. If the RE meets the certification requirements for the specialty inspectors, the RE may perform inspections, provided that the specialty inspections do not interfere with the primary resident engineering tasks. The RE shall be certified by the International Code Council (ICC) for any inspections they perform. For budgetary purposes, the CM shall assume that the RE shall be dedicated full time for the duration of the project. The Construction Administration tasks are described below.

- **Contract Administration:** The CM shall have the responsibility for the daily management of the construction project. The CM shall provide and coordinate construction management services of the following activities:

    1. **Administration:** The CM shall administer construction contracts and provide technical Construction Management support to City staff to facilitate completion of projects.

    2. **Contractor Communication:** The CM shall provide effective written and oral communication to the contractor and other stakeholders in the administration of the contract. The CM shall provide for timely, thorough, clear, effective and responsible communications to Requests for Information (RFI's), Requests for Change (RFC's), Requests for Proposal (RFP's), submittals, and other miscellaneous correspondence. CM shall receive, log, and track requests for information. CM shall provide a technical review of RFI's to determine if the issue is addressed adequately. CM shall respond where the RFI can be addressed in the Contract Documents. If the contract documents are not clear, the CM shall forward RFI’s to the Design CM. RFIs responded by the designer shall be tracked for a timely response. CM shall develop a project directory of key consulting and contractor personnel working on the project.

    3. **Quality Assurance:** The CM shall verify and manage the Contractor’s Quality Control Plan.

    4. **Substitution Requests:** The CM shall evaluate requests for material and equipment substitutions and changes based on compliance with contract specifications and taking into account the impacts to cost and schedule. Based upon the CMs evaluation of the request for substitutions, the CM shall inform the PM and Engineer of Record of the substitution request and request an evaluation and decision of the merits of the substitution.

    5. **Resource Loading:** The CM shall monitor the contractor's resource loading and advise on corrective actions needed to maintain schedule.

6. **Submittal Review/Logging:** The CM shall receive, respond, log, and track submittals. If the contract documents are not clear, the CM shall forward submittals to the Engineer of Record. Submittals responded by the designer shall be tracked for a timely response.

7. **Project Meetings:** The CM shall conduct weekly job site construction meetings involving the project team and maintain action items, minutes of said meetings and compliance with the contract provisions. Maintain and distribute meeting minutes within two (2) working days.

- **Safety and Security Monitoring:** The Contractor is responsible for enforcing its safety program on its employees and subcontractors' employees. It is the CM's responsibility to monitor, enforce safety, and promote a safe overall environment for all workers and visitors to the project site. Safety shall comply with all Federal, State and locally accepted safety regulations and measures including:

    1. **Safety:** The CM shall be responsible for providing all necessary personal protective equipment (PPE) including hard hats, vests, footwear, lights and other safety equipment for the CM Team. The CM shall prepare a safety plan for the CM team.

    2. **Job Site Security Verification:** Routinely check job site security and measures taken to protect the public from hazards.

    3. **Emergency Response Plan Review:** Review Contractor's emergency response plans. CM shall ensure that Contractor complies with State and Federal requirements but shall not be responsible for defining Contractor's safety programs. CM shall notify the Contractor of potential unsafe working conditions.

- **Environmental Monitoring:** The CM shall review and enforce requirements stipulated in permits issued by regulatory agencies and the environmental documents as shown or referenced in the contract documents.

- **Controls and Scheduling:** CM shall provide comprehensive project scheduling and control expertise as follows:

    1. **Baseline Schedule Review:** CM shall review and comment on contractor’s baseline and project schedule critical path, and logic review. CM shall ensure that schedule meets all requirements of the contract.

    2. **Progress Schedule Review:** CM shall review and monitor contractor's schedule monthly to monitor project progress and detect early delays. Report all schedule delays to the City’s Project Manager.

3. **Cost and Budget:** CM shall monitor project construction costs, budgets, schedule and maintain current workflow projections.

4. **Reporting:** CM shall prepare and distribute monthly construction reports. CM shall provide at a minimum:

    - Daily inspection reports
    - Weekly job site meeting minutes
    - Monthly report overview
    - Project cost to date
    - Schedule updates
    - Recommendations to mitigate project delays

- **Progress Payment Review:** CM shall review and approve monthly contractor invoices, verify compliance to all terms and conditions of contract and make payment recommendations. The CM shall ensure that the contractor's request for payment does not represent more than the amount for work performed on a monthly basis.

- **Contract Extensions:** CM shall review, analyze, and make recommendations on contractor time extensions/requests.

- **Coordination with City Inspectors/PM:** CM shall coordinate with City inspection and project management resources, where applicable.

- **Miscellaneous Coordination:** CM shall coordinate and monitor work to be performed by others.

- **Project Notice Coordination:** CM shall receive and review project notices, and submit to the City with appropriate recommendations.

- **Monitor Time and Materials Work:** CM shall monitor contractor work performed on a time and materials (T&M) basis to ensure that the contractor labor charges are fair and appropriate, and that materials purchased are of quantity and quality necessary to the project, and documented on invoices.

- **Cost Estimating:** The CM shall maintain a cost estimating system that conforms to industry accepted practices and provide the following:

    1. **Contractor Proposals:** CM shall evaluate contractor cost reduction proposals in accordance with industry cost standards. CM shall provide detailed analysis of the contractor’s proposal along with a recommended outcome to the Project Manager.

2. **Change Order Review:** The CM shall review proposed change orders. The CM shall provide a change order review standard that includes a detailed process, forms, and recommendations of actions to the PM. CM's change order review shall provide additional analysis of both cost and time concurrently. Time impact analysis shall not be deferred to a later time.

- **Document Control:** The CM shall establish a document management system for the following:

1. **Filing:** The CM shall utilize a filing system. CM shall use a web-based document management system as approved by the City. CM shall be responsible for the cost of the document management system and training.

2. **Claims:** The CM shall identify, analyze and prepare construction claims and disputes by assessing or validating entitlement and quantification of damages and promoting a successful resolution within 21 calendar days (assuming the Contractor is cooperative.) The CM shall provide associated cost estimates and time impact analysis concurrently for Claims Evaluation.

3. **Document Tracking:** All central receipts, control, storage, distribution, indexing and tracking of all documents.

4. **Document Managing:** All documents, incoming and outgoing, associated with the construction management activity of all assigned projects, including, but not limited to submittals, requests for information (RFIs), requests for clarifications (RFCs), pay requests, change orders (COs) and correspondence.

5. **As-Built Documents Administration:** Maintaining a current set of as built drawings and specifications.

6. **Document Maintenance:** Maintaining all field documents, storing original documentation and furnishing to the City at project completion.

- **Operations and Maintenance Manuals:** The CM shall receive final O&M equipment manuals from contractor and coordinate their review. Final O&M manuals shall be delivered to the Operations Manager.

- **Change Order and Claims Management:** The CM shall implement a comprehensive claims management program to evaluate change order requests and recommend equitable disposition. When agreement cannot be reached, the CM shall support the City's position and assist in formulating a claims defense and participate in resolution including:

1. **Document Managing:** Coordinate, assemble and review supporting documentation for change order processing and make final recommendations to City staff.

2. **Contractor Request Review:** Review requests of alleged cost increases and/or time impacts for merit concurrently.

3. **Change Order Review:** Thoroughly analyze the proposal and develop a negotiating position. When necessitated by variations between contractor price for change and the CM's fair cost estimate, CM shall negotiate an equitable resolution with guidance from the City's Project Manager.

4. **Change Order Expediting:** After the equitable resolution is reached the CM shall expedite approval of the negotiated change order.

Task 3- Inspection

The CM shall provide inspection services and monitoring of construction to ensure construction is in compliance with the project construction documents. The CM's resident engineer and inspection staff shall verify construction compliance and Quality Assurance Quality Control with applicable permits, codes, construction documents and any environmental mitigation. CM shall maintain redline as-builts on a monthly basis.

- **Daily and Weekly Documentation:**

    1. **Documentation of Construction Activities:** Provide documentation of construction activities, duration of activities, labor resources, and equipment allocation.

    2. **Construction Reporting:** Provide daily construction activity reports, labor resources, on- site equipment, and work conditions.

    3. **Non-Conformance Reporting:** Provide non-conformance reports.
    4. **Photographic Records:** Provide weekly photographic/digital records of the project during construction.

- **Civil Inspections:** The CM shall provide qualified inspectors for all improvements to inspect, monitor, and report on construction improvements as required by the Plans and Technical Specifications.

- **Field Testing:** Witness field tests and startup procedures for electrical equipment as needed.

- **Soil and Materials Testing:** The CM shall provide qualified and approved testing laboratories and California registered Geotechnical Engineers and/or ICC-certified Soils Special Inspector-EC or equivalent staff to perform all necessary soils and materials testing required to verify the quality and proper placement. The Soils and Materials Inspector shall be responsible for the following:

    1. **Material Sampling:** Sample on-site and imported materials for compliance with the specifications for use as backfill materials.

    2. **Material Testing:** Perform maximum density tests and optimum moisture content tests on materials to be used as backfill. Examples of testing include: gradation, R-value, sand equivalence, etc.

    3. **Conformance Testing:** Perform compaction tests for backfill. Separate testing shall be performed for the pavement zone, street zone, and areas of over-excavation. Provide recommendations for compaction or density testing of rock backfill materials. Sand cone test method is required for soil compaction testing. Alternate compaction testing may be utilized; including but not limited to, nuclear gauge.

    4. **Data Review:** Tabulate test data and review failing tests. Provide immediate notification of any failure to meet the requirements of the project contract documents.

    5. **Reporting:** Upon prior authorization from the City, prepare a final report at the completion of construction certifying that geotechnical issues comply with the contract documents.

- **Storm Water Pollution Prevention Plan Inspection:**

    1. Review contractor's site-specific SWPPPs for compliance with applicable regulations.

    2. Monitor contractor's activities regarding pollution prevention controls and activities for general compliance with the contractor's SWPPP Best Management Practice (BMP). The contractor is responsible for means and methods for complying with BMP's. The SWPPP inspector shall notify the contractor and the City if the pollution prevention controls are in or out of compliance with the SWPPP.

TASK 4- Construction Closeout

The CM shall manage the turnover of the assigned project to the City, including contract closeout, management of warranty period activities and demobilization of CM staff including:

- **Site Closeout:** The CM shall budget under the Task 2 Construction Administration budget to close out construction and oversee demobilization at each site. Site Closeout tasks shall include:

    1. **Site Final Walk-Through:** Coordinate and conduct a site final walk-through to verify completion of contract and all related items of work within 7 days of substantial completion.

    2. **Site Punch List:** Develop site punch list and verify completion and obtain final documentation and releases within 7 days of substantial completion.

    3. **Site Record Drawing Preparation:** Verify and deliver contractor as-built marked up drawings for record drawing preparation within 14 calendar days of site substantial completion.

    4. **Site Permitting:** Monitor permit and agency sign-offs within 14 calendar days of substantial completion.

    5. **Site Final Reporting:** Prepare site summary report in accordance with the City within 7 days of final completion.

    6. **Site Documentation Turnover:** Turnover site project files, contract, correspondence, and documentation within 14 calendar days of final completion.

    7. **Site Warranty Coordination:** The CM shall prepare a list of warranty items, warranty period, and warranty repair procedures, and turn over to the City's Project Manager.

    8. **Site Demobilization:** Demobilize the CM staff and facilities in accordance with the agreed upon plan.

- **Construction Contract Close Out:** The CM shall oversee the contract closeout process and assist in resolving O&M service disputes. The CM shall budget under the Task 3 budget for Construction Contract Close Out. The closeout shall entail sign offs by responsible parties and include:

    1. **Project-wide Final Walk-Through:** Coordinate and conduct a final walk-through to verify completion of contract and all related items of work

within 7 days of substantial completion. The final walk-through shall be extended to include relevant City Departments and Divisions.

2. **Project-wide Punch List:** Develop punch list and verify completion and obtain final documentation and releases within 7 days of substantial completion.

3. **Project-wide Record Drawing Review and Corrections:** Review record drawings prepared by the Design Engineer or contractor as-built marked up drawings delivered for each site for correctness and consistency within 14 calendar days of substantial completion.

4. **Final Payment/Close-Out Change Order Review:** Review final payment and close out change orders within 7 days of substantial completion.
5. Permitting: Confirm that all permits are in place within 14 calendar days of substantial completion.

6. **Final Reporting:** Prepare final summary report in accordance with the City within 7 days of final completion.

7. **Documentation Turnover:** Turnover project files, contract, correspondence, and documentation within 14 calendar days of final completion.

8. **Project Warranty Coordination:** The CM shall review and update as needed the list of warranty items, warranty period, and warranty repair procedures, and turn over to the City's Project Manager.

9. **Final Demobilization:** Demobilize the CM staff and facilities in accordance with the agreed upon plan.

City of Oxnard

Public Works Department

305 West Third Street, East Wing Oxnard, California 93030

TASK ORDER

All Task Orders must include a copy of the vendor proposal/estimate

Task Order No.:	Agreement No.:
Task Order NTE Amount:	Agreement NTE Amount:
City Purchase Order No.:	Agreement Type:
Agreement Expiration Date:	
Prime Consultant:	Subconsultant(s):

PROJECT TITLE OR SPECIFICATION NO.:

PROJECT DESCRIPTION:

DESCRIPTION OF SERVICES TO BE PERFORMED UNDER THIS TASK ORDER:

TIME FOR COMPLETION OF SERVICES UNDER THIS TASK ORDER:

COMPENSATION FOR SERVICES SHALL NOT EXCEED THE TASK ORDER NTE AMOUNT.

City Project Manager:

Consultant Project Manager:

Services under this Task Order shall not proceed until this Task Order is executed by the City and Consultant and the City issues a Notice to Proceed. This Task Order may only be modified in writing and subject to City approval. Consultant shall not exceed the scope of the task order or NTE amount.

City of Oxnard		[Consultant]	
[designated rep]	Date	[Name & Title]	Date
Insert Department Assistant Director/Director	Date	[Name & Title]	Date

For internal City Use Only

Account Number and Project Number	*Example 1011234-53200-CXXXX*

On-Call PSA/GSA 2024

EXHIBIT B

PROFESSIONAL SERVICE AGREEMENT
(CITY of Oxnard and Michael K. Nunley & Associates, LLP)

SCHEDULE OF COMPENSATION

mkn
AN ARDURRA COMPANY

2026 FEE SCHEDULE

CATEGORY	POSITION	HOURLY RATE
Communications and Administrative	Administrative Assistant	$119
	Strategic Communications Coordinator	$132
	Strategic Communications Specialist	$176
Designers and Technicians	CAD Technician I	$160
	CAD Design Technician II	$182
	Senior Designer	$194
Planning	Assistant Planner I	$173
	Assistant Planner II	$193
	GIS Specialist	$193
	Planner I	$213
	Planner II	$229
	Senior Planner	$258
Engineers	Engineering Technician	$129
	Assistant Engineer I	$173
	Assistant Engineer II	$193
	Project Engineer I	$213
	Project Engineer II	$229
	Senior Engineer I	$250
	Senior Engineer II	$264
	Senior Engineer III	$280
	Principal Engineer	$303
	Principal Electrical Engineer	$303
Project Management	Project Manager	$269
	Senior Project Manager	$280
	Project Director	$328
	Senior Project Director	$345
Construction Management Services	Scheduler	$188
	*** Construction Inspector	$210
	Assistant Resident Engineer	$210
	Resident Engineer	$223
	Construction Manager	$243
	Principal Construction Manager	$286

DIRECT PROJECT EXPENSES

Outside Reproduction	Cost + 10%
Subcontracted or Subconsultant Services	Cost + 10%
Travel & Subsistence (other than mileage)	Cost
Auto Mileage	Current IRS Rate

*** 40 hours per week assumed; part-time rates can be provided upon request
Rates also subject to prevailing wage mandatory increases during a calendar year

[Continued on next page]

Twining Schedule of Fees 2025-2026

Note: Rates will be adjusted annually each July 1st to reflect increased costs.

Personnel Rates: Per Hour Unless Otherwise Noted

Task Code	Engineering And Consulting Personnel	Rate
10026	Senior Principal Advisor/Consultant	$ 410.00
10001	Principal Engineer/Geologist	$ 295.00
10017	Metallurgical Engineer	$ 410.00
70000	Registered Geotechnical Engineer	$ 295.00
10010	Technical Advisor	$ 275.00
10011	Material Scientist, Welding/NDT Consultant	$ 290.00
70003	Registered Geologist/Certified Engineering Geologist	$ 290.00
10003	Senior Engineer/Geologist	$ 265.00
10009	Registered Civil Engineer	$ 250.00
60003	Roofing/Waterproofing Consultant	$ 280.00
10013	Project Engineer/Manager	$ 245.00
30000	Quality Control Manager	$ 245.00
10005	Senior Staff Engineer/Geologist	$ 230.00
10007	Staff Engineer/Geologist	$ 215.00
10015	Quality Control Administrator	$ 215.00
10019	Metallurgical Technician	$ 185.00
90001	CADD Operator/Draftsperson	$ 170.00
95103	Administrative Support	$ 110.00
70107	Field Supervisor	$ 205.00
91030	Safety Supervisor	$ 205.00
20000	Laboratory Manager	$ 190.00
98000	Laboratory Technician	$ 165.00
90005	Expert Witness Testimony	$ 660.00
91010	Qualified SWPPP Developer	$ 230.00
91000	Qualified SWPPP Practitioner	$ 215.00
30001	Vibration Engineer	$ 250.00

Task Code	Field Inspection Personnel	Rate
10101	Concrete/Reinforced Steel Inspector	$ 141.00
10103	Prestressed/Post Tensioned Inspector	$ 141.00
10105	Concrete ICC Inspector	$ 141.00
10109	Drilled-In-Anchor Inspector	$ 141.00
10111	Gunite/Shotcrete Inspector	$ 141.00
10113	Masonry Inspector	$ 141.00
10201	Structural Steel/Welding Inspector	$ 141.00
10203	AWS Certified Welding Inspector	$ 141.00
10207	Fireproofing Inspector	$ 141.00
10501	Lead Inspector	$ 155.00
10115	Firestop Special Inspector - IFC Premier	$ 167.00
10117	Firestop Special Inspector - IQP	$ 212.00
70109	L.A. Deputy Grading Inspector	$ 157.00
75001	Asphalt Field and Plant Inspector/Technician	$ 141.00
70103	Pile Driving Inspector	$ 146.00
70101	Soils Technician	$ 141.00
10107	Concrete Quality Control (ACI/Caltrans Technician)	$ 141.00
10122	Wood Framing Inspector	$ 146.00
60001	Roofing/Waterproofing Inspector	$ 157.00
10500	Public Works Inspector	$ 162.00
10515	Mechanical Inspector	$ 192.00
10519	Electrical Inspector	$ 192.00
10521	Plumbing Inspector	$ 192.00
10523	Building Inspector	$ 192.00
30002	Vibration Monitoring Technician	$ 167.00
50003	Field Engineering Technician	$ 146.00

Task Code	Shop Inspection Personnel	Rate
10301	Structural Steel Fabrication Inspector	$ 146.00
10309	Batch Plant Quality Control Technician/Inspector	$ 146.00
10325	Glue-Laminated Fabrication Inspector	Quotation
10328	Pre-Cast Concrete/Pipe Fabrication Inspector	$ 146.00

Task Code	Nondestructive Testing Personnel	Rate
10401	NDE Ultrasonic Testing Technician	$ 152.00
10403	NDE Magnetic Particle Testing Technician	$ 152.00
10306	Phased Array Ultrasonic Technician	$ 157.00
10405	NDE Dye Penetrant Testing Technician	$ 152.00
10305	Combination NDE Technician/Welding Inspector	$ 152.00
10306	Phased Array Ultrasonic Technician	$ 157.00
10409	Radiographic Testing (Crew Of 2)	**Quotation**
10020	NDE Engineer	$ 262.00

Task Code	Equipment Usage (Daily Unless Otherwise Noted)	Rate
95318	Skidmore	$ 53.00
95309	Torque Wrench, Small	$ 22.00
95312	Torque Wrench, Large	$ 33.00

Task Code	Equipment Usage (Daily Unless Otherwise Noted), Continued	Rate
95315	Torque Multiplier	$ 50.00
95321	Air Meter	$ 38.00
95322	Unit Weight Bucket	$ 29.00
95323	Field Concrete Scale	$ 38.00
95324	2" x 2" x 2" Mold	$ 27.00
95343	Nuclear Gauge (Per Hour)	$ 14.00
95319	Sand Cone Density Test Equipment	$ 62.00
95333	Pull Test Equipment	$ 77.00
95348	Concrete/Asphalt Coring Equipment	$ 749.00
95336	Floor Flatness (Dipstick)	$ 66.00
95330	Schmidt Hammer	$ 50.00
95341	Vapor Emission Test Kits	$ 60.00
95342	Relative Humidity Probe	$ 94.00
95339	UPV (Ultrasonic Pulse Velocity) Meter	$ 437.00
95351	Fireproofing Adhesion/Cohesion (Per Test)	$ 44.00
95300	A Scan Ultrasonic Equipment And Consumables	$ 104.00
95303	Magnetic Particle Equipment And Consumables	$ 55.00
95306	Liquid Penetrant Consumables	$ 50.00
95307	Phased Array Ultrasonic Equipment (Per Hour)	$ 109.00
95347	Ground Penetrating Radar	$ 415.00
95345	Impact Echo	$ 421.00
95362	Shear-wave tomographer	$ 546.00
95349	Inertial Profiler (Per Hour)	Quotation
95352	Borescope	$ 328.00
95356	Infrared Camera	$ 109.00
95357	Project Dedicated Vehicle	$ 197.00
95364	Roller Compacted Concrete Vibrating Hammer/Tamping Plate	$ 87.00
95367	Half-Cell Potential Equipment Set	$ 421.00
95368	Concrete Electrical Resistivity Meter	$ 197.00
95369	Field Hardness (Steel)	$ 121.00
95370	Coating Thickness Gauge	$ 173.00
95373	Curing Box (Not Temperature Controlled, One-Time Fee/ Per Box)	$ 820.00
95371	Temperature Control Curing Box (Per Month)	$ 546.00
95372	Temperature Matching Curing Box (Per Month)	$ 623.00

Task Code	Specimen Pick-Up	Rate
20100	Soil/Aggregate Sample (Each)	$ 57.00
20102	Standard Sample: Concrete Cylinders (Each)	$ 37.00
20101	Standard Sample: Mortar/Grout Cubes And Cores, Fireproofing, Rebar, And Epoxy Prisms (Each)	$ 37.00
20103	Oversize Sample: Masonry Prisms And Shotcrete Panels (Each)	$ 98.00
20104	Oversize Sample: Flexural Beams (Each)	$ 98.00
20107	Technician For Specimen Pick-Up Not Listed Above (Per Hour, 2-Hour Minimum)	$ 166.00
20109	Technician For Specimen Pick-Up Before 5:00 a.m. Or After 5:00 p.m. Monday Thru Friday, Or All Day Saturday (Per Hour, 2-Hour Minimum Plus Mileage)	$ 229.00

Task Code	Jobsite Trailer, Mobile Or On-site Laboratory	Rate
95360	Portable Or Mobile Laboratory Unit	Quotation
95374	Jobsite Trailer, Conex, Or Equipment Storage Box	Quotation

Task Code	Concrete Tests (Field Made Specimens)	Rate
20201	6" x 12" Cylinder Compression Strength (ASTM C39)	$ 51.00
20202	4" x 8" Cylinder Compression Strength (ASTM C39)	$ 45.00
20203	Density Of Structural Lightweight Concrete Equilibrium Oven Dry Method (ASTM C567)	$ 111.00
20205	Core Compression Including Trimming (ASTM C42)	$ 101.00
20207	6" x 6" x 18" Flexural Beams Not Exceeding Referenced Size (ASTM C78, C293 or CTM 523)	$ 139.00
20209	Splitting Tensile Strength (ASTM C496)	$ 139.00
20211	Modulus Of Elasticity Test (ASTM C469)	$ 362.00
80003	Rapid Chloride Permeability Test: Cylinders Or Cores (ASTM C1202)	$ 634.00
80006	Density, Absorption, And Voids In Hardened Concrete (ASTM C642)	$ 634.00
40005	Flexural Toughness (ASTM C1609, Formerly ASTM C1018)	$ 1,002.00
40006	Double Punch Strength Of Fiber Reinforced Concrete	$ 668.00
40009	Coefficient Of Thermal Expansion Of Concrete (CRD 39, AASHTO T336)	$ 724.00
40012	Bulk Electrical Resistivity (One Age Of Testing, ASTM C1876)	$ 179.00
80013	Flexural Tensile Strength Of Metallic Fiber Reinforced Concrete Beam (EN 14651)	$ 1,113.00

[Continued on next page]

Task Code	Concrete Specimen Preparation	Rate
20151	Sawing Of Specimens (Each)	$ 56.00
20157	Coring Of Specimens In Lab (Each)	$ 56.00
20159	Grinding Of Concrete Below 6000 psi Strength (Each)	$ 101.00
20160	Grinding Of Concrete 6000 psi Strength And Above (Each)	$ 123.00

Task Code	Laboratory Trial Batch: Concrete, Cement And Mortar	Rate
30215	Setting time by Vicat Needle (C1856/C191)	$ 250.00
30216	Compression Test 4" x 8" Cylinders Made And Tested In Laboratory (ASTM C192, C35)	$ 66.00
30217	Compression Test 6" x 12" Cylinders Made And Tested In Laboratory (ASTM C192, C35)	$ 76.00
30219	6" x 6" x 18" Flexural Beams Made And Tested In Laboratory (ASTM C192, C78)	$ 156.00
30223	Splitting Tensile Strength Cylinders Made And Tested In Laboratory (ASTM C192, C496)	$ 156.00
30225	Modulus of Elasticity Test Cylinders Made And Tested In Laboratory (ASTM C192, C469)	$ 379.00
30227	Density Of Structural Lightweight Concrete Made In Laboratory, Equilibrium or Oven Dry Method (ASTM C567) *Does not include surface preparation*	$ 129.00
30237	Bulk Electrical Resistivity (ASTM C1876)	$ 196.00
30201	Laboratory Trial Batch (ASTM C192/Lab Procedure Performance)	$ 613.00
30203	Concrete Mixture Design For Preconstruction Evaluation And Backup Data Development *Does not include trail batching*	$ 360.00
30205	Drying Shrinkage Up To 28 Days, Three 3" x 3" Or 4" x 4" Bars, Five Readings Up To 28 Dry Days (ASTM C157)	$ 579.00
30230	Additional Reading, Per Set Of Three Shrinkge Bars	$ 68.00
30231	Storage Over Ninety (90) Days, Per Set Of Three Shrinkage Bars, Per Month	$ 56.00
30207	Setting Time Up To 7 Hours (ASTM C403)	$ 223.00
30209	Bleeding (ASTM C232)	$ 201.00
30229	Concrete Restrained Expansion (ASTM C878)	$ 779.00
30211	Mix, Make and Test Mortar or Grout Specimens for Compressive Strength: Set of 6 (ASTM C878)	$ 668.00
20263	Non-Shrink Grout: Height Change After Final Set (ASTM C1090)	$ 668.00
20265	Non-Shrink Grout: Height Change At Early Age (ASTM C827)	$ 946.00
30232	Cracking Resistance, Set Of Three Rings, Laboratory Trial Batching, Test Until Cracking Or Up To 28 Days (ASTM 1581)	$ 6,899.00
30233	Evaluation Of Pre-Packaged Masonry Mortars (ASTM C270)	$ 1,447.00
30234	Creep (ASTM C512) (One Age Of Loading, 12 Months Duration Of Testing)	$ 9,459.00
80198	Laboratory Development of Strength-Maturity Curve Without Establishing Datum Temperature (Up To 5 Testing Ages, ASTM C1074)	$ 3,561.00
80199	Laboratory Development Of Strength-Maturity Curve With Establishing Datum Temperature (Up to 5 Testing Ages, ASTM C1074)	$ 5,891.00

Task Code	Evaluation of Mixing Water for Concrete	Rate
80246	Evaluation of Mixing Water For Concrete Per The Requirements Of ASTM C1602, Table 1 (Physical Properties Of Mortar), Per Sample	$ 1,113.00
80248	Evaluation Of Mixing Water For Concrete Per The Requirements Of Caltrans, Section 90, Per Sample	$ 1,335.00

Task Code	Concrete - Chemical Analysis, Transport Properties, Service Life Modeling, Petrographic Examination	Rate
80121	Water Absorption Rate per Set (C1585)	$ 2,100.00
80123	Acid-Soluble Chloride Analysis (ASTM C1152) Includes Sample Prep)	$ 175.00
80126	Water-Soluble Chloride Analysis (ASTM C1218) (Includes Sample Prep)	$ 175.00
80193	Chloride Diffusion Coefficient Of Cementitious Mixtures By Bulk Diffusion (ASTM C1556)	$ 3,116.00
80159	Bulk Resistivity (ASTM C1876) And Formation Factor	$ 725.00
80204	Chloride Binding Isotherm	$ 946.00
80206	Analytical And Experimental (ASTM C1556) Modeling Of Service Life Of Concrete Per Life-365 Model, Per Mixture Design	$ 9,000.00
80208	Analytical And Experimental (NordTest) Modeling Of Service Life Of Concrete Per FIB Model Code 34, Per Mixture Design	$ 8,902.00
80210	Non-Steady State Chloride Migration Coefficient, NordTest 492	$ 696.00
80212	Petrographic Examination Of Hardened Concrete, Level I (ASTM C856) (Excludes Thin Section), Per Sample	$ 1,750.00
80129	Petrographic Examination Of Hardened Concrete, Level II (ASTM C856) Includes Thin Section, Per Sample	$ 2,250.00
80218	Petrographic Examination Of Hardened Concrete, Level III (ASTM C856/C1723) (Thin Section And SEM/EDX), Per Sample	$ 3,500.00
80222	*W/CM* Determination (NordTest Build 361)	$ 1,500.00
80224	Examination Of Volumetric Proportions Of Hardened Concrete (ASTM C457), Per Sample	$ 550.00
80228	Air Void Analysis Of Hardened Concrete (ASTM C457), Per Sample	$ 800.00
80232	Scanning Electron Microscopy (ASTM C1723)	$ 1,000.00
80234	Paste Carbonation Analysis, Per Sample	$ 250.00
80238	Insoluble Residue Analysis (ASTM C1324)	$ 3,500.00
80240	Alkali-Silica - Damage Rating Index (DRI), Per Sample	$ 1,500.00

Task Code	Qualification Of Cements	Rate
80105	Heat of Hydration of Cementitious Materials by Isothermal Calorimetry (C1702)	$ 750.00
80100	Chemical Analysis Of Portland Cement Per Standard Requirements (ASTM C150)	$ 835.00
80103	Physical Testing Of Portland Cement Per Standard Requirements (ASTM C150)	$ 835.00
80194	Physical Testing Of Type K Cement, Mortar Expansion (ASTM C806)	$ 835.00
80195	Physical Testing And Chemical Analysis Of Portland Cement Per Standard Requirements (ASTM C150)	$ 1,558.00
80106	Partial Analysis Or Specific Physical Tests	Quotation
80110	Sulfates Resistance Of Hydraulic Cement (ASTM C1012), 6 Months	$ 3,338.00
80111	Sulfates Resistance Of Hydraulic Cement (ASTM C1012), 12 months	$ 3,672.00
80149	Type 1L Cement (ASTM C595; Excludes Special Properties)	$ 1,558.00
80151	Clinker Microscopy, Per Sample	$ 1,000.00

Task Code	Physical Testing Of Chemical Admixtures For Concrete	Rate
80196	Qualification Of Admixture (ASTM C494)	Quotation

Task Code	Evaluation Of Pozzolans And Slag Cement	Rate
80145	Method A Reactivity of SCM by Isothermal Calorimetry (ASTM C 1897)	$ 900.00
80140	Chemical Analysis Of Fly Ash Per Standard Requirements (ASTM C618)	$ 835.00
80143	Physical Testing Of Fly Ash Per Standard Requirements (ASTM C618)	$ 835.00
80146	Partial Analysis Or Specific Physical Tests	Quotation
80147	Chemical Analysis And Physical Testing Of Fly Ash Per Standard Requirements (ASTM C1618)	$ 1,558.00
80250	Qualification Of Silica Fume Per Standard Requirements (ASTM C1240)	$ 1,558.00
80252	Qualification Of Slag Cement Per Standard Requirements (ASTM C989)	$ 1,558.00
80254	Effectiveness Of Pozzolans & Slag Cement In Mitigating Expansion Due To ASR (ASTM C441)	$ 1,558.00

Task Code	Mass Concrete - Engineering And Testing Services	Rate
80256	Thermal Control Plan (Without Cooling Pipes) Per A Unique Type Of Placement Of Similar Group Of Placements, Each Plan	$ 9,360.00
80258	Thermal Control Plan (With Cooling Pipes), Per A Unique Type Of Placement Of Similar Group Of Placements, Each Plan	$ 10,920.00
80260	Performance Based Maximum Temperature Difference Laboratory & Analytical Studies, One Concrete Mixture Design	$ 6,240.00

Task Code	Rock And Concrete Aggregates - Petrographic Examination & Special USACE & CRD Tests	Rate
80262	Rock Type Description, Per Sample (Rock Core Or Rock Chunk)	$ 1,000.00
80263	Rock Type Description + XRD Including Clay Analysis, Per Sample	$ 1,500.00
80266	Natural Aggregates - Petrographic Examination (Gravel And Natural Sand Consisting Of Single Rock Type ASTM C295) Each, One Sample	$ 2,750.00
80268	Crushed Aggregates - Petrographic Examination (Crushed Rock And Manufactured Sand Consisting Of Single Rock Type ASTM C295), Each, One Sample	$ 2,750.00
80270	Coarse Aggregate Certification For Deleterious Materials Per Specifications Of USACE, Materials Coarser Than 0.75-Inch Each, One Sample, 200 lb.	$ 6,500.00
80272	Coarse Aggregate Certification For Deleterious Materials Per Specifications Of USACE, 0.75-Inch And Finer Material, Each, One Sample, 25 lb.	$ 5,500.00
80274	Fine Aggregate Certification For Deleterious Materials Per Specifications Of USACE, Each, One Sample	$ 2,750.00
80276	Aggregate, Scratch Hardness (CRD-C 130), Each, One Sample, 25 lb.	$ 525.00

Task Code	Soils And Aggregate Tests	Rate
80144	Relative Mortar Strength of Concrete Sand (CTM 515)	$ 1,300.00
30503	Abrasion: LA Rattler (ASTM C131)	$ 214.00
30505	Abrasion: LA Rattler (ASTM C535)	$ 226.00
70301	Atterberg Limits/Plasticity Index (ASTM D4318, CTM 204)	$ 170.00
70303	California Bearing Ratio Excluding Maximum Density (ASTM D1883) Soil	$ 622.00
70304	California Bearing Ratio Excluding Maximum Density (ASTM D1883) Cement-Treated Soil	$ 697.00
70344	Cement-Treated Soil/Base Mix Design: Includes Three Trial Cement Contents With Three Unconfined Compressive Strength Specimens Per Cement Content	$ 3,750.00
70305	Chloride And Sulfate Content (CTM 417, CTM 422)	$ 187.00
30403	Clay Lumps And Friable Particles (ASTM C142)	$ 218.00
30321	Cleanness Value 1" x #4 (CTM 227)	$ 187.00
30322	Cleanness Value 1.5" x .75" (CTM 227)	$ 296.00

[Continued on next page]

Task Code	Soils And Aggregate Tests, Continued	Rate
70393	Collapse Potential/Index (ASTM D5333)	$ 241.00
70396	Compressive Strength Of Molded Soil-Cement Cylinders (ASTM D1633)	$ 113.00
70309	Consolidation Test Full Cycle (ASTM 2435, CTM 219)	$ 213.00
70311	Consolidation Test Time Rate Per Load Increment (ASTM D2435, CTM 219)	$ 49.00
70313	Corrosivity Series Sulfate, Cl, pH, Resistivity (CTM 643, 417, and 422)	$ 263.00
70315	Crushed/Fractured Particles (ASTM D5821, CTM 205)	$ 187.00
70317	Direct Shear Test Remolded And/Or Residual (ASTM D3080)	$ 265.00
70319	Direct Shear Test Undisturbed - Slow [CD] (ASTM D3080)	$ 239.00
70321	Direct Shear Test Undisturbed - Fast [CU] (ASTM D3080)	$ 208.00
70378	Durability Index Per Method - A,B,C, or D (ASTM D3744, CTM 229)	$ 229.00
70325	Expansion Index (ASTM D4829, UBC 18-2)	$ 182.00
75004	Fine Aggregate Angularity (ASTM C1252, CTM 234, AASHTO T304)	$ 208.00
30507	Flat And Elongated Particle (ASTM D4791)	$ 260.00
30508	Flat Or Elongated Particle (ASTM D4791)	$ 229.00
70331	Maximum Density Methods A/B/C (ASTM D1557, D698, CTM 216)	$ 203.00
70333	Maximum Density Check Point (ASTM D1557, D698)	$ 73.00
70335	Maximum Density AASHTO C [Modified] (AASHTO T-180)	$ 208.00
70336	Maximum Index Density Vibratory Table (ASTM D4253)	$ 369.00
70337	Moisture Content (ASTM D2216, CTM 226)	$ 31.00
70339	Moisture and Density Ring Sample (ASTM D2937)	$ 31.00
70341	Moisture and Density Shelby Tube Sample (ASTM D2937)	$ 47.00
70340	Moisture-Density Relations Of Soil-Cement Mixtures Premixed In The Field (ASTM D558)	$ 296.00
70342	Moisture-Density Relations Of Soil-Cement Mixtures Mixed In The Lab (ASTM D558)	$ 380.00
70328	pH Of Soils (ASTM D4972)	$ 68.00
70330	Organic Content Of Soils (ASTM D2974, Method A Only)	$ 94.00
30401	Organic Impurities (ASTM C40, CTM 213)	$ 99.00
70343	Permeability (ASTM D5084)	Quotation
80001	Potential Reactivity Chemical Method (ASTM C289 - Discontinued Method)	$ 832.00
70394	Potential Reactivity Mortar Bar Expansion Method, 14-Day Exposure (ASTM C1260)	$ 1,030.00
70391	Potential Reactivity Mortar Bar Expansion Method, 28-Day Exposure (ASTM C1260)	$ 1,144.00
70398	Potential Reactivity Concrete Bar Expansion Method (ASTM C1293), 12 month	$ 3,115.00
70399	Potential Reactivity Concrete Bar Expansion Method (ASTM C1293), 24 month	$ 3,453.00
70397	Potential Reactivity of Aggregate Combination, Non-Standard Method; 14-Day Exposure, Mortar (After ASTM C1567)	$ 1,222.00
70392	Potential Reactivity Of Aggregate Combination, Non-Standard Method; 28-Day Exposure, Mortar (After ASTM C1567)	$ 1,279.00
70345	R-Value Soil (ASTM 2844, CTM 301)	$ 472.00
70347	R-Value Aggregate Base (ASTM D2844, CTM 301)	$ 525.00
70349	Sand Equivalent (ASTM D2419, CTM 217)	$ 134.00
70351	Sieve #200 Wash Only (ASTM D1140, CTM 202)	$ 97.00
70353	Sieve With Hydrometer 3/4" Gravel To Clay (ASTM D422, D7928, CTM 203)	$ 268.00
70355	Sieve With Hydrometer Sand To Clay (ASTM D422, D7928, CTM 203)	$ 258.00
70357	Sieve Analysis Including Wash (ASTM C136, CTM 202)	$ 160.00
70359	Sieve Analysis Without Wash (ASTM C136, CTM 202)	$ 130.00
70360	Sieve Analysis Split Sieve (ASTM C136, CTM 202)	$ 260.00
70361	Sieve Analysis Without Wash With Cobbles (ASTM C136, CTM 202	$ 255.00
70363	Soundness Sodium Or Magnesium Sulfate, 5 Cycles (ASTM C88)	$ 483.00
70365	Specific Gravity And Absorption Coarse (ASTM C127, CTM 206)	$ 109.00
70367	Specific Gravity and Absorption Fine (ASTM C128, CTM 207)	$ 177.00
70369	Swell/Settlement Potential One Dimensional (ASTM D4546)	$ 161.00
70371	Triaxial	Quotation
70373	Unconfined Compression (ASTM D2166, CTM 221)	$ 204.00
30317	Unit Weight Per Cubic Foot (ASTM C29, CTM 212)	$ 134.00
30319	Voids In Aggregate With Known Specific Gravity (ASTM C29,	$ 134.00
30411	Lightweight Particles Coarse, with Two Solutions (ASTM C123)	$ 556.00
30412	Lightweight Particles Fine, with One Solution (ASTM C123)	$ 268.00
20807	Method of Test for Relative Mortar Strength of Portland Cement Concrete Sand (CT 515)	$ 1,456.00

Task Code	Asphalt Concrete Tests	Rate
75031	HMA Mixing And Preparation	$ 146.00
75032	HMA Mixing And Preparation With Aggregate Treatment	$ 204.00
75033	Bulk Specific Gravity Of Compacted Sample Or Core SSD (ASTM D2726, CTM 308C)	$ 80.00
75036	Bulk Specific Gravity Of Compacted Sample Or Core Paraffin Coated (ASTM D1188 and CTM 308A)	$ 80.00

Task Code	Asphalt Concrete Tests, Continued	Rate
75040	Emulsion Residue, Evaporation (ASTM D244)	$ 182.00
75024	Extraction % Bitumen (ASTM D6307, CTM 382)	$ 182.00
75027	Extraction % Bitumen And Gradation (ASTM D5444, D6307, CTM 202, 382)	$ 250.00
75028	Extraction % Bitumen, Correction Factor (ASTM D6307, CTM 382)	$ 400.00
75030	Chemical Extraction % Bitumen And Sieve Analysis (ASTM D2172 Method A or B, ASTM D5444)	$ 426.00
75042	Lab Tested Maximum Density Hveem, 3 Briquettes (ASTM D1561, D1188, CTM 304, 308)	$ 244.00
75057	Hveem Stabilometer Test, Premixed, 3 Briquettes (ASTM D1560, D1561, CTM 304, 366)	$ 244.00
75048	Lab Tested Maximum Density Marshall, 3 Briquettes (ASTM D6926, (ASTM D6926, D2726)	$ 244.00
75049	Lab Tested Maximum Density Marshall 6" Specimen, 3 Briquettes (ASTM D5581, D2726)	$ 244.00
75050	Lab Tested Maximum Density Superpave Gyratory Compacted Briquette, SSD, 1 Briquette (ASTM D6925, D2726)	$ 100.00
75052	Lab Tested Maximum Density Superpave Gyratory Compacted Briquette, Paraffin, 1 Briquette (ASTM D1188, D6925)	$ 100.00
75051	Maximum Theoretical Specific Gravity [RICE] (ASTM D2041, CTM 309)	$ 187.00
75066	Marshall Stability And Flow, Cored Sample, Each ASTM D6927)	$ 94.00
75069	Marshall Stability And Flow, Premixed, 3 Briquettes (ASTM D6926, D6927)	$ 265.00
75106	Marshall Stability And Flow, Gyratory Compacted Specimen Pre-Mixed, 3 Briquettes (ASTM D5581, D6925)	$ 265.00
75107	Marshall Stability And Flow 6" Specimen, Premixed, 3 Briquettes (ASTM D5581)	$ 265.00
75063	Moisture Content (CTM 370)	$ 94.00
75005	Wet Track Abrasion Test (ASTM D3910)	$ 192.00
75093	Hveem Mix Design (Excluding Aggregate Quality Tests)	$ 6,240.00
75096	Hveem Mix Design, With RAP (Excluding Aggregate Quality Tests, RAP Qualification)	$ 6,760.00
75099	Hveem Mix Design, With Lime (Excluding Aggregate Quality Tests)	$ 10,400.00
75094	Hveem Mix Design Caltrans Untreated Mix (Including Aggregate Quality Tests)	$ 7,280.00
75095	Hveem Mix Design Caltrans Lime Treated Mix (Including Aggregate Quality Tests)	$ 8,320.00
75084	Marshall Mix Design (Excluding Aggregate Quality Tests)	$ 6,240.00
75087	Marshall Mix Design With RAP (Excluding Aggregate Quality Tests)	$ 6,656.00
75090	Marshall Mix Design With Lime (Excluding Aggregate Quality Tests)	$ 7,280.00
75083	Open Grade Asphalt Concrete Mix Design (ASTM D7064, CTM 368)	$ 3,640.00
75109	Superpave Mix Design (Excluding Aggregate Quality Tests)	$ 12,480.00
75113	Superpave Mix Design, With RAP (Excluding Aggregate Quality Tests)	$ 13,000.00
75114	Superpave Mix Design With Rubber (Excluding Aggregate Quality Tests)	$ 13,000.00
75115	Superpave Mix Design With Additives (Excluding Aggregate Quality Tests)	$ 12,700.00
75075	Effect Of Moisture On Asphalt Paving Mixtures, Pre-Mixed (ASTM D4867, AASHTO T283)	$ 1,248.00
75111	Hamburg Wheel Track Test, 20,000 Passes, 4 Briquettes (AASHTO T324)	$ 1,352.00
75039	Raveling Test Of Cold Mixed Emulsified Asphalt (ASTM D7196)	$ 234.00
75067	Marshall Stability, Wet Set, 3 Replicates (AASHTO T245)	$ 406.00
75068	Marshall Stability, Dry Set, 3 Replicates (AASHTO T245)	$ 343.00
75070	Cold Recycled Asphalt Mix Design 2 Gradings Each, 3 Emulsion Content (Caltrans LP-8)	$ 12,064.00

Task Code	Mortar And Stucco - Petrographic Examination	Rate
80282	Stucco, One-Coat (ASTM C856), Includes Thin Section), Per Sample	$ 2,250.00
80286	Stucco, Two-Coat (ASTM C856), Includes Thin Section), Per Sample	$ 2,750.00
80290	Stucco, Three-Coat (ASTM C856), Includes Thin Section), Per Sample	$ 3,500.00

Task Code	Brick Masonry Tests, ASTM C67	Rate
20301	Modulus Of Rupture Flexural	$ 123.00
20303	Compression Strength	$ 84.00
20305	Absorption 5 Hour or 24 Hour	$ 89.00
20307	Absorption (Boil) 1, 2 Or 5 Hours	$ 123.00
20309	Initial Rate Of Absorption	$ 78.00
20311	Efflorescence	$ 95.00
20313	Cores Compression	$ 101.00
20315	Shear Test On Brick Cores 2 Faces	$ 123.00

[Continued on next page]

Task Code	Concrete Block, ASTM C140	Rate
20321	Compression	$ 106.00
20323	Absorption/Moisture Content/Oven Dry Density	$ 106.00
20327	Linear Shrinkage (ASTM C426)	$ 307.00
20335	Web And Face Shell Measurements	$ 61.00
20329	Tension Test	$ 196.00
20331	Core Compression	$ 101.00
20333	Shear Test Of Masonry Cores 2 Faces	$ 123.00
20339	Efflorescence Tests	$ 95.00

Task Code	Masonry Prisms, ASTM C1314	Rate
20341	Compression Test, Composite Masonry Prisms Up To 8" x 16"	$ 229.00
20343	Compression Test, Composite Masonry Prisms > 8" x 16"	$ 307.00
20346	Prism Cord Modulus of Elasticity	$ 724.00
20347	Prism Cord Modulus Of Elasticity With Transverse Strain (For Double-Wythe Specimen)	$ 790.00

Task Code	Mortar And Grout	Rate
20351	Compression 2" x 4" Mortar Cylinders (ASTM C780)	$ 68.00
20353	Compression 3" x 3" x 6" Grout Prisms, Includes Trimming (ASTM C1019)	$ 51.00
20355	Compression 2" Cubes (ASTM C109)	$ 68.00
20357	Compression Cores Includes Trimming (ASTM C42)	$ 101.00

Task Code	Masonry Specimen Preparation	Rate
20155	Cutting Of Cubes Or Prisms	$ 84.00

Task Code	Fireproofing Tests	Rate
20401	Oven Dry Density (ASTM E605)	$ 101.00

Task Code	Gunite And Shotcrete Tests	Rate
20361	Core Compression Including Trimming (ASTM C42)	$ 118.00
20365	Compression Cubes (Includes Saw Cutting)	$ 84.00

Task Code	Concrete Roof Fill: Gypsum, Vermiculite, Perlite, Lightweight Insulating Concrete, Etc.	Rate
20371	Compression Test (ASTM C495 and C472)	$ 84.00
20373	Air Dry Density (ASTM C472)	$ 73.00
20379	Oven Dry Density (ASTM C495)	$ 101.00

Task Code	Reinforcing Steel, ASTM A615, A706	Rate
20501	Tensile Test #11 Or Smaller	$ 84.00
20503	Bend Test #11 Or Smaller	$ 78.00
20504	Bend Test #14 Or #18	$ 445.00
20505	Tensile Test #14	$ 334.00
20507	Tensile Test #18	$ 435.00

Task Code	Reinforcing Steel - Welded Or Coupled Specimens	Rate
20521	Tensile Test Welded/Coupled #11 And Smaller	$ 95.00
20523	Tensile Test Welded/Coupled #14	$ 323.00
20525	Tensile Test Welded/Coupled #18	$ 457.00
20529	Weld Macroetch	$ 106.00
20531	Slippage Test - Caltrans (CTM 670)	$ 245.00
20532	Tensile Test Welded Hoops #11 And Smaller	$ 189.00

Task Code	Metal and Steel Testing	Rate
20601	Tensile Strength Up To 100K Pounds (Each)	$ 95.00
20603	Tensile Strength Up To 200K Pounds (Each)	$ 106.00
20605	Tensile Strength Up To 300K Pounds (Each)	$ 134.00
20607	Tensile Strength Up To 400K Pounds (Each)	$ 196.00
20609	Tensile Strength 400K To 600K Pounds (Each)	$ 445.00
20611	Tensile Strength Stress-Strain Percent Offset	$ 279.00
20545	Weld Macroetch	$ 106.00
20547	Weld Fracture	$ 56.00
20615	Bend Test	$ 89.00
20617	Flattening Test	$ 89.00

Task Code	Metal and Steel Testing, Continued	Rate
20619	Hardness Test (ASTM E18)	$ 95.00
20630	Bolt Axial Tensile Test (Up To 7/8" Diameter)	$ 78.00
20631	Bolt Wedge Tensile Test (Up To 7/8" Diameter)	$ 95.00
20632	Bolt Axial Tensile Test (Greater Than 7/8" Up To 1" diameter)	$ 101.00
20633	Bolt Wedge Tensile Test (Greater Than 7/8" Up To 1" Diameter)	$ 123.00
20634	Bolt Axial Tensile Test (Greater Than 1" Diameter)	$ 146.00
20635	Bolt Wedge Tensile Test (Greater Than 1" Diameter)	$ 156.00
20636	Bolt Proof Load Test (Up To 7/8")	$ 106.00
20637	Bolt Proof Load Test (Greater Than 7/8" Up To 1" Diameter)	$ 129.00
20638	Bolt Proof Load Test (Greater Than 1")	$ 151.00
20639	Nut Proof Load Test (Up To 7/8")	$ 84.00
20640	Nut Proof Load Test (Greater Than 7/8" Up To 1" Diameter)	$ 106.00
20641	Nut Proof Load Test (Greater Than 1")	$ 118.00

Task Code	Chemical Testing Of Metal And Steel	Rate
80170	Steel Chemical Analysis	Quotation
80173	Weight Of Galvanized Coating (ASTM A90)	$ 101.00
80176	Epoxy Coating Thickness	$ 111.00
80177	Coating Thickness	$ 106.00

Task Code	Machining And Preparation Of Tensile And Bend Sample: Carbon Steel	Rate
20751	Machinist Initial Preparation From Mock-Up, Etc. (Per Hour)	$ 162.00
20753	Sawcut To Overall Width (Per 0.5" Thickness Or Fraction Thereof)	$ 73.00
20755	Machine To Test Configuration Milled Specimens	$ 106.00
20757	Machine To Test Configuration Turned Specimens (Per 0.5" Thickness Or Fraction Thereof)	$ 189.00
20759	Prepare Subsize Specimens (Per 0.5" Thickness Or Fraction Thereof)	$ 129.00

Task Code	Charpy Impact	Rate
20621	Charpy Impact Ambient Temperature	$ 118.00
20623	Charpy Impact Reduced Temperature	$ 156.00

Task Code	Machining Of Charpy Samples: Carbon Steel	Rate
20780	Cutting And Milling (Per 0.5" Or Fraction Thereof)	$ 106.00
20783	Final Machining To Sample Configuration	$ 129.00

Task Code	Prestressing Wires And Tendons, (ASTM A416)	Rate
20701	Stress-Strain Analysis Wire Or Strands (Including Chart And Percent Offset)	$ 284.00
20703	Tensile Test Only	$ 212.00
20705	Tendons	Quotation

Task Code	Polymer Matrix Composite Materials (Fiberwrap)	Rate
20706	Tensile Strength – Set of 5 Specimens/Batch/Direction (ASTM D3039)	$ 1,558.00
20707	Tensile Strength – Additional Specimens (ASTM D3039) (ASTM D3039)	$ 301.00
20708	Heating Chamber Time – Per 24 Hr. Period	$ 111.00

Task Code	Calibration Services And Universal Machine Usage	Rate
20801	Calibration/Verification Services	Quotation
20803	Universal Test Machine Usage (Per Hour)	$ 529.00

Specialty Testing

- Cyclic And Fatigue Testing Programs On Special Products/Parts
- Engineering And Technical Supports/Design Of Prototypes And Special Test Set-Up
- Fastener/Coupling Full Testing Program Per New Regulations: Tension, Tension/Bend, Shear, Double Shear, & Compressions
- Fiberglass/Composite Materials Field Testing Program (ASTM D1143 D1242, D2584, D4065, D4476, D4923, D7901, D7921, and D732)
- Field Testing Of Structures And Structural Elements
- In-Place Shear Testing
- Materials And/Or Product Evaluation Per Specifications
- Structural Dynamic Testing And Durability Analysis

EXHIBIT C

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Michael K. Nunley & Associates, LLP)

INSURANCE REQUIREMENTS

Prior to contract approval and beginning of services under this agreement, Consultant must procure, agree to maintain and supply evidence of insurance at the levels listed and in accordance with the other provisions listed in this document.

[See next pages]

Exhibit INS-A

INSURANCE REQUIREMENTS FOR CONSULTANTS
(WITH ERRORS AND OMISSIONS REQUIREMENT)

1. Consultant shall obtain and maintain during the performance of any services under this Agreement the following insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of services hereunder by Consultant, its agents, representatives, employees or subconsultants.

a. Commercial General Liability Insurance, including Contractual Liability, in an amount not less than $1,000,000 combined single limit for bodily injury and property damage for each claimant for general liability with coverage equivalent to Insurance Services Office Commercial General Liability Coverage (Occurrence Form CG 0001). If a general aggregate limit is used, that limit shall apply separately to the project or shall be twice the occurrence amount;

b. Business automobile liability insurance in an amount not less than $1,000,000 combined single limit for bodily injury and property damage for each claimant for automobile liability with coverage equivalent to Insurance Services Office automobile liability coverage (Occurrence Form CA0001) covering Code No. 1, "any auto;"

c. Professional liability/errors and omissions insurance appropriate to Consultant's profession to a minimum coverage of $1,000,000, with neither Consultant nor listed subconsultants having less than $500,000 individually. The professional liability/errors and omissions insurance must be project specific with at least a one year extended reporting period, or longer upon request.

d. Workers' compensation insurance in compliance with the laws of the State of California, and employer's liability insurance in an amount not less than $1,000,000 per claimant. Additionally, the workers' compensation policy shall include a waiver of all rights of subrogation which the insurer may have against the City.

2. Consultant shall, prior to performance of any services, file with the Risk Manager certificates of insurance with original endorsements effecting coverage required by this Exhibit INS-A. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be on the attached forms or on other forms approved by the Risk Manager. All certificates and endorsements are to be received and approved by the Risk Manager before commencement of services. City reserves the right to require complete certified copies of all required insurance policies at any time. The certificates of insurance and endorsements shall be sent via email. If you have not received your request or are having difficulty with electronic upload, contact insurance@oxnard.org

3. Consultant agrees that all insurance coverages shall be provided by a California admitted insurance carrier with an A.M. Best rating of A:VII or better and shall be endorsed to state that coverage may not be suspended, voided, canceled, or reduced in coverage or limits without 30 days' prior written notice to the Risk Manager. The Risk Manager shall not approve or accept any endorsement if the endorsement contains "best effort" modifiers or if the insurer is relieved from the responsibility to give such notice.

4. Consultant agrees that the commercial general liability and business automobile liability insurance policies shall be endorsed to name City, its City Council, officers, employees, agents and volunteers as additional insureds as respects: liability arising out of activities performed by or on behalf of Consultant; products and completed operations of Consultant; premises owned, occupied or used by Consultant; or automobiles owned, leased, hired or borrowed by Consultant. The coverage shall contain no special limitations on the scope of protection afforded to City, its City Council, officers, employees, agents and volunteers. **The General Liability Special Endorsement Form and Automobile Liability Special Endorsement Form attached to this Exhibit INS-A or substitute forms containing the same information and acceptable to the Risk Manager shall be used to provide the endorsements (ISO form CG 2010 11/85 or if not available, CG 2010 with an edition date prior to 01/04 and CG 2037).**

5. The coverages provided to City shall be primary and not contributing to or in excess of any existing City insurance or self-insurance coverages (**this must be endorsed**). Additionally, the workers' compensation policy shall include a waiver of all rights of subrogation which the insurer may have against the City. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to City, its City Council, officers, employees and volunteers. The insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

6. The insurer shall declare any deductibles or self-insured retentions to and be approved by the Risk Manager. At the option of the Risk Manager, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects City, its City Council, officers, employees and volunteers, or the Consultant shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

7. All insurance standards applicable to Consultant shall also be applicable to Consultant's subconsultants. Consultant agrees to maintain appropriate agreements with subconsultants and to provide proper evidence of coverage upon receipt of a written request from the Risk Manager.

1/23

INSTRUCTION FOR SUBMITTING INSURANCE CERTIFICATES AND ENDORSEMENT FORMS

Certificates of Insurance

The sample accord form on the following page is provided to facilitate your preparation and submission of certificates of insurance. You may use this or any industry form that shows coverage as broad as that shown on the attached sample. **Please note the certificate holder address must be as shown on the attached sample accord form with the contract number and insurance exhibit identification information completed.** Improperly addressed certificates may delay the contract start-up date because the City's practice is to return unidentifiable insurance certificates to the insured for clarification as to the contract number. **Cancellation provisions must be endorsed to the policy. Modifying the certificate does not change coverage or obligate the carrier to provide notice of cancellation.**

Endorsement Forms

Original endorsements are required for commercial general liability and business automobile liability insurance policies and must be attached to the applicable certificate of insurance. City preference is that the Consultant/insurer use the endorsement forms which are attached. Substitute forms will be accepted, however, as long as they include provisions comparable to the sample accord form.

INS-A.doc

ACORD CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
CODE SUB-CODE	**COMPANIES AFFORDING INSURANCE COVERAGE**
INSURED	COMPANY LETTER A — SPECIFY COMPANY NAMES IN THIS SPACE
	COMPANY LETTER B

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	**GENERAL LIABILITY** [x] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [x] OCCUR. [x] OWNER'S & CONTRACTOR'S PROT.				GENERAL AGGREGATE PRODUCTS COMP/OP AGG . PERSONAL & ADV. INJURY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED. EXPENSE (Any one person)	$1,000,000 $1,000,000 $1,000,000 $1,000,000 $ $
A	**AUTOMOBILE LIABILITY** [x] ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS GARAGE LIABILITY				COMBINED SINGLE LIMIT BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE	$1,000,000 $ $ $
A	**EXCESS LIABILITY** UMBRELLA FORM OTHER THAN UMBRELLA FORM				EACH OCCURRENCE AGGREGATE	$ $
A	**WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY**				STATUTORY LIMITS EACH ACCIDENT DISEASE-POLICY LIMIT DISEASE-EACH EMPLOYEE	 $1,000,000 $1,000,000 $1,000,000
A	**OTHER** Errors and omissions insurance or malpractice insurance available for the insured's profession				Minimum coverage Each consultant/ & listed sub-consultant	$1,000,000 $500,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/RESTRICTIONS/SPECIAL ITEMS

CERTIFICATE HOLDER	CANCELLATION
CITY OF OXNARD % Evident ID, Inc. **8520 Allison Pointe Blvd. Ste 223** **PMB 5210** **Indianapolis, Indiana 462500-4299 US**	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ~~ENDEAVOR TO~~ MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, ~~BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.~~ AUTHORIZED REPRESENTATIVE

GENERAL LIABILITY SPECIAL ENDORSEMENT FOR THE CITY OF OXNARD (the "City")

SUBMIT IN DUPLICATE

ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER

Telephone:

NAMED INSURED

POLICY INFORMATION:
Insurance Company:
Policy No.:
Policy Period: (from) (to)
LOSS ADJUSTMENT EXPENSE ❒ Included in Limits ❒ In Addition to Limits

❒ Deductible ❒ Self-Insured Retention (check which) of $ _____
with an Aggregate of $_____ applies to _____
coverage. ❒ Per Occurrence ❒ Per Claim (which)

APPLICABILITY. This insurance pertains to the operations, products and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ❒ in which case only the following specific agreements and permits with the City are covered

CITY AGREEMENTS/PERMITS

TYPE OF INSURANCE

GENERAL LIABILITY
❒ COMMERCIAL GENERAL LIABILITY ❒ Claims Made
❒ COMPREHENSIVE GENERAL LIABILITY Retroactive Date _____
❒ OWNERS & CONTRACTORS PROTECTIVE ❒ Occurrence

OTHER PROVISIONS

COVERAGES	LIABILITY LIMITS IN THOUSANDS $	
	EACH OCCURRENCE	AGGREGATE
❒ GENERAL		
❒ PRODUCTS/COMPLETED OPERATIONS		
❒ PERSONAL & ADVERTISING INJURY		
❒ FIRE DAMAGE		
❒ _____		
❒ _____		

CLAIMS: Underwriter's representative for claims pursuant to this insurance.

Name: _____
Address: _____
_____
Telephone: (____) _____

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, insurance company agrees as follows:

1. **INSURED.** The City, its officers, agents, employees and volunteers are included as insureds with regard to liability and defense of suits arising from the operations, products and activities performed by or on behalf of the named insured.
2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the named insured for or on behalf of the City; or (b) products sold by the named insured to the City; or (c) premises leased by the named insured from the City, the insurance afforded by this policy shall be primary insurance as respects the City, its officers, agents, employees or volunteers; or stand in an unbroken chain of coverage excess of the named insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the City, its officers, agents, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SEVERABILITY OF INTEREST.** This insurance applies separately to each insured against whom claim is made or suit is brought except with respect to the company's limits of liability. The inclusion of any person or organization as an insured shall not affect any right which such person or organization would have as a claimant if not so included.
4. **CANCELLATION NOTICE.** With respect to the interests of the City, this insurance shall not be canceled, or materially reduced in coverage or limits except after thirty (30) days prior written notice by receipted delivery has been given to the City.
5. **PROVISIONS REGARDING THE INSURED'S DUTIES.** Any failure to comply with reporting provisions of the policy or breaches or violations of warranties shall not affect coverage provided to the City, its officers, agents, employees or volunteers.
6. **SCOPE OF COVERAGE.** This policy, if primary, affords coverage at least as broad as:
   a. Insurance Services Office Commercial General Liability Coverage, "occurrence" form CG0001; or
   b. If excess, affords coverage which is at least as broad as the primary insurance form CG0001.

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER

CITY OF OXNARD % Evident ID, Inc.
8520 Allison Pointe Blvd. Ste 223
PMB 5210
Indianapolis, Indiana 462500-4299 US

AUTHORIZED REPRESENTATIVE

❒ Broker/Agent ❒ Underwriter ❒ _____

I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement.

Signature _____
(original signature required)
Telephone: (____) _____ Date Signed: _____

AUTOMOBILE LIABILITY SPECIAL ENDORSEMENT FOR THE CITY OF OXNARD (the "City")	**SUBMIT IN DUPLICATE**	
	ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER	POLICY INFORMATION:
	Insurance Company: Policy No.: Policy Period: (from) (to) LOSS ADJUSTMENT EXPENSE ❒ Included in Limits ❒ In Addition to Limits
Telephone:	❒ Deductible ❒ Self-Insured Retention (check which) of $ _____ with an Aggregate of $_____ applies to coverage. ❒ Per Occurrence ❒ Per Claim (which)
NAMED INSURED	**APPLICABILITY**. This insurance pertains to the operations, products and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ❒ in which case only the following specific agreements and permits with the City are covered: CITY AGREEMENTS/PERMITS

TYPE OF INSURANCE	**OTHER PROVISIONS**
❒ COMMERCIAL AUTO POLICY ❒ BUSINESS AUTO POLICY ❒ OTHER	
LIMIT OF LIABILITY	**CLAIMS:** Underwriter's representative for claims pursuant to this insurance. Name: _____ Address: _____ _____ Telephone: (_____) _____
$ _____ per accident, for bodily injury and property damage.	

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, insurance company agrees as follows:

1. **INSURED.** The City, its officers, agents, volunteers and employees are included as insureds with regard to liability and defense of suits arising from the operations, products and activities performed by or on behalf of the named insured.
2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the named insured for or on behalf of the City; or (b) products sold by the named insured to the City; or (c) premises leased by the named insured from the City, the insurance afforded by this policy shall be primary insurance as respects the City, its officers, agents, employees or volunteers; or stand in an unbroken chain of coverage excess of the named insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the City, its officers, agents, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SEVERABILITY OF INTEREST.** This insurance applies separately to each insured against whom claim is made or suit is brought except with respect to the company's limits of liability. The inclusion of any person or organization as an insured shall not affect any right which such person or organization would have as a claimant if not so included.
4. **CANCELLATION NOTICE.** With respect to the interests of the City, this insurance shall not be canceled, or materially reduced in coverage or limits except after thirty (30) days prior written notice by receipted delivery has been given to the City.
5. **PROVISIONS REGARDING THE INSURED'S DUTIES.** Any failure to comply with reporting provisions of the policy or breaches or violations of warranties shall not affect coverage provided to the City, its officers, agents, employees or volunteers.
6. **SCOPE OF COVERAGE.** This policy, if primary, affords coverage at least as broad as:
   a. Insurance Services Office Automobile Liability Coverage, "occurrence" form CA0001, code ("any auto"); or
   b. If excess, affords coverage which is at least as broad as the primary insurance form referenced in the preceding section (1).

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER	**AUTHORIZED REPRESENTATIVE**
CITY OF OXNARD % Evident ID, Inc. **8520 Allison Pointe Blvd. Ste 223** **PMB 5210** **Indianapolis, Indiana 462500-4299 US**	❒ Broker/Agent ❒ Underwriter ❒ _____ I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement. Signature _____ *(original signature required)* Telephone: ( ) Date Signed _____

EXHIBIT D

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Michael K. Nunley & Associates, LLP)

[RESERVED]

EXHIBIT E

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Michael K. Nunley & Associates, LLP)

LIVING WAGE POLICY

Pursuant to the Living Wage Policy adopted July 9, 2002 by the City Council and effective October 1, 2002, the City Manager and City Attorney are directed to include the following language in all standard Consultant/Professional Services contracts that may be governed by the Living Wage Policy.

A. Consultant shall compensate any employee of Consultant who provides Services under this Agreement in accordance with the Living Wage Policy, attached hereto and incorporated herein by reference as the Living Wage Policy Exhibit. While this Agreement is in effect, Consultant shall pay such employee no less than $20.06 per hour for each hour that such employee provides Services under this Agreement. In addition, while this Agreement is in effect, Consultant shall provide to such employee no less than 96 hours of paid leave per calendar year.

B. Consultant agrees to post, at a location readily accessible to those employees providing Services to the City, a copy of the Living Wage Policy adopted by City Council on July 9, 2002 and effective October 1, 2002.

C. If Consultant fails to compensate such employee pursuant to the Living Wage Policy, the City Manager or designee shall terminate this Agreement on written notice to Consultant, effective immediately.

D. In addition, if Consultant fails to comply with the Living Wage Policy in any manner, Consultant shall pay to City a fine of $500 and shall pay to any employee providing Services under this Agreement a penalty of three times the amount or value of the compensation owed to such employee under the Living Wage Policy. Consultant shall pay such fine and penalty within fifteen (15) calendar days after the City Manager or designee provides written notice to Consultant of the amount owed.

CITY OF OXNARD LIVING WAGE REQUIREMENTS
EFFECTIVE JULY 1, 2025

Consultant shall compensate any employee of Consultant who provides Services under this Agreement in accordance with the Living Wage Policy, attached hereto and incorporated herein by reference as Exhibit E. While this Agreement is in effect, Consultant shall pay such employee no less than $20.06 per hour for each hour that such employee provides Services under this Agreement. This hourly rate shall be adjusted on July 1, 2026, and each July 1 thereafter, according to the percentage change in the Consumer Price Index, all items, prepared by the Bureau of Labor Statistics for the Los Angeles area relating to all urban consumers (CPI-U), index base 1982-84=100, comparing May of the previous year to May of the current year. In addition, while this Agreement is in effect, Consultant shall provide to such employee no less than 96 hours of paid leave per calendar year.

a. Consultant agrees to post, at a location readily accessible to those employees providing Services to the City, a copy of the Living Wage Policy adopted by the Oxnard City Council on July 9, 2002 and effective October 1, 2002.

b. If Consultant fails to compensate such employee pursuant to the Living Wage Policy, the City Manager or designee shall terminate this Agreement on written notice to Consultant, effective immediately.

c. In addition, if Consultant fails to comply with the Living Wage Policy in any manner, Consultant shall pay to City a fine of $500 and shall pay to any employee providing Services under this Agreement a penalty of three times the amount or value of the compensation owed to such employee under the Living Wage Policy. Consultant shall pay such fine and penalty within fifteen (15) calendar days after the City Manager or designee provides written notice to Consultant of the amount owed.

EXHIBIT F

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Michael K. Nunley & Associates, LLP)

PREVAILING WAGE

1. Consultant acknowledges that the Project defined in the Agreement between Consultant and City is a "public work" as defined in Division 2, Part 7, Chapter 1 of the California Labor Code ("Chapter 1"), and that this Agreement is subject to Chapter 1 and the rules and regulations established by the Director of Industrial Relations ("DIR") implementing such statutes. Consultant shall perform the Project as a public work. Consultant shall comply with and be bound by all the terms, rules and regulations described in Chapter 1 and the DIR's rules and regulations as though set forth in full herein.

2. Pursuant to Labor Code Section 1773.2, copies of the prevailing rate of per diem wages for each craft, classification, or type of worker needed to perform the Agreement are on file at City Hall and will be made available to any interested party on request. Consultant acknowledges receipt of a copy of the DIR determination of such prevailing rate of per diem wages, and Consultant shall post such rates at each job site covered by this Agreement.

3. Consultant is required to post job site notices, as prescribed by regulation. See Labor Code Section 1771.4(a)(2).

4. Consultant shall comply with and be bound by the provisions of Labor Code Sections 1774 and 1775 concerning the payment of prevailing rates of wages to workers and the penalties for failure to pay prevailing wages. Consultant shall, as a penalty to City, forfeit not more than $200 for each calendar day or portion thereof for each worker paid less than the DIR's determined prevailing rates for the work or craft in which the worker is employed pursuant to this Agreement by Consultant or any subcontractor. The Labor Commissioner shall determine the amount of the penalty as described in Section 1775.

5. Consultant shall comply with Labor Code Section 1776, which requires Consultant and each subcontractor to (1) keep accurate payroll records and verify such records in writing under penalty of perjury, (2) certify and make such payroll records available for inspection, and (3) inform City of the location of the records.

6. Consultant shall comply with Labor Code Sections 1777.5, 1777.6 and 1777.7 and California Administrative Code Title 8, Section 200 et seq. concerning the employment of apprentices on public works projects for all apprenticeable occupations. Before commencing work under this Agreement, Consultant shall provide City with a copy of the information submitted to any applicable apprenticeship program. Within 60

days after concluding the Project, Consultant and each of its subcontractors shall submit to City a verified statement of the journeyman and apprentice hours performed under this Agreement.

7. Consultant may not be debarred or suspended throughout the Agreement Term pursuant to Labor Code Section 1777.1 or 1777.7. If he, she or it becomes debarred or suspended in the Agreement Term, Consultant must immediately notify City.

8. Consultant is not qualified to bid on, be listed in a Bid proposal, or engage in the performance of any contract for public work, as defined in Labor Code Sections 1720 through 1861, unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. Consultant shall continue without interruption to stay registered and qualified to perform public work pursuant to Section 1725.5 for the duration of the term of this Agreement. This provision does not apply to construction, alteration, demolition, installation or repair work of $25,000 or less or to maintenance work of $15,000 or less.

9. Consultant acknowledges that 8 hours labor constitutes a legal day's work. Consultant shall comply with and be bound by Labor Code Section 1810.

10. Consultant shall comply with and be bound by Labor Code Section 1813 concerning penalties for workers who work excess hours. Consultant shall, as a penalty to City, forfeit $25 for each worker employed in the performance of this Agreement by Consultant or by any subcontractor for each calendar day during which such worker is required or permitted to work more than 8 hours in any calendar day and 40 hours in any one calendar week in violation of the provisions of Division 2, Part 7, Chapter 1, Article 3 of the Labor Code. Pursuant to Labor Code Section 1815, work performed by Consultant's employees in excess of 8 hours per day and 40 hours per week shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1 ½ times the basic rate of pay.

11. The Project listed in the Agreement is subject to compliance monitoring and enforcement by the DIR.

12. Consultant shall be responsible for each and every one of its subcontractors' compliance with Chapter 1, the DIR's rules and regulations, and Labor Code Sections 1860 and 3700. Consultant shall include in the written contract between it and each subcontractor a copy of, and a requirement that each subcontractor shall comply with, those statutory provisions. Consultant shall be required to take all actions necessary to enforce such contractual provisions and ensure subcontractors' compliance, including without limitation, conducting a periodic review of the certified payroll records of each subcontractor, and upon becoming aware of the failure of the subcontractor to pay its workers the specified prevailing rate of wages, Consultant shall diligently take corrective action to halt or rectify any failure.

13. To the maximum extent, Consultant shall hold harmless, defend (with counsel approved by the City Attorney) and indemnify City, its legislative bodies, and its officials, officers, employees and agents from any demand or claim for damages, compensation, fines, penalties or other amounts arising out of or incidental to any acts or omissions listed above by any person or entity (including Consultant, its subcontractors, and each of their officials, officers, employees and agents) in connection with any work undertaken or in connection with the Agreement, including without limitation the payment of all attorneys' fees and other related costs. All duties of Consultant under this Section shall survive Agreement termination.

ON-CALL PROFESSIONAL SERVICES AGREEMENT
BETWEEN
THE CITY OF OXNARD AND MNS ENGINEERS, INC.

By This On-Call Professional Services Agreement ("Agreement"), the City of Oxnard ("City") agrees to engage the Services of MNS Engineers, Inc. ("Consultant"), and Consultant agrees to perform the Services for City as herein described, for the compensation, during the term, and otherwise subject to the covenants and conditions herein set forth. City and Consultant may be individually referred to as "Party" or collectively as the "Parties."

1. [INTENTIONALLY OMITTED]

2. SUMMARY DESCRIPTION OF SERVICES.

The Services to be performed pursuant to this agreement will be limited to the particular professional services that are identified in the Scope of Services, attached hereto as Exhibit A. Consultant has been prequalified to perform the particular services required by the City and the City shall issue Task Orders describing the particular project or services required by the City to the prequalified consultants and consultants shall submit a responsive proposal to the City's Project Manager.

Consultant is not to be the exclusive provider of services to the City. The City does not guarantee a specified amount of work under this on-call agreement.

3. PARTIES.

City of Oxnard, a general law and municipal corporation of the State of California, located at 300 West Third Street, Oxnard California 93030.

MNS Engineers, Inc., a corporation of the State of California, located at 201 N Calle Cesar Chavez, STE 300, Santa Barbara, CA 93103

4. TERM OF AGREEMENT: From: July 1, 2026 To: June 30, 2029

A. Time is of the essence in this Agreement
B. The City shall have the option to exercise two (2) consecutive one-year (1) term extensions, in accordance with the scope of work and terms and conditions of this Agreement. Any price negotiations, if allowed, shall be negotiated at the time of contract extension.

C. This Agreement shall not exceed a total of five (5) years (including the initial term and any options to extend). The City in its sole discretion may exercise the option terms upon sixty (60) days written notice to the Consultant (or any other time if the parties so agree) in accordance with Section 12 of this Agreement. The option term shall be commenced by an amendment to this agreement.
D. All Services required of Consultant under this Agreement shall be completed on or before the end of the term of the Agreement.

5. AGREEMENT AMOUNT NOT TO EXCEED: $500,000.00.[1]

6. AGREEMENT EXHIBITS. The following documents memorialized below are the only exhibits to this Agreement and are incorporated by reference as though fully set forth herein. In the event of a conflict between the Exhibits and this Agreement, the Agreement controls.

Exhibit A: Scope of Services and Task Order Template
Exhibit B: Schedule of Compensation
Exhibit C: Insurance Requirements: City Insurance Exhibit INS-A
Exhibit D: [RESERVED]
Exhibit E: Living Wage Policy
Exhibit F: Prevailing Wage Policy

7. DESIGNATED REPRESENTATIVES. The Designated Representatives listed below shall be authorized to act on behalf of the named Party, be responsible for negotiations and contractual matters, and coordinate with each other to perform the Services under this Agreement. Additionally, Consultant's Services shall be performed or immediately supervised by the Consultant's Representative:

City Designated Representative	Consultant Designated Representative
Name: Abe Anbessaw Title: Engineer Division Manager Phone: 805-385-7675 Email: abebaw.anbessaw@oxnard.org Address: 305 West Third Street, Third Floor, Oxnard, CA 93030	Name: Greg Chelini Title: Vice President Phone: 805-692-6921 Email: gchelini@mnsengineers.com Address: 201 N Calle Cesar Chavez, Ste 300, Santa Barbara, CA 93103

[1] This is not a guaranteed dollar amount. No services or work performed pursuant to a Task Order shall exceed the "Not to Exceed" Amount of the Contract or the agreed upon amount stated in the Task Order.

8. **CONTRACTUAL PREREQUISITIES.** This Agreement must first be executed by the Consultant, after which the Agreement shall be approved as to form by the City Attorney, then executed by the Mayor, or an authorized person on behalf of the City, and if executed by the Mayor shall also be executed by the City Clerk.

    A. Consultant is advised that any recommendation for Agreement award is not binding on City until the Agreement is fully executed and approved by the City.
    B. All proof of a City tax certificate, insurance, and W-9 forms is required prior to execution of this Agreement.
    C. Consultant shall not perform any work under this Agreement until a proof of insurance has been provided to the City as required under Section 24 of this Agreement.

9. **CONSULTANT'S SERVICES.**

    A. Consultant shall perform only the type or category of services as set forth in the "Scope of Services," and pursuant to the information contained in the Task Orders issued pursuant to this agreement.
    B. Task Orders may only be modified in writing by the City's Project Manager or Designated Representative.
    C. The Services issued pursuant to a Task Order shall be coordinated with the designated City Project Manager set forth in Exhibit A and are subject to the direction of the City Manager or Department Director. Consultant hereby designates as its Project Manager, the individual identified in Section 7 of this Agreement, as the person responsible for the Services who shall coordinate with City's Project Manager in executing the Scope of Services and Task Order(s) under this Agreement.
    D. Under no circumstances shall the Consultant exceed the amount stated in the City's Task Order or perform additional work or services that are not included in the Task Order

10. **COMPENSATION.** City shall pay Consultant for the Services performed pursuant to the terms of this Agreement and based on the hourly rates and fees set forth in the "Schedule of Compensation," attached to and incorporated into this Agreement as "Exhibit B." Consultant's compensation shall not to exceed amount stated in the Task Order. Under no circumstances shall the Consultant perform work in excess of the amount stated in the Task Order or the not to exceed amount listed in Section 5 of this Agreement. Once this Agreement is executed, the Schedule of Compensation

may only be modified by written Amendment pursuant to Section 13 of this Agreement, and may be subject to approval by the City Council.

A. The maximum not to exceed amount for any individual Task Order issued pursuant to this Agreement shall be $100,000.00 per Task Order.

B. Unless stated otherwise elsewhere in this document, prices shall be firm for the duration of this agreement. No price increases will be permitted during the first year of this Agreement. All price decreases (for example, if Vendor/Contractor offers lower prices to another governmental entity) will automatically be extended to the City. The City requires written proof satisfactory to the City, upon the City's acceptance, of cost increases prior to any approved price adjustment. After the first year of the award, a minimum of 60-days advance notice in writing is required to be considered and approved by the City. No retroactive price adjustments will be considered. For Contracts, any price increases must be stated in a written amendment. The net dollar amount of profit will remain firm during the period of the Agreement. Annual increases shall not exceed the Consumer Price Index- All Consumers, All Items, less food and energy – Los Angeles and be subject to satisfactory performance review by the City and approved (if needed) for budget funding by City Council.

11. PAYMENT and INVOICES. The City shall pay all undisputed portions of any applicable invoice within thirty (30) days after receipt of an invoice. In the event the City disputes one or more items in an invoice, the City shall, within thirty (30) days after receipt of such invoice, notify the Consultant of the item(s) being disputed and the reason(s) therefore. The City may withhold payment for such disputed items until resolution of the dispute.

A. **Payment Request.** Consultant shall submit a payment request to CITY by the end of each calendar month listing the Services provided, costs of those Services, and total amount due for the month. Invoices may be emailed to: **pwengineeringAP@oxnard.org .**

B. Consultant's acceptance of final payment made pursuant to this Agreement shall constitute a release of City from all claims and liabilities for compensation to Consultant for anything completed, finished or relating to the Services. City's payment shall not constitute nor be deemed a release of the responsibility and liability of Consultant for the

accuracy and competency of the information provided and/or the Services performed hereunder, nor shall such payment be deemed to be an assumption of responsibility or liability by City for any defect or error in the Services performed by Consultant and its employees, agents and subcontracted Consultants.

C. Consultant shall provide City with a completed Request for Taxpayer Identification Number and Certification, as issued by the Internal Revenue Service. If any sales tax is due for the Services performed by Consultant or materials or products provided to City by Consultant, Consultant shall pay the sales tax. City shall not reimburse Consultant for sales taxes paid by Consultant.

D. **Non-Appropriation of Funds.** Payments to be made to Consultant by City for the Services performed within the current fiscal year are within the current fiscal budget and within an available, unexhausted and unencumbered appropriation of City. In the event City does not appropriate sufficient funds for payment of the Services beyond the current fiscal year, this Agreement shall cover payment for the Services only up to the conclusion of the last fiscal year in which City appropriated sufficient funds and shall automatically terminate at that fiscal year's conclusion.

12. OPTION TO EXTEND AGREEMENT. When in the City's best interest, this Agreement may only be extended, if the City, in its discretion, exercises an option term in accordance with Section 4 subparagraphs (B) and (C) of this Agreement. The initial term, plus any option to extend shall not exceed a total of five (5) years. **If no option to extend the Agreement appears in section 4(B), then this Agreement shall not be extended.**

13. MODIFICATION OF AGREEMENT. This Agreement may be amended, modified, or otherwise altered, or its provisions waived, only upon mutual consent of the Parties by written amendment. The City may request that the Consultant perform Extra Services. As used herein, "Extra Services" means any services, which are determined by the City to be necessary for the proper completion of the project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement or any Task Order issued under this Agreement. A written amendment signed by both Parties shall be required to authorize performance of and payment for Extra Services under this Agreement or Task Order.

14. TERMINATION OF AGREEMENT. City may terminate this Agreement at any time, with or without cause and without penalty, upon fifteen (15) calendar days' prior written notice pursuant to Section 22 of this Agreement. Such termination shall be effective on the date specified in the notice, or if no date is specified, then fifteen (15) calendar days from the date of the notice. City shall be liable to Consultant only for work done by Consultant up to and including the date of termination of this Agreement unless the termination is for cause, in which event Consultant need be compensated only to the extent required by law. Consultant may terminate this Agreement at any time during the term of the Agreement by giving the City sixty (60) calendar days' prior written notice.

15. [RESERVED]

16. INDEPENDENT CONTRACTOR. Consultant is and shall at all times remain, as to City, a wholly independent contractor. Neither City nor any of its employees or agents shall have control over the conduct of Consultant or any of its employees, except as stated in this Agreement. Consultant has and shall retain the right to exercise full control over the employment, direction, means of performance, location, compensation and discharge of all persons assisting Consultant. This Agreement shall not be interpreted to prevent or preclude Consultant from rendering any Services for Consultant's own account or to any other person or entity as Consultant in its sole discretion shall determine; provided, however, that performing such Services shall not materially interfere with the Services the Consultant shall perform for the City. The City retains the right to provide general instructions to and observe the Consultant in the performance of all Services done on behalf of the City.

Consultant and its employees, subconsultants, and agents have no authority, express or implied, to act on behalf of City in any capacity, to incur any debt, obligation or liability on behalf of City, bind City in any manner, or otherwise act on behalf of City as an agent. Consultant T and its employees are not employees of City. Consultant and its employees are not entitled to receive from City any of the benefits or rights afforded employees of City, including but not limited to reserve leave, sick leave, vacation leave, holiday leave, compensatory leave, Public Employees Retirement System benefits, and health, life, dental, long-term disability and workers' compensation insurance benefits. Consultant shall not, at any time or in any manner, represent that it or any of its agents, subconsultants, or employees are in any manner agents, subconsultants, or employees of City.

17. **LAWFUL PERFORMANCE.** Consultant shall abide by all federal, state, and local laws and regulations as may be related to the performance of duties under this Agreement. Consultant, at its sole expense, shall obtain and maintain during the term of this Agreement, all appropriate permits, licenses, and certificates that may be required in connection with the performance of Services under this Agreement.

18. **SAFETY REQUIREMENTS.** Consultant shall not perform any Services for the City when the Consultant is impaired by alcohol or a controlled substance. When there is reasonable cause to believe that any person has violated this provision, that person shall be immediately removed from the premises and be subject to any applicable civil and/or criminal penalties under the City's Code and/or under state law. All work performed under this Agreement shall be performed in such a manner as to provide safety to the public. The City reserves the right to issue restraining or cease and desist orders to Consultant when unsafe or harmful acts are observed or reported relative to the performance of the work under this Agreement. The acceptance of Consultant 's work by City shall not operate as a release of the Consultant from such standard of care and workmanship.

19. **STANDARD OF PERFORMANCE; WARRANTY.** Consultant agrees to perform all Services required by this Agreement in a professional and competent manner, in accordance with the degree of skill and diligence which is normally employed by reputable professionals performing similar Services under similar conditions in the same or similar locality. Such Services shall also be performed in a manner which is reasonably satisfactory to City Project Manager, or designee (hereinafter the "Project Manager"), provided that discretion in determining what is satisfactory shall not alter the foregoing standard of care.

    A. In accordance with the standard of care set forth in the first sentence of Section 19, the Consultant agrees that it:
    (1) Has thoroughly reviewed and considered the services and work to be performed; and
    (2) Has reviewed the issues regarding the Scope of Services and Task Orders to be provided; and
    (3) Has carefully considered how the services and related work should be performed; and
    (4) Fully understands the facilities, difficulties and restrictions associated with performance of the services required by this Agreement.

20. OWNERSHIP OF CONSULTANT'S WORK PRODUCT, CONFIDENTIALITY & DISCLOSURE, RECORDS & WARRANTY. City shall be the owner of any and all technical documents and records, including, computations, plans, correspondence, and/or other pertinent data and information, both hard copy and electronic, gathered or prepared by Consultant in performance of this Agreement and shall be entitled to immediate possession of the same upon completion of the work under this Agreement, or at any earlier or later time when the same may be requested by City.

A. Ownership of Documents. Every report, draft, work product, map, record, and other document reproduced, prepared, or caused to be prepared by the Consultant pursuant to or in connection with this Agreement shall be the exclusive property of the City.

B. Deliverables. Consultant shall deliver to the City the studies, plans, specifications, or other documents as are identified in the Scope of Services or Task Order; and Consultant shall, upon completion of all work or termination of this Agreement, submit to the City all information developed in the course of the Consultant 's services. Consultant shall, in such time and in such form as the City may require, furnish reports concerning the status of Services required under this Agreement. Consultant shall, upon request by City and upon completion or termination of this Agreement, deliver to the City all material furnished to Consultant by the City.

C. Records and Inspections**.** The Consultant shall maintain full and accurate records, with respect to all Services and matters covered under this Agreement. Books and records pertaining to costs shall be kept and prepared in accordance with generally accepted accounting principles. The City shall have free access at all reasonable times to such records, both hard copy and electronic, and the right to examine and audit the same and to make transcripts therefrom, and to inspect all program data, documents, proceedings, and activities.

D. Confidentiality. Information that is exempt from disclosure to the public is confidential. This includes information relating to the past, present, or future affairs of the City or information belonging to a third party whose information is in the City's possession or control under obligations of confidentiality. Consultant may be granted access to information that is exempt from disclosure to the public (Government Code Section 7920.505) and may contain "trade secrets" (see Government Code Section 7924.510(f)) when it is necessary for Consultant to perform its obligations pursuant to this Agreement. If Consultant is granted such

access to confidential information, Consultant shall not be considered to be a member of the public as that term is used in Government Code Section 7920.515.

E. Disclosure of Information. Consultant shall not disclose, publish, or authorize others to disclose or publish, design data, drawings, specifications, reports, or other information pertaining to the projects assigned to Consultant by the City or other information to which the Consultant has had access during the term of this Agreement without the prior written approval of the City's Designated Representative during the term of this Agreement and for a period of two (2) years after the termination of this Agreement.

F. No Warranty. Other than an obligation upon the City to deal in good faith, the City makes no warranties and shall bear no liability or responsibility for errors or omissions in any Confidential Information disclosed under this Agreement or for any business decisions made by Consultant in reliance on any Confidential Information disclosed under this Agreement.

21. NOTICE OF BREACH AND OPPORTUNITY TO CURE. Neither Party will be in breach of this Agreement where the breach is capable of being cured, or until written notice of the breach is received from the non-breaching Party. The Party charged with breach will have fifteen (15) calendar days from the date of receiving such notice in which to cure the breach or otherwise respond. If the circumstances leading to the charge that the Agreement was breached have not been cured or explained to the satisfaction of the other Party within fifteen (15) days from the date on which the breaching Party received notice of breach, the non-breaching Party may terminate this Agreement. Notice shall be given in the manner set forth in section 22.

22. NOTICE. All notices given or required to be given pursuant to this Agreement shall be in writing and may be given by personal delivery or by first-class mail. Notice sent by mail shall be addressed to each Party's Designated Representative as set forth above in Section 7. When addressed in accordance with this Section, such notice shall be deemed given upon deposit in the United States mail, postage prepaid. In all other instances, notices shall be deemed given at the time of actual delivery. Changes may be made in the names or addresses of persons to whom notices are to be given by giving notice in the manner prescribed in this Section.

23. INDEMNIFICATION, HOLD HARMLESS & DEFENSE. Except as set forth in Subsection A of this Section 23, and to the fullest extent permitted by law, Consultant shall immediately defend, indemnify, and hold harmless the City, its officers, employees, representatives, and agents (the "City Indemnitees"), from and against those actions, suits, proceedings, claims, demands, losses, costs, and expenses, including legal costs and reasonable attorneys' fees, for any personal injuries, deaths, or property damage, including property owned by the City (collectively "Claims") which may arise out of Consultant's negligence or willful misconduct in the performance of the services described in this Agreement, unless such Claims are proven to be caused by the negligence or willful misconduct of the City Indemnitees.

A. The provisions of this Subsection apply only in the event that Consultant is a design professional within the meaning of California Civil Code section 2782.8 ("Design Professional"). The term Design Professional, as defined in said section, is limited to licensed architects, licensed landscape architects, registered professional engineers, professional land surveyors, and the business entities that offer such services in accordance with the applicable provisions of the California Business and Professions Code.

   (1) Notwithstanding the provisions of Section 23 above, to the extent that the services to be provided under this Agreement are those of a Design Professional, Consultant's duty to indemnify, hold harmless, and defend the City Indemnitees shall be limited to the extent that any Claims arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, its officers, agents, employees or subconsultants in the performance of the services described in this Agreement.

   (2) In no event shall the costs of defense charged to Consultant exceed the Consultant's proportionate percentage of fault, except as otherwise set forth in said Civil Code section 2782.8, the provisions of which are incorporated into this Agreement by this reference. Nothing in this Subsection b shall be construed to require Consultant to provide indemnification for Claims caused by the active negligence or willful misconduct of the City Indemnitees

B. The City does not and shall not waive any rights that it may have against Consultant under this Section, because of the acceptance by the City, or the deposit with the City, of any insurance policy or certificate required pursuant to this Agreement. The hold harmless and indemnification

provisions of this Section 23 shall apply regardless of whether said insurance policies are determined to be applicable to the claim, demand, damage, liability, loss, cost, or expense described herein.

C. The obligation to indemnify and defend, as set forth in this Section 23, is binding on the successors, assigns, or heirs of Consultant and shall survive the expiration or any early termination of this Agreement.

24. INSURANCE. Consultant shall obtain and maintain during the performance of any Services under this Agreement the insurance coverages listed within "Exhibit C", which is attached hereto and incorporated herein by this reference, unless the Risk Manager waives, in writing, the requirement that Consultant obtain and maintain such insurance coverages. Such insurance must be issued by a company satisfactory to the Risk Manager. Consultant shall, before performance of any Services pursuant to this Agreement, file with the Risk Manager evidence of insurance coverage as specified in "Exhibit C". Maintenance of insurance coverages by Consultant is a material element of this Agreement. Consultant's failure to maintain or renew insurance coverages or to provide renewal evidence shall be considered a material breach of this Agreement.

25. LIVING WAGE REQUIREMENTS. During the term of this Agreement, Consultant understands and agrees that if Living Wages are applicable, subject to the 2002 Oxnard City Council Living Wage Policy, attached as "Exhibit E" to this Agreement, Consultant will pay and/or provide the wages and/or benefits required therein to all of its employees engaged in whole or in part in performing the Services provided for by this Agreement. The Living Wage is updated on July 1 of each year, and the duty to pay the correct wage is the responsibility of the Consultant.

26. PREVAILING WAGE REQUIREMENTS. The payment of State prevailing wages as designated for Ventura County shall apply to public works projects. However, this section shall not apply to work performed on a public works project of twenty-five thousand dollars ($25,000) or less when the project is for construction, alteration, demolition, installation, or repair work; or to work performed on a public works project of fifteen thousand dollars ($15,000) or less when the project is for maintenance work. Prevailing wages are required to be paid to all workers, including subcontracted employees. For further information regarding Prevailing Wage Requirements please refer to Exhibit "F" attached to this Agreement.

A. To determine if this Agreement is subject to compliance monitoring and enforcement, go to:

https://www.dir.ca.gov/Public-Works/PublicWorksSB854FAQ.html

B. It is unlawful to split, or separate into small portions, work orders, projects, purchases, or public works projects for the purpose of evading these prevailing wage requirements.

C. In the event that there is a difference between the amount of wages to be paid under the City of Oxnard's local Living Wage requirements and the requirements of this provision, the wage rate that is the higher of the two shall be applicable to this Agreement. The duty to pay the correct wage is the responsibility of the Consultant.

27. [RESERVED]

28. SUBCONTRACTING. If Consultant requires the assistance of a subcontractor to render any Services under this Agreement, Consultant shall obtain prior written consent from the City before a subcontractor performs any service pursuant to this Agreement. All subcontractors shall be identified in the Scope of Work or Task Order attached to this Agreement as "Exhibit A". Consultant is fully responsible for satisfactory completion of all its subcontractors' work. All subcontractors shall be properly licensed and insured; and bonded, if applicable. Consultant shall be responsible for all liabilities regardless of nature, type, or cause, arising out of or resulting from or in connection with subcontractors performance pursuant to this Agreement or subcontractors failure to comply with any of its obligations in connection with this Agreement.

29. CONFLICT OF INTEREST. Consultant covenants that it does not have any interest, nor shall it acquire any interest, directly or indirectly, which would conflict in any manner with the performance of Consultant's Services under this Agreement. Consultant further covenants that in the performance of Services under this Agreement, no officer, employee or agent of Consultant having such interest shall be employed by it. In the event the City determines that Consultant must disclose its financial interests by completing and filing a Fair Political Practices Commission Form 700, Statement of Economic Interests, Consultant shall file such Form 700 with the City Clerk's Office pursuant to the written instructions provided by the City Clerk. Acquisition or maintenance of a conflicting interest by Consultant may result in termination of this Agreement by the City.

30. DISPUTES. Except as otherwise provided in these provisions, any dispute concerning a question of fact arising under this Agreement, shall be decided by the City's Designated Representative, who shall reduce this decision to writing and mail

a copy to the Consultant. The decision of the City's Designated Representative shall be final and conclusive unless Consultant requests mediation within ten (10) calendar days. Pending final decision of a dispute, the Consultant shall proceed diligently with the performance of the Agreement and in accordance with the decision of the City's Designated Representative.

31. DISPUTE RESOLUTION. Should an unresolved dispute arise out of this Agreement, any Party may request that it be submitted to mediation. The Parties shall meet in mediation within a reasonable time not to exceed forty five (45) days of a request. The mediator shall be agreed to by the mediating Parties. In the absence of an Agreement on a mediator, the Parties shall each submit one name from mediators listed by the American Arbitration Association, the California State Board of Mediation and Conciliation, or other agreed-upon service. The mediator shall be selected by a "blindfold" process. The cost of mediation shall be borne equally by both Parties. Neither Party shall be deemed the prevailing Party. No Party shall be permitted to file a legal action without first meeting in mediation and making a good faith attempt to reach a mediated settlement. The mediation process, once commenced by a meeting with the mediator, shall last until Agreement is reached by the Parties but not more than sixty (60) calendar days, unless the maximum time is extended in writing by both Parties.

32. ASSIGNMENT. This Agreement is for the professional Services of Consultant. Any attempt by Consultant to assign the benefits or burdens of this Agreement without the prior written approval of City shall be prohibited and shall be null and void. Consultant's Services pursuant to this Agreement shall be provided by the Consultant's Designated Representative or directly under his/her supervision, and Consultant shall not assign another to supervise the Consultant 's performance of this Agreement without the prior written approval of City, by and through the City's Designated Representative.

33. CARE OF WORK. Should Consultant discover any latent or unknown conditions materially differing from those inherent in the Services or as represented by the City, Consultant shall immediately inform the City of such fact and shall not provide any Services, except at Consultant's risk, until written instructions are received from the Project Manager.

34. REPORTS. Upon request by the Project Manager or as otherwise required by this Agreement, including but not limited to, the Scope of Services or Task Orders set

forth in Exhibit “A”, Consultant shall prepare and submit reports to the City concerning Consultant's performance of the Services required by this Agreement.

35. AUDIT. City shall have the option of inspecting, auditing and/or reproducing all records and other written materials used by Consultant in preparing its billings to City as a condition precedent to any payment to Consultant, or for other purposes relating to the Agreement. Consultant will promptly furnish all documents requested by City. Additionally, if this Agreement is in excess of $10,000, the State Auditor may examine and audit Consultant for a period of 3 years after final payment under the Agreement. Regardless of whether a State audit is permitted, Consultant shall maintain and preserve all such records for a period of at least 3 years after final payment under the Agreement or until an audit has been completed and accepted by City, whichever occurs later. Consultant shall maintain all such records in City or to promptly reimburse City for all reasonable costs incurred in conducting the audit at a location other than in City, including but not limited to expenses for personnel, salaries, private auditor, travel, lodging, meals and overhead. Consultant shall include a copy of this Section in all contracts with its subcontractors, and Consultant shall be responsible for immediately obtaining those records or other written material from its subcontractors upon a request by the State Auditor and/or City.

36. ADVERTISING AND PUBLICITY. Consultant shall not use the name of or refer to City directly or indirectly in any advertisement, news release, or professional or trade publication without prior written approval from the City Manager. This Section shall survive the termination of this Agreement.

37. NONDISCRIMINATORY EMPLOYMENT. Consultant shall not unlawfully discriminate against any individual based on race, color, religion or religious creed, national origin, ancestry, ethnic group identification, primary language, physical disability, mental disability, medical condition, genetic information, marital status, gender, gender identity, gender expression, sex, sexual orientation, age, immigration status, citizenship or military and veteran status. Consultant understands and agrees that it is bound by and will comply with all legal nondiscrimination mandates. For every subcontractor who will perform Services, Consultant shall be responsible for such subcontractor’s compliance with this Section.

38. COVENANTS AND CONDITIONS. Each term and each provision of this Agreement to be performed by Consultant shall be construed to be both a covenant and a condition.

39. WAIVER. City's review or acceptance of, or payment for, work product prepared by Consultant under this Agreement will not be construed to operate as a waiver of any rights City may have under this Agreement or of any cause of action arising from Consultant's performance. A waiver by City of any breach of any term, covenant, or condition contained in this Agreement will not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant, or condition contained in this Agreement, whether of the same or different character.

40. FORCE MAJEURE. Neither the Consultant nor the City shall be responsible for any delay caused by any contingency beyond their control, including, but not limited to, war or insurrection, walkouts by the Party's own employees, fires, natural calamities, riots, or demands or requirements of governmental agencies other than the City.

41. GOVERNING LAW. The terms of this Agreement shall be interpreted according to the laws of the State of California. Should litigation occur, venue shall be in the Superior Court of California, County of Ventura.

42. SEVERABILITY. If any portion of this Agreement is declared by a court of competent jurisdiction to be invalid or unenforceable, then such portion will be deemed modified to the extent necessary in the opinion of the court to render such portion enforceable and, as so modified, such portion and the balance of this Agreement will continue in full force and effect and be enforceable.

43. INTEGRATED AGREEMENT. This Agreement and the attached exhibits referenced herein to this Agreement represent the entire understanding between the Parties. No verbal Agreement or implied covenant shall be held to vary the provisions of this Agreement. This Agreement shall bind and inure to the benefit of the Parties to this Agreement and any subsequent successors and assigns.

44. NO THIRD-PARTY BENEFICIARY. This Agreement shall not be construed to be an Agreement for the benefit of any third-party or parties, and no third party or parties shall have any claim or right of action under this Agreement.

45. AUTHORITY TO EXECUTE. Each Party hereto expressly warrants and represents that the signatories to this Agreement have the authority to execute this Agreement on behalf of its corporation, partnership, business entity, or governmental entity, and warrants and represents that the signatories have the authority to bind each Party to the performance of its obligations hereunder.

46. EXECUTION – COUNTERPARTS. This Agreement may be executed in any number of counterparts and each such duplicate counterpart shall constitute an original, but they shall not be effective nor enforceable unless and until it is executed with the handwritten signature or electronic signature of an authorized representative of each of the relevant Parties. No counterpart shall be deemed to be an original or presumed delivered unless and until the counterpart executed by the other Party to this Agreement is in the physical possession of the Party seeking enforcement thereof.

47. INCONSISTENT OR CONFLICTING TERMS. In the event of any contradictions or inconsistencies between any attached documents or exhibits incorporated by reference herein and the provisions of the Agreement itself, the terms of the Agreement shall control. Any exhibit that is attached and incorporated by reference shall be limited to the purposes for which it is attached, as specified in this Agreement. Any contractual terms or conditions contained in such exhibit imposing additional obligations on the City are not binding upon the City and City's Designated Representative unless specifically agreed to in writing, and initiated by City's Designated Representative, as to each additional contractual term or condition.

48. CAPTIONS AND HEADINGS. The captions and headings contained in this Agreement are provided for identification purposes only and shall not be interpreted to limit or define the content, scope, or intent of the provisions described under the respective caption or heading.

49. ACKNOWLEDGEMENT. By signing below, Consultant acknowledges that it has reviewed the City's Professional Services Agreement terms and conditions and insurance requirements and that Consultant hereby agrees to full compliance.

[Signatures on next page]

IN WITNESS WHEREOF, the Parties have entered into this Agreement effective on the date as written in Section 4 and upon signature of all Parties.

CITY OF OXNARD

_____ _____
☐Luis A. Mc Arthur, Mayor[21] Date
☐Libertad Macias, Purchasing Manager[32]

MNS ENGINEERS, INC.

_____ _____
Greg Chelini, Vice President Date

_____ _____
Miranda Patton, Board Secretary[43] Date

ATTEST:

_____ _____
Lourdes A. López, City Clerk Date
(only if Mayor authorizes)

APPROVED AS TO FORM:

_____ _____
Stephen M. Fischer, Date
City Attorney (always required)

[21] The City Council must authorize and the Mayor must execute any agreement over $220,000.

[32] The Purchasing Agent may execute any authorized agreement up to $220,000.

[43] The City requires the following for any contract:
● For a corporation, the signatures of the Board President, CEO or Vice President and of the Board Secretary, Assistant Secretary, CFO or Assistant Treasurer;
● For an LLC, the signatures of at least two managers of the LLC (company directors, not lower-level managers); or
● For a partnership, the signature of a partner. If the partnership is a limited partnership, the signer must be a general partner.
If the company has a different structure, or if the above-listed persons are not the appropriate signers, please submit to the City Attorney legally-binding documentation stating who can sign and bind your company.

EXHIBIT A

PROFESSIONAL SERVICE AGREEMENT
(CITY of Oxnard and MNS Engineers, Inc.)

SCOPE OF SERVICES

PROJECT MANAGER: Abe Anebessaw

General Specifications

The awarded Consultant(s) under this agreement shall provide construction management and inspection support for the City's capital and other projects, as assigned. Specific services shall include, but not be limited to, providing Construction Management / Inspection Services for projects involving public buildings, housing, public works infrastructure, public parks, and such other facilities as may be required. Each individual project assigned by the City of Oxnard (City) will be composed of task orders. The task order proposal shall identify a concise schedule for completion of the task order (Task.) It is the Consultant's responsibility to determine the best and most cost-effective method to complete the Work so that the assigned task order can be completed to the satisfaction of the City. Task orders shall be negotiated as a lump sum amount per term based upon the hourly rate fee schedule as agreed to by the City and Consultant for all services and under the agreement amount. Task order funds will be encumbered based on the quote provided to the City by Consultant per task order. This Scope of Work will allow for additional professional services offered by the Consultant and the services noted below shall not be restricted to those directly stated.

Construction Management/Inspection services shall comply and be consistent with the industry standards and practices, to the full extent any provisions thereof relate or have applicability to such Projects.

The Scope of Work for Construction Management and Inspection Services shall include, but not be limited to the following:

Task 1- Management with City Staff

- **Project Management:** The Construction Manager (CM) shall coordinate all work efforts of the project team including representatives from the City, and shall facilitate regular Project progress meetings and provide regular updates on the Project status and budget. The CM shall become familiar with City processes, procedures, and objectives to provide services and assistance as directed by City staff. The CM shall work under the direction of the City Project Manager,

develop and maintain open lines of communications and cooperation between City staff, CM staff, contractors, and the public.

- **Project Kick-off Meeting:** At the commencement of the Project, the CM shall facilitate a "kick-off" meeting with the City to discuss the scope and parameters of the Project. The CM shall prepare and distribute a draft agenda in advance of the meeting for review and comment by the Project Manager. Specific Project goals will be identified and a strategy to accomplish these goals will be developed during the kick-off meeting. The CM shall prepare and distribute meeting minutes within two (2) working days of the meeting.

- **Progress Meetings:** The CM shall conduct bi-weekly progress meetings with the City for the duration of the project, and more frequently if individual situations warrant. The CM shall prepare an agenda that will include topics such as safety, RFI, submittals, change order, schedule, and construction progress. The CM shall be responsible for preparing and distributing meeting minutes from each meeting. Meeting minutes shall be in a format acceptable to the City's Project Manager and shall be distributed within two (2) working days of the project meeting. Project progress meetings will be held at the Public Works Conference rooms and project sites. At least monthly, the CM will present a summary of the monthly progress reports and discuss outstanding or upcoming project issues with the City.

- **CM Plan:** The CM shall prepare a CM Plan utilizing the final conformed contract documents, and shall include the following elements:

    1. Organization Chart
    2. CM coordination with City team and description of duties and responsibilities
    3. Safety compliance
    4. Claims avoidance strategy
    5. Special inspection requirements
    6. Inspection procedures
    7. List of all tests required for project
    8. Materials testing location
    9. Document management system
    10. Physical office location
    11. Project close out process

- **CM Staffing:** The CM shall provide appropriate staffing to accommodate the needs of the project.

Task 2- Construction Administration

The CM shall provide a Resident Engineer (RE) to provide construction administration and direct contractor activities whenever the contractor is working onsite. If the RE

meets the certification requirements for the specialty inspectors, the RE may perform inspections, provided that the specialty inspections do not interfere with the primary resident engineering tasks. The RE shall be certified by the International Code Council (ICC) for any inspections they perform. For budgetary purposes, the CM shall assume that the RE shall be dedicated full time for the duration of the project. The Construction Administration tasks are described below.

- **Contract Administration:** The CM shall have the responsibility for the daily management of the construction project. The CM shall provide and coordinate construction management services of the following activities:

    1. **Administration:** The CM shall administer construction contracts and provide technical Construction Management support to City staff to facilitate completion of projects.

    2. **Contractor Communication:** The CM shall provide effective written and oral communication to the contractor and other stakeholders in the administration of the contract. The CM shall provide for timely, thorough, clear, effective and responsible communications to Requests for Information (RFI's), Requests for Change (RFC's), Requests for Proposal (RFP's), submittals, and other miscellaneous correspondence. CM shall receive, log, and track requests for information. CM shall provide a technical review of RFI's to determine if the issue is addressed adequately. CM shall respond where the RFI can be addressed in the Contract Documents. If the contract documents are not clear, the CM shall forward RFI’s to the Design CM. RFIs responded by the designer shall be tracked for a timely response. CM shall develop a project directory of key consulting and contractor personnel working on the project.

    3. **Quality Assurance:** The CM shall verify and manage the Contractor’s Quality Control Plan.

    4. **Substitution Requests:** The CM shall evaluate requests for material and equipment substitutions and changes based on compliance with contract specifications and taking into account the impacts to cost and schedule. Based upon the CMs evaluation of the request for substitutions, the CM shall inform the PM and Engineer of Record of the substitution request and request an evaluation and decision of the merits of the substitution.

    5. **Resource Loading:** The CM shall monitor the contractor's resource loading and advise on corrective actions needed to maintain schedule.

    6. **Submittal Review/Logging:** The CM shall receive, respond, log, and track submittals. If the contract documents are not clear, the CM shall forward submittals to the Engineer of Record. Submittals responded by the designer shall be tracked for a timely response.

7. **Project Meetings:** The CM shall conduct weekly job site construction meetings involving the project team and maintain action items, minutes of said meetings and compliance with the contract provisions. Maintain and distribute meeting minutes within two (2) working days.

- **Safety and Security Monitoring:** The Contractor is responsible for enforcing its safety program on its employees and subcontractors' employees. It is the CM's responsibility to monitor, enforce safety, and promote a safe overall environment for all workers and visitors to the project site. Safety shall comply with all Federal, State and locally accepted safety regulations and measures including:

    1. **Safety:** The CM shall be responsible for providing all necessary personal protective equipment (PPE) including hard hats, vests, footwear, lights and other safety equipment for the CM Team. The CM shall prepare a safety plan for the CM team.

    2. **Job Site Security Verification:** Routinely check job site security and measures taken to protect the public from hazards.

    3. **Emergency Response Plan Review:** Review Contractor's emergency response plans. CM shall ensure that Contractor complies with State and Federal requirements but shall not be responsible for defining Contractor's safety programs. CM shall notify the Contractor of potential unsafe working conditions.

- **Environmental Monitoring:** The CM shall review and enforce requirements stipulated in permits issued by regulatory agencies and the environmental documents as shown or referenced in the contract documents.

- **Controls and Scheduling:** CM shall provide comprehensive project scheduling and control expertise as follows:

    1. **Baseline Schedule Review:** CM shall review and comment on contractor’s baseline and project schedule critical path, and logic review. CM shall ensure that schedule meets all requirements of the contract.

    2. **Progress Schedule Review:** CM shall review and monitor contractor's schedule monthly to monitor project progress and detect early delays. Report all schedule delays to the City’s Project Manager.

    3. **Cost and Budget:** CM shall monitor project construction costs, budgets, schedule and maintain current workflow projections.

    4. **Reporting:** CM shall prepare and distribute monthly construction reports. CM shall provide at a minimum:

- Daily inspection reports
- Weekly job site meeting minutes
- Monthly report overview
- Project cost to date
- Schedule updates
- Recommendations to mitigate project delays

- **Progress Payment Review:** CM shall review and approve monthly contractor invoices, verify compliance to all terms and conditions of contract and make payment recommendations. The CM shall ensure that the contractor's request for payment does not represent more than the amount for work performed on a monthly basis.

- **Contract Extensions:** CM shall review, analyze, and make recommendations on contractor time extensions/requests.

- **Coordination with City Inspectors/PM:** CM shall coordinate with City inspection and project management resources, where applicable.

- **Miscellaneous Coordination:** CM shall coordinate and monitor work to be performed by others.

- **Project Notice Coordination:** CM shall receive and review project notices, and submit to the City with appropriate recommendations.

- **Monitor Time and Materials Work:** CM shall monitor contractor work performed on a time and materials (T&M) basis to ensure that the contractor labor charges are fair and appropriate, and that materials purchased are of quantity and quality necessary to the project, and documented on invoices.

- **Cost Estimating:** The CM shall maintain a cost estimating system that conforms to industry accepted practices and provide the following:

    1. **Contractor Proposals:** CM shall evaluate contractor cost reduction proposals in accordance with industry cost standards. CM shall provide detailed analysis of the contractor’s proposal along with a recommended outcome to the Project Manager.

    2. **Change Order Review:** The CM shall review proposed change orders. The CM shall provide a change order review standard that includes a detailed process, forms, and recommendations of actions to the PM. CM’s change order review shall provide additional analysis of both cost and time concurrently. Time impact analysis shall not be deferred to a later time.

- **Document Control:** The CM shall establish a document management system for the following:

    1. **Filing:** The CM shall utilize a filing system. CM shall use a web-based document management system as approved by the City. CM shall be responsible for the cost of the document management system and training.

    2. **Claims:** The CM shall identify, analyze and prepare construction claims and disputes by assessing or validating entitlement and quantification of damages and promoting a successful resolution within 21 calendar days (assuming the Contractor is cooperative.) The CM shall provide associated cost estimates and time impact analysis concurrently for Claims Evaluation.

    3. **Document Tracking:** All central receipts, control, storage, distribution, indexing and tracking of all documents.

    4. **Document Managing:** All documents, incoming and outgoing, associated with the construction management activity of all assigned projects, including, but not limited to submittals, requests for information (RFIs), requests for clarifications (RFCs), pay requests, change orders (COs) and correspondence.

    5. **As-Built Documents Administration:** Maintaining a current set of as built drawings and specifications.

    6. **Document Maintenance:** Maintaining all field documents, storing original documentation and furnishing to the City at project completion.

- **Operations and Maintenance Manuals:** The CM shall receive final O&M equipment manuals from contractor and coordinate their review. Final O&M manuals shall be delivered to the Operations Manager.

- **Change Order and Claims Management:** The CM shall implement a comprehensive claims management program to evaluate change order requests and recommend equitable disposition. When agreement cannot be reached, the CM shall support the City's position and assist in formulating a claims defense and participate in resolution including:

    1. **Document Managing:** Coordinate, assemble and review supporting documentation for change order processing and make final recommendations to City staff.

    2. **Contractor Request Review:** Review requests of alleged cost increases and/or time impacts for merit concurrently.

3. **Change Order Review:** Thoroughly analyze the proposal and develop a negotiating position. When necessitated by variations between contractor price for change and the CM's fair cost estimate, CM shall negotiate an equitable resolution with guidance from the City's Project Manager.

4. **Change Order Expediting:** After the equitable resolution is reached the CM shall expedite approval of the negotiated change order.

Task 3- Inspection

The CM shall provide inspection services and monitoring of construction to ensure construction is in compliance with the project construction documents. The CM's resident engineer and inspection staff shall verify construction compliance and Quality Assurance Quality Control with applicable permits, codes, construction documents and any environmental mitigation. CM shall maintain redline as-builts on a monthly basis.

- **Daily and Weekly Documentation:**

  1. **Documentation of Construction Activities:** Provide documentation of construction activities, duration of activities, labor resources, and equipment allocation.

  2. **Construction Reporting:** Provide daily construction activity reports, labor resources, on- site equipment, and work conditions.

  3. **Non-Conformance Reporting:** Provide non-conformance reports.
  4. **Photographic Records:** Provide weekly photographic/digital records of the project during construction.

- **Civil Inspections:** The CM shall provide qualified inspectors for all improvements to inspect, monitor, and report on construction improvements as required by the Plans and Technical Specifications.

- **Field Testing:** Witness field tests and startup procedures for electrical equipment as needed.

- **Soil and Materials Testing:** The CM shall provide qualified and approved testing laboratories and California registered Geotechnical Engineers and/or ICC-certified Soils Special Inspector-EC or equivalent staff to perform all necessary soils and materials testing required to verify the quality and proper placement. The Soils and Materials Inspector shall be responsible for the following:

1. **Material Sampling:** Sample on-site and imported materials for compliance with the specifications for use as backfill materials.

2. **Material Testing:** Perform maximum density tests and optimum moisture content tests on materials to be used as backfill. Examples of testing include: gradation, R-value, sand equivalence, etc.

3. **Conformance Testing:** Perform compaction tests for backfill. Separate testing shall be performed for the pavement zone, street zone, and areas of over-excavation. Provide recommendations for compaction or density testing of rock backfill materials. Sand cone test method is required for soil compaction testing. Alternate compaction testing may be utilized; including but not limited to, nuclear gauge.

4. **Data Review:** Tabulate test data and review failing tests. Provide immediate notification of any failure to meet the requirements of the project contract documents.

5. **Reporting:** Upon prior authorization from the City, prepare a final report at the completion of construction certifying that geotechnical issues comply with the contract documents.

- **Storm Water Pollution Prevention Plan Inspection:**

1. Review contractor's site-specific SWPPPs for compliance with applicable regulations.

2. Monitor contractor's activities regarding pollution prevention controls and activities for general compliance with the contractor's SWPPP Best Management Practice (BMP). The contractor is responsible for means and methods for complying with BMP's. The SWPPP inspector shall notify the contractor and the City if the pollution prevention controls are in or out of compliance with the SWPPP.

TASK 4- Construction Closeout

The CM shall manage the turnover of the assigned project to the City, including contract closeout, management of warranty period activities and demobilization of CM staff including:

- **Site Closeout:** The CM shall budget under the Task 2 Construction Administration budget to close out construction and oversee demobilization at each site. Site Closeout tasks shall include:

1. **Site Final Walk-Through:** Coordinate and conduct a site final walk-through to verify completion of contract and all related items of work within 7 days of substantial completion.

2. **Site Punch List:** Develop site punch list and verify completion and obtain final documentation and releases within 7 days of substantial completion.

3. **Site Record Drawing Preparation:** Verify and deliver contractor as-built marked up drawings for record drawing preparation within 14 calendar days of site substantial completion.

4. **Site Permitting:** Monitor permit and agency sign-offs within 14 calendar days of substantial completion.

5. **Site Final Reporting:** Prepare site summary report in accordance with the City within 7 days of final completion.

6. **Site Documentation Turnover:** Turnover site project files, contract, correspondence, and documentation within 14 calendar days of final completion.

7. **Site Warranty Coordination:** The CM shall prepare a list of warranty items, warranty period, and warranty repair procedures, and turn over to the City's Project Manager.

8. **Site Demobilization:** Demobilize the CM staff and facilities in accordance with the agreed upon plan.

- **Construction Contract Close Out:** The CM shall oversee the contract closeout process and assist in resolving O&M service disputes. The CM shall budget under the Task 3 budget for Construction Contract Close Out. The closeout shall entail sign offs by responsible parties and include:

    1. **Project-wide Final Walk-Through:** Coordinate and conduct a final walk-through to verify completion of contract and all related items of work within 7 days of substantial completion. The final walk-through shall be extended to include relevant City Departments and Divisions.

    2. **Project-wide Punch List:** Develop punch list and verify completion and obtain final documentation and releases within 7 days of substantial completion.

    3. **Project-wide Record Drawing Review and Corrections:** Review record drawings prepared by the Design Engineer or contractor as-built marked up

drawings delivered for each site for correctness and consistency within 14 calendar days of substantial completion.

4. **Final Payment/Close-Out Change Order Review:** Review final payment and close out change orders within 7 days of substantial completion.
5. Permitting: Confirm that all permits are in place within 14 calendar days of substantial completion.

6. **Final Reporting:** Prepare final summary report in accordance with the City within 7 days of final completion.

7. **Documentation Turnover:** Turnover project files, contract, correspondence, and documentation within 14 calendar days of final completion.

8. **Project Warranty Coordination:** The CM shall review and update as needed the list of warranty items, warranty period, and warranty repair procedures, and turn over to the City's Project Manager.

9. **Final Demobilization:** Demobilize the CM staff and facilities in accordance with the agreed upon plan.

City of Oxnard

Public Works Department

305 West Third Street, East Wing Oxnard, California 93030

TASK ORDER

All Task Orders must include a copy of the vendor proposal/estimate

Task Order No.:	Agreement No.:
Task Order NTE Amount:	Agreement NTE Amount:
City Purchase Order No.:	Agreement Type:
Agreement Expiration Date:	
Prime Consultant:	Subconsultant(s):

PROJECT TITLE OR SPECIFICATION NO.:

PROJECT DESCRIPTION:

DESCRIPTION OF SERVICES TO BE PERFORMED UNDER THIS TASK ORDER:

TIME FOR COMPLETION OF SERVICES UNDER THIS TASK ORDER:

COMPENSATION FOR SERVICES SHALL NOT EXCEED THE TASK ORDER NTE AMOUNT.

City Project Manager:

Consultant Project Manager:

Services under this Task Order shall not proceed until this Task Order is executed by the City and Consultant and the City issues a Notice to Proceed. This Task Order may only be modified in writing and subject to City approval. Consultant shall not exceed the scope of the task order or NTE amount.

City of Oxnard		[Consultant]	
[designated rep]	Date	[Name & Title]	Date
Insert Department Assistant Director/Director	Date	[Name & Title]	Date

For internal City Use Only

Account Number and Project Number	*Example 1011234-53200-CXXXX*

On-Call PSA/GSA 2024

EXHIBIT B

PROFESSIONAL SERVICE AGREEMENT
(CITY of Oxnard and MNS Engineers, Inc.)

SCHEDULE OF COMPENSATION

MNS

2025 - 2026 STANDARD SCHEDULE OF FEES

PROJECT/PROGRAM MANAGEMENT

Principal-In-Charge	$395
Senior Project/Program Manager	355
Project/Program Manager	305
Assistant Project/Program Manager	280
Senior Project Coordinator	220
Project Coordinator	185

ENGINEERING

Principal Engineer	$340
Lead Engineer	300
Supervising Engineer	285
Senior Project Engineer	255
Project Engineer	230
Associate Engineer	210
Assistant Engineer	195

CONSTRUCTION MANAGEMENT

Principal Construction Manager	$375
Senior Construction Manager	325
Senior Resident Engineer	295
Resident Engineer	275
Structure Representative	280
Construction Manager	250
Assistant Resident Engineer	225
Sr. Construction Inspector (PW)	210

GOVERNMENT SERVICES

City Engineer	$295
Deputy City Engineer	260
Assistant City Engineer	245
Plan Check Engineer	205
Permit Engineer	195
City Inspector	185
Senior City Inspector (PW)	210
City Inspector (PW)	195

[Continued on next page]

SURVEYING

Principal Surveyor	$310
Lead Surveyor	300
Supervising Surveyor	255
Senior Project Surveyor	230
Project Surveyor	205
Associate Project Surveyor	195
Assistant Project Surveyor	180
Party Chief (PW)	210
Chainperson (PW)	180
One-Person Survey Crew (PW)	250

TECHNICAL SUPPORT

CADD Manager	$220
Supervising Technician	195
Senior Technician	185
Engineering Technician	150
Construction Inspector (PW)	195
Office Administrator	140

PLANNING

Practice Lead	$315
Senior Technical Specialist	275
Technical Specialist	250
Principal Planner/Scientist	210
Senior Planner/Scientist	195
Associate Planner/Scientist	165
Assistant Planner/Scientist/Monitor	140
Planning Technician/Field Monitor	115
Senior GIS Technician	185
GIS Technician	140
Labor Compliance Officer	165
Labor Compliance Analyst	125
Senior Housing Manager	235
Housing Manager	195
Principal Housing Analyst	175
Senior Housing Analyst	145
Housing Analyst	115
Principal Stormwater Specialist	250
Senior Stormwater Specialist	220
Stormwater Specialist	190
Stormwater Technician	170
Building Official	285
Senior Building Inspector	220
Building Inspector	195
Senior Grant Writer	210
Grant Writer	200
Associate Grant Writer	180
Assistant Grant Writer	160

ADMINISTRATIVE SUPPORT

Senior Management Analyst	$220
Management Analyst	190
IT Technician	155
Graphics/Visualization Specialist	165
Administrative Assistant	115

DIRECT EXPENSES

Use of outside consultants as well as copies, blueprints, survey stakes, monuments, computer plots, telephone, travel (out of area) and all similar charges directly connected with the work will be charged at cost plus fifteen percent (15%). Mileage will be charged at the current federal mileage reimbursement rate.

PREVAILING WAGE RATES

Rates shown with Prevailing Wage "(PW)" annotation are used for field work on projects subject to federal or state prevailing wage law and are subject to increases per DIR.

ANNUAL ESCALATION

Standard fee rates provided for each classification are subject to 5% annual escalation or the most recent US Bureau of Labor Statistics Consumer Price Index, whichever is higher.

OVERTIME

Overtime for non-exempt employees will be charged at 1.5 x hourly rate; overtime for exempt employees and other classifications will be charged at 1 x hourly rate.

Rev. 11/7/2025

EXHIBIT C

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and MNS Engineers, Inc.)

INSURANCE REQUIREMENTS

Prior to contract approval and beginning of services under this agreement, Consultant must procure, agree to maintain and supply evidence of insurance at the levels listed and in accordance with the other provisions listed in this document.

[See next pages]

Exhibit INS-A

INSURANCE REQUIREMENTS FOR CONSULTANTS
(WITH ERRORS AND OMISSIONS REQUIREMENT)

1. Consultant shall obtain and maintain during the performance of any services under this Agreement the following insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of services hereunder by Consultant, its agents, representatives, employees or subconsultants.

a. Commercial General Liability Insurance, including Contractual Liability, in an amount not less than $1,000,000 combined single limit for bodily injury and property damage for each claimant for general liability with coverage equivalent to Insurance Services Office Commercial General Liability Coverage (Occurrence Form CG 0001). If a general aggregate limit is used, that limit shall apply separately to the project or shall be twice the occurrence amount;

b. Business automobile liability insurance in an amount not less than $1,000,000 combined single limit for bodily injury and property damage for each claimant for automobile liability with coverage equivalent to Insurance Services Office automobile liability coverage (Occurrence Form CA0001) covering Code No. 1, "any auto;"

c. Professional liability/errors and omissions insurance appropriate to Consultant's profession to a minimum coverage of $1,000,000, with neither Consultant nor listed subconsultants having less than $500,000 individually. The professional liability/errors and omissions insurance must be project specific with at least a one year extended reporting period, or longer upon request.

d. Workers' compensation insurance in compliance with the laws of the State of California, and employer's liability insurance in an amount not less than $1,000,000 per claimant. Additionally, the workers' compensation policy shall include a waiver of all rights of subrogation which the insurer may have against the City.

2. Consultant shall, prior to performance of any services, file with the Risk Manager certificates of insurance with original endorsements effecting coverage required by this Exhibit INS-A. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be on the attached forms or on other forms approved by the Risk Manager. All certificates and endorsements are to be received and approved by the Risk Manager before commencement of services. City reserves the right to require complete certified copies of all required insurance policies at any time. The certificates of insurance and endorsements shall be sent via email. If you have not received your request or are having difficulty with electronic upload, contact insurance@oxnard.org

3. Consultant agrees that all insurance coverages shall be provided by a California admitted insurance carrier with an A.M. Best rating of A:VII or better and shall be endorsed to state that coverage may not be suspended, voided, canceled, or reduced in coverage or limits without 30 days' prior written notice to the Risk Manager. The Risk Manager shall not approve or accept any endorsement if the endorsement contains "best effort" modifiers or if the insurer is relieved from the responsibility to give such notice.

4. Consultant agrees that the commercial general liability and business automobile liability insurance policies shall be endorsed to name City, its City Council, officers, employees, agents and volunteers as additional insureds as respects: liability arising out of activities performed by or on behalf of Consultant; products and completed operations of Consultant; premises owned, occupied or used by Consultant; or automobiles owned, leased, hired or borrowed by Consultant. The coverage shall contain no special limitations on the scope of protection afforded to City, its City Council, officers, employees, agents and volunteers. **The General Liability Special Endorsement Form and Automobile Liability Special Endorsement Form attached to this Exhibit INS-A or substitute forms containing the same information and acceptable to the Risk Manager shall be used to provide the endorsements (ISO form CG 2010 11/85 or if not available, CG 2010 with an edition date prior to 01/04 and CG 2037).**

5. The coverages provided to City shall be primary and not contributing to or in excess of any existing City insurance or self-insurance coverages (**this must be endorsed**). Additionally, the workers' compensation policy shall include a waiver of all rights of subrogation which the insurer may have against the City. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to City, its City Council, officers, employees and volunteers. The insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

6. The insurer shall declare any deductibles or self-insured retentions to and be approved by the Risk Manager. At the option of the Risk Manager, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects City, its City Council, officers, employees and volunteers, or the Consultant shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

7. All insurance standards applicable to Consultant shall also be applicable to Consultant's subconsultants. Consultant agrees to maintain appropriate agreements with subconsultants and to provide proper evidence of coverage upon receipt of a written request from the Risk Manager.

1/23

INSTRUCTION FOR SUBMITTING INSURANCE CERTIFICATES AND ENDORSEMENT FORMS

Certificates of Insurance

The sample accord form on the following page is provided to facilitate your preparation and submission of certificates of insurance. You may use this or any industry form that shows coverage as broad as that shown on the attached sample. **Please note the certificate holder address must be as shown on the attached sample accord form with the contract number and insurance exhibit identification information completed.** Improperly addressed certificates may delay the contract start-up date because the City's practice is to return unidentifiable insurance certificates to the insured for clarification as to the contract number. **Cancellation provisions must be endorsed to the policy. Modifying the certificate does not change coverage or obligate the carrier to provide notice of cancellation.**

Endorsement Forms

Original endorsements are required for commercial general liability and business automobile liability insurance policies and must be attached to the applicable certificate of insurance. City preference is that the Consultant/insurer use the endorsement forms which are attached. Substitute forms will be accepted, however, as long as they include provisions comparable to the sample accord form.

INS-A.doc

ACORD CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
CODE SUB-CODE	**COMPANIES AFFORDING INSURANCE COVERAGE**
INSURED	COMPANY LETTER A — SPECIFY COMPANY NAMES IN THIS SPACE
	COMPANY LETTER B

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	**GENERAL LIABILITY** [x] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [x] OCCUR. [x] OWNER'S & CONTRACTOR'S PROT.				GENERAL AGGREGATE PRODUCTS COMP/OP AGG . PERSONAL & ADV. INJURY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED. EXPENSE (Any one person)	$1,000,000 $1,000,000 $1,000,000 $1,000,000 $ $
A	**AUTOMOBILE LIABILITY** [x] ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS GARAGE LIABILITY				COMBINED SINGLE LIMIT BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE	$1,000,000 $ $ $
A	**EXCESS LIABILITY** UMBRELLA FORM OTHER THAN UMBRELLA FORM				EACH OCCURRENCE AGGREGATE	$ $
A	**WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY**				STATUTORY LIMITS EACH ACCIDENT DISEASE-POLICY LIMIT DISEASE-EACH EMPLOYEE	 $1,000,000 $1,000,000 $1,000,000
A	**OTHER** Errors and omissions insurance or malpractice insurance available for the insured's profession				Minimum coverage Each consultant/ & listed sub-consultant	$1,000,000 $500,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/RESTRICTIONS/SPECIAL ITEMS

CERTIFICATE HOLDER	CANCELLATION
CITY OF OXNARD % Evident ID, Inc. **8520 Allison Pointe Blvd. Ste 223** **PMB 5210** **Indianapolis, Indiana 462500-4299 US**	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ~~ENDEAVOR TO~~ MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, ~~BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.~~ AUTHORIZED REPRESENTATIVE

GENERAL LIABILITY SPECIAL ENDORSEMENT FOR THE CITY OF OXNARD (the "City")

SUBMIT IN DUPLICATE

ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER

Telephone:

NAMED INSURED

POLICY INFORMATION:
Insurance Company:
Policy No.:
Policy Period: (from) (to)
LOSS ADJUSTMENT EXPENSE ❒ Included in Limits ❒ In Addition to Limits

❒ Deductible ❒ Self-Insured Retention (check which) of $ _____
with an Aggregate of $_____ applies to _____
coverage. ❒ Per Occurrence ❒ Per Claim (which)

APPLICABILITY. This insurance pertains to the operations, products and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ❒ in which case only the following specific agreements and permits with the City are covered

CITY AGREEMENTS/PERMITS

TYPE OF INSURANCE

GENERAL LIABILITY
❒ COMMERCIAL GENERAL LIABILITY ❒ Claims Made
❒ COMPREHENSIVE GENERAL LIABILITY Retroactive Date _____
❒ OWNERS & CONTRACTORS PROTECTIVE ❒ Occurrence

OTHER PROVISIONS

COVERAGES	LIABILITY LIMITS IN THOUSANDS $	
	EACH OCCURRENCE	AGGREGATE
❒ GENERAL		
❒ PRODUCTS/COMPLETED OPERATIONS		
❒ PERSONAL & ADVERTISING INJURY		
❒ FIRE DAMAGE		
❒ _____		
❒ _____		

CLAIMS: Underwriter's representative for claims pursuant to this insurance.

Name: _____
Address: _____
_____
Telephone: ( ) _____

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, insurance company agrees as follows:

1. **INSURED.** The City, its officers, agents, employees and volunteers are included as insureds with regard to liability and defense of suits arising from the operations, products and activities performed by or on behalf of the named insured.
2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the named insured for or on behalf of the City; or (b) products sold by the named insured to the City; or (c) premises leased by the named insured from the City, the insurance afforded by this policy shall be primary insurance as respects the City, its officers, agents, employees or volunteers; or stand in an unbroken chain of coverage excess of the named insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the City, its officers, agents, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SEVERABILITY OF INTEREST.** This insurance applies separately to each insured against whom claim is made or suit is brought except with respect to the company's limits of liability. The inclusion of any person or organization as an insured shall not affect any right which such person or organization would have as a claimant if not so included.
4. **CANCELLATION NOTICE.** With respect to the interests of the City, this insurance shall not be canceled, or materially reduced in coverage or limits except after thirty (30) days prior written notice by receipted delivery has been given to the City.
5. **PROVISIONS REGARDING THE INSURED'S DUTIES.** Any failure to comply with reporting provisions of the policy or breaches or violations of warranties shall not affect coverage provided to the City, its officers, agents, employees or volunteers.
6. **SCOPE OF COVERAGE.** This policy, if primary, affords coverage at least as broad as:
   a. Insurance Services Office Commercial General Liability Coverage, "occurrence" form CG0001; or
   b. If excess, affords coverage which is at least as broad as the primary insurance form CG0001.

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER

CITY OF OXNARD % Evident ID, Inc.
8520 Allison Pointe Blvd. Ste 223
PMB 5210
Indianapolis, Indiana 462500-4299 US

AUTHORIZED REPRESENTATIVE

❒ Broker/Agent ❒ Underwriter ❒ _____

I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement.

Signature _____
(original signature required)
Telephone: ( ) _____ Date Signed: _____

AUTOMOBILE LIABILITY SPECIAL ENDORSEMENT FOR THE CITY OF OXNARD (the "City")	**SUBMIT IN DUPLICATE**	
	ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER	POLICY INFORMATION:
	Insurance Company: Policy No.: Policy Period: (from) (to) LOSS ADJUSTMENT EXPENSE ❒ Included in Limits ❒ In Addition to Limits
Telephone:	❒ Deductible ❒ Self-Insured Retention (check which) of $ _____ with an Aggregate of $_____ applies to coverage. ❒ Per Occurrence ❒ Per Claim (which)
NAMED INSURED	**APPLICABILITY**. This insurance pertains to the operations, products and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ❒ in which case only the following specific agreements and permits with the City are covered: CITY AGREEMENTS/PERMITS

TYPE OF INSURANCE	**OTHER PROVISIONS**
❒ COMMERCIAL AUTO POLICY ❒ BUSINESS AUTO POLICY ❒ OTHER	
LIMIT OF LIABILITY	**CLAIMS:** Underwriter's representative for claims pursuant to this insurance. Name: _____ Address: _____ _____ Telephone: (_____) _____
$ _____ per accident, for bodily injury and property damage.	

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, insurance company agrees as follows:

1. **INSURED.** The City, its officers, agents, volunteers and employees are included as insureds with regard to liability and defense of suits arising from the operations, products and activities performed by or on behalf of the named insured.
2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the named insured for or on behalf of the City; or (b) products sold by the named insured to the City; or (c) premises leased by the named insured from the City, the insurance afforded by this policy shall be primary insurance as respects the City, its officers, agents, employees or volunteers; or stand in an unbroken chain of coverage excess of the named insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the City, its officers, agents, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SEVERABILITY OF INTEREST.** This insurance applies separately to each insured against whom claim is made or suit is brought except with respect to the company's limits of liability. The inclusion of any person or organization as an insured shall not affect any right which such person or organization would have as a claimant if not so included.
4. **CANCELLATION NOTICE.** With respect to the interests of the City, this insurance shall not be canceled, or materially reduced in coverage or limits except after thirty (30) days prior written notice by receipted delivery has been given to the City.
5. **PROVISIONS REGARDING THE INSURED'S DUTIES.** Any failure to comply with reporting provisions of the policy or breaches or violations of warranties shall not affect coverage provided to the City, its officers, agents, employees or volunteers.
6. **SCOPE OF COVERAGE.** This policy, if primary, affords coverage at least as broad as:
   a. Insurance Services Office Automobile Liability Coverage, "occurrence" form CA0001, code ("any auto"); or
   b. If excess, affords coverage which is at least as broad as the primary insurance form referenced in the preceding section (1).

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER	**AUTHORIZED REPRESENTATIVE**
CITY OF OXNARD % Evident ID, Inc. **8520 Allison Pointe Blvd. Ste 223** **PMB 5210** **Indianapolis, Indiana 462500-4299 US**	❒ Broker/Agent ❒ Underwriter ❒ _____ I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement. Signature _____ *(original signature required)* Telephone: ( ) Date Signed _____

EXHIBIT D

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and MNS Engineers, Inc.)

[RESERVED]

EXHIBIT E

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and MNS Engineers, Inc.)

LIVING WAGE POLICY

Pursuant to the Living Wage Policy adopted July 9, 2002 by the City Council and effective October 1, 2002, the City Manager and City Attorney are directed to include the following language in all standard Consultant/Professional Services contracts that may be governed by the Living Wage Policy.

A. Consultant shall compensate any employee of Consultant who provides Services under this Agreement in accordance with the Living Wage Policy, attached hereto and incorporated herein by reference as the Living Wage Policy Exhibit. While this Agreement is in effect, Consultant shall pay such employee no less than $20.06 per hour for each hour that such employee provides Services under this Agreement. In addition, while this Agreement is in effect, Consultant shall provide to such employee no less than 96 hours of paid leave per calendar year.

B. Consultant agrees to post, at a location readily accessible to those employees providing Services to the City, a copy of the Living Wage Policy adopted by City Council on July 9, 2002 and effective October 1, 2002.

C. If Consultant fails to compensate such employee pursuant to the Living Wage Policy, the City Manager or designee shall terminate this Agreement on written notice to Consultant, effective immediately.

D. In addition, if Consultant fails to comply with the Living Wage Policy in any manner, Consultant shall pay to City a fine of $500 and shall pay to any employee providing Services under this Agreement a penalty of three times the amount or value of the compensation owed to such employee under the Living Wage Policy. Consultant shall pay such fine and penalty within fifteen (15) calendar days after the City Manager or designee provides written notice to Consultant of the amount owed.

CITY OF OXNARD LIVING WAGE REQUIREMENTS
EFFECTIVE JULY 1, 2025

Consultant shall compensate any employee of Consultant who provides Services under this Agreement in accordance with the Living Wage Policy, attached hereto and incorporated herein by reference as Exhibit E. While this Agreement is in effect, Consultant shall pay such employee no less than $20.06 per hour for each hour that such employee provides Services under this Agreement. This hourly rate shall be adjusted on July 1, 2026, and each July 1 thereafter, according to the percentage change in the Consumer Price Index, all items, prepared by the Bureau of Labor Statistics for the Los Angeles area relating to all urban consumers (CPI-U), index base 1982-84=100, comparing May of the previous year to May of the current year. In addition, while this Agreement is in effect, Consultant shall provide to such employee no less than 96 hours of paid leave per calendar year.

a. Consultant agrees to post, at a location readily accessible to those employees providing Services to the City, a copy of the Living Wage Policy adopted by the Oxnard City Council on July 9, 2002 and effective October 1, 2002.

b. If Consultant fails to compensate such employee pursuant to the Living Wage Policy, the City Manager or designee shall terminate this Agreement on written notice to Consultant, effective immediately.

c. In addition, if Consultant fails to comply with the Living Wage Policy in any manner, Consultant shall pay to City a fine of $500 and shall pay to any employee providing Services under this Agreement a penalty of three times the amount or value of the compensation owed to such employee under the Living Wage Policy. Consultant shall pay such fine and penalty within fifteen (15) calendar days after the City Manager or designee provides written notice to Consultant of the amount owed.

EXHIBIT F

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and MNS Engineers, Inc.)

PREVAILING WAGE

1. Consultant acknowledges that the Project defined in the Agreement between Consultant and City is a "public work" as defined in Division 2, Part 7, Chapter 1 of the California Labor Code ("Chapter 1"), and that this Agreement is subject to Chapter 1 and the rules and regulations established by the Director of Industrial Relations ("DIR") implementing such statutes. Consultant shall perform the Project as a public work. Consultant shall comply with and be bound by all the terms, rules and regulations described in Chapter 1 and the DIR's rules and regulations as though set forth in full herein.

2. Pursuant to Labor Code Section 1773.2, copies of the prevailing rate of per diem wages for each craft, classification, or type of worker needed to perform the Agreement are on file at City Hall and will be made available to any interested party on request. Consultant acknowledges receipt of a copy of the DIR determination of such prevailing rate of per diem wages, and Consultant shall post such rates at each job site covered by this Agreement.

3. Consultant is required to post job site notices, as prescribed by regulation. See Labor Code Section 1771.4(a)(2).

4. Consultant shall comply with and be bound by the provisions of Labor Code Sections 1774 and 1775 concerning the payment of prevailing rates of wages to workers and the penalties for failure to pay prevailing wages. Consultant shall, as a penalty to City, forfeit not more than $200 for each calendar day or portion thereof for each worker paid less than the DIR's determined prevailing rates for the work or craft in which the worker is employed pursuant to this Agreement by Consultant or any subcontractor. The Labor Commissioner shall determine the amount of the penalty as described in Section 1775.

5. Consultant shall comply with Labor Code Section 1776, which requires Consultant and each subcontractor to (1) keep accurate payroll records and verify such records in writing under penalty of perjury, (2) certify and make such payroll records available for inspection, and (3) inform City of the location of the records.

6. Consultant shall comply with Labor Code Sections 1777.5, 1777.6 and 1777.7 and California Administrative Code Title 8, Section 200 et seq. concerning the employment of apprentices on public works projects for all apprenticeable occupations. Before commencing work under this Agreement, Consultant shall provide City with a copy of the information submitted to any applicable apprenticeship program. Within 60

days after concluding the Project, Consultant and each of its subcontractors shall submit to City a verified statement of the journeyman and apprentice hours performed under this Agreement.

7. Consultant may not be debarred or suspended throughout the Agreement Term pursuant to Labor Code Section 1777.1 or 1777.7. If he, she or it becomes debarred or suspended in the Agreement Term, Consultant must immediately notify City.

8. Consultant is not qualified to bid on, be listed in a Bid proposal, or engage in the performance of any contract for public work, as defined in Labor Code Sections 1720 through 1861, unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. Consultant shall continue without interruption to stay registered and qualified to perform public work pursuant to Section 1725.5 for the duration of the term of this Agreement. This provision does not apply to construction, alteration, demolition, installation or repair work of $25,000 or less or to maintenance work of $15,000 or less.

9. Consultant acknowledges that 8 hours labor constitutes a legal day's work. Consultant shall comply with and be bound by Labor Code Section 1810.

10. Consultant shall comply with and be bound by Labor Code Section 1813 concerning penalties for workers who work excess hours. Consultant shall, as a penalty to City, forfeit $25 for each worker employed in the performance of this Agreement by Consultant or by any subcontractor for each calendar day during which such worker is required or permitted to work more than 8 hours in any calendar day and 40 hours in any one calendar week in violation of the provisions of Division 2, Part 7, Chapter 1, Article 3 of the Labor Code. Pursuant to Labor Code Section 1815, work performed by Consultant's employees in excess of 8 hours per day and 40 hours per week shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1 ½ times the basic rate of pay.

11. The Project listed in the Agreement is subject to compliance monitoring and enforcement by the DIR.

12. Consultant shall be responsible for each and every one of its subcontractors' compliance with Chapter 1, the DIR's rules and regulations, and Labor Code Sections 1860 and 3700. Consultant shall include in the written contract between it and each subcontractor a copy of, and a requirement that each subcontractor shall comply with, those statutory provisions. Consultant shall be required to take all actions necessary to enforce such contractual provisions and ensure subcontractors' compliance, including without limitation, conducting a periodic review of the certified payroll records of each subcontractor, and upon becoming aware of the failure of the subcontractor to pay its workers the specified prevailing rate of wages, Consultant shall diligently take corrective action to halt or rectify any failure.

13. To the maximum extent, Consultant shall hold harmless, defend (with counsel approved by the City Attorney) and indemnify City, its legislative bodies, and its officials, officers, employees and agents from any demand or claim for damages, compensation, fines, penalties or other amounts arising out of or incidental to any acts or omissions listed above by any person or entity (including Consultant, its subcontractors, and each of their officials, officers, employees and agents) in connection with any work undertaken or in connection with the Agreement, including without limitation the payment of all attorneys' fees and other related costs. All duties of Consultant under this Section shall survive Agreement termination.

ON-CALL PROFESSIONAL SERVICES AGREEMENT
BETWEEN
THE CITY OF OXNARD AND TURNER & TOWNSEND HEERY, LLC

By This On-Call Professional Services Agreement ("Agreement"), the City of Oxnard ("City") agrees to engage the Services of Turner & Townsend Heery, LLC ("Consultant"), and Consultant agrees to perform the Services for City as herein described, for the compensation, during the term, and otherwise subject to the covenants and conditions herein set forth. City and Consultant may be individually referred to as "Party" or collectively as the "Parties."

1. [INTENTIONALLY OMITTED]

2. SUMMARY DESCRIPTION OF SERVICES.

The Services to be performed pursuant to this agreement will be limited to the particular professional services that are identified in the Scope of Services, attached hereto as Exhibit A. Consultant has been prequalified to perform the particular services required by the City and the City shall issue Task Orders describing the particular project or services required by the City to the prequalified consultants and consultants shall submit a responsive proposal to the City's Project Manager.

Consultant is not to be the exclusive provider of services to the City. The City does not guarantee a specified amount of work under this on-call agreement.

3. PARTIES.

City of Oxnard, a general law and municipal corporation of the State of California, located at 300 West Third Street, Oxnard California 93030.

Turner & Townsend Heery, LLC, a LLC of the State of California, located at 3550 Lenox Road, NE, Suite 2300, Atlanta, GA 30326

4. TERM OF AGREEMENT: From: July 1, 2026 To: June 30, 2029

A. Time is of the essence in this Agreement
B. The City shall have the option to exercise two (2) consecutive one-year (1) term extensions, in accordance with the scope of work and terms and conditions of this Agreement. Any price negotiations, if allowed, shall be negotiated at the time of contract extension.

C. This Agreement shall not exceed a total of five (5) years (including the initial term and any options to extend). The City in its sole discretion may exercise the option terms upon sixty (60) days written notice to the Consultant (or any other time if the parties so agree) in accordance with Section 12 of this Agreement. The option term shall be commenced by an amendment to this agreement.
D. All Services required of Consultant under this Agreement shall be completed on or before the end of the term of the Agreement.

5. AGREEMENT AMOUNT NOT TO EXCEED: $500,000.00.[1]

6. AGREEMENT EXHIBITS. The following documents memorialized below are the only exhibits to this Agreement and are incorporated by reference as though fully set forth herein. In the event of a conflict between the Exhibits and this Agreement, the Agreement controls.

Exhibit A: Scope of Services and Task Order Template
Exhibit B: Schedule of Compensation
Exhibit C: Insurance Requirements: City Insurance Exhibit INS-A
Exhibit D: [RESERVED]
Exhibit E: Living Wage Policy
Exhibit F: Prevailing Wage Policy

7. DESIGNATED REPRESENTATIVES. The Designated Representatives listed below shall be authorized to act on behalf of the named Party, be responsible for negotiations and contractual matters, and coordinate with each other to perform the Services under this Agreement. Additionally, Consultant's Services shall be performed or immediately supervised by the Consultant's Representative:

City Designated Representative	Consultant Designated Representative
Name: Abe Anbessaw Title: Engineer Division Manager Phone: 805-385-7675 Email: abebaw.anbessaw@oxnard.org Address: 305 West Third Street, Third Floor, Oxnard, CA 93030	Name: Alberto Vela Title: Vice President Phone: 619-508-2744 Email: alberto.vela@turntown.com Address: 3550 Lenox Road, NE, Suite 2300, Atlanta, GA 30326

[1] This is not a guaranteed dollar amount. No services or work performed pursuant to a Task Order shall exceed the "Not to Exceed" Amount of the Contract or the agreed upon amount stated in the Task Order.

8. **CONTRACTUAL PREREQUISITIES.** This Agreement must first be executed by the Consultant, after which the Agreement shall be approved as to form by the City Attorney, then executed by the Mayor, or an authorized person on behalf of the City, and if executed by the Mayor shall also be executed by the City Clerk.

    A. Consultant is advised that any recommendation for Agreement award is not binding on City until the Agreement is fully executed and approved by the City.
    B. All proof of a City tax certificate, insurance, and W-9 forms is required prior to execution of this Agreement.
    C. Consultant shall not perform any work under this Agreement until a proof of insurance has been provided to the City as required under Section 24 of this Agreement.

9. **CONSULTANT'S SERVICES.**

    A. Consultant shall perform only the type or category of services as set forth in the "Scope of Services," and pursuant to the information contained in the Task Orders issued pursuant to this agreement.
    B. Task Orders may only be modified in writing by the City's Project Manager or Designated Representative.
    C. The Services issued pursuant to a Task Order shall be coordinated with the designated City Project Manager set forth in Exhibit A and are subject to the direction of the City Manager or Department Director. Consultant hereby designates as its Project Manager, the individual identified in Section 7 of this Agreement, as the person responsible for the Services who shall coordinate with City's Project Manager in executing the Scope of Services and Task Order(s) under this Agreement.
    D. Under no circumstances shall the Consultant exceed the amount stated in the City's Task Order or perform additional work or services that are not included in the Task Order

10. **COMPENSATION.** City shall pay Consultant for the Services performed pursuant to the terms of this Agreement and based on the hourly rates and fees set forth in the "Schedule of Compensation," attached to and incorporated into this Agreement as "Exhibit B." Consultant's compensation shall not to exceed amount stated in the Task Order. Under no circumstances shall the Consultant perform work in excess of the amount stated in the Task Order or the not to exceed amount listed in Section 5 of this Agreement. Once this Agreement is executed, the Schedule of Compensation

may only be modified by written Amendment pursuant to Section 13 of this Agreement, and may be subject to approval by the City Council.

A. The maximum not to exceed amount for any individual Task Order issued pursuant to this Agreement shall be $100,000.00 per Task Order.

B. Unless stated otherwise elsewhere in this document, prices shall be firm for the duration of this agreement. No price increases will be permitted during the first year of this Agreement. All price decreases (for example, if Vendor/Contractor offers lower prices to another governmental entity) will automatically be extended to the City. The City requires written proof satisfactory to the City, upon the City's acceptance, of cost increases prior to any approved price adjustment. After the first year of the award, a minimum of 60-days advance notice in writing is required to be considered and approved by the City. No retroactive price adjustments will be considered. For Contracts, any price increases must be stated in a written amendment. The net dollar amount of profit will remain firm during the period of the Agreement. Annual increases shall not exceed the Consumer Price Index- All Consumers, All Items, less food and energy – Los Angeles and be subject to satisfactory performance review by the City and approved (if needed) for budget funding by City Council.

11. PAYMENT and INVOICES. The City shall pay all undisputed portions of any applicable invoice within thirty (30) days after receipt of an invoice. In the event the City disputes one or more items in an invoice, the City shall, within thirty (30) days after receipt of such invoice, notify the Consultant of the item(s) being disputed and the reason(s) therefore. The City may withhold payment for such disputed items until resolution of the dispute.

A. **Payment Request.** Consultant shall submit a payment request to CITY by the end of each calendar month listing the Services provided, costs of those Services, and total amount due for the month. Invoices may be emailed to: **pwengineeringAP@oxnard.org .**

B. Consultant's acceptance of final payment made pursuant to this Agreement shall constitute a release of City from all claims and liabilities for compensation to Consultant for anything completed, finished or relating to the Services. City's payment shall not constitute nor be deemed a release of the responsibility and liability of Consultant for the

accuracy and competency of the information provided and/or the Services performed hereunder, nor shall such payment be deemed to be an assumption of responsibility or liability by City for any defect or error in the Services performed by Consultant and its employees, agents and subcontracted Consultants.

C. Consultant shall provide City with a completed Request for Taxpayer Identification Number and Certification, as issued by the Internal Revenue Service. If any sales tax is due for the Services performed by Consultant or materials or products provided to City by Consultant, Consultant shall pay the sales tax. City shall not reimburse Consultant for sales taxes paid by Consultant.

D. **Non-Appropriation of Funds.** Payments to be made to Consultant by City for the Services performed within the current fiscal year are within the current fiscal budget and within an available, unexhausted and unencumbered appropriation of City. In the event City does not appropriate sufficient funds for payment of the Services beyond the current fiscal year, this Agreement shall cover payment for the Services only up to the conclusion of the last fiscal year in which City appropriated sufficient funds and shall automatically terminate at that fiscal year's conclusion.

12. OPTION TO EXTEND AGREEMENT. When in the City's best interest, this Agreement may only be extended, if the City, in its discretion, exercises an option term in accordance with Section 4 subparagraphs (B) and (C) of this Agreement. The initial term, plus any option to extend shall not exceed a total of five (5) years. **If no option to extend the Agreement appears in section 4(B), then this Agreement shall not be extended.**

13. MODIFICATION OF AGREEMENT. This Agreement may be amended, modified, or otherwise altered, or its provisions waived, only upon mutual consent of the Parties by written amendment. The City may request that the Consultant perform Extra Services. As used herein, "Extra Services" means any services, which are determined by the City to be necessary for the proper completion of the project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement or any Task Order issued under this Agreement. A written amendment signed by both Parties shall be required to authorize performance of and payment for Extra Services under this Agreement or Task Order.

14. TERMINATION OF AGREEMENT. City may terminate this Agreement at any time, with or without cause and without penalty, upon fifteen (15) calendar days' prior written notice pursuant to Section 22 of this Agreement. Such termination shall be effective on the date specified in the notice, or if no date is specified, then fifteen (15) calendar days from the date of the notice. City shall be liable to Consultant only for work done by Consultant up to and including the date of termination of this Agreement unless the termination is for cause, in which event Consultant need be compensated only to the extent required by law. Consultant may terminate this Agreement at any time during the term of the Agreement by giving the City sixty (60) calendar days' prior written notice.

15. [RESERVED]

16. INDEPENDENT CONTRACTOR. Consultant is and shall at all times remain, as to City, a wholly independent contractor. Neither City nor any of its employees or agents shall have control over the conduct of Consultant or any of its employees, except as stated in this Agreement. Consultant has and shall retain the right to exercise full control over the employment, direction, means of performance, location, compensation and discharge of all persons assisting Consultant. This Agreement shall not be interpreted to prevent or preclude Consultant from rendering any Services for Consultant's own account or to any other person or entity as Consultant in its sole discretion shall determine; provided, however, that performing such Services shall not materially interfere with the Services the Consultant shall perform for the City. The City retains the right to provide general instructions to and observe the Consultant in the performance of all Services done on behalf of the City.

Consultant and its employees, subconsultants, and agents have no authority, express or implied, to act on behalf of City in any capacity, to incur any debt, obligation or liability on behalf of City, bind City in any manner, or otherwise act on behalf of City as an agent. Consultant T and its employees are not employees of City. Consultant and its employees are not entitled to receive from City any of the benefits or rights afforded employees of City, including but not limited to reserve leave, sick leave, vacation leave, holiday leave, compensatory leave, Public Employees Retirement System benefits, and health, life, dental, long-term disability and workers' compensation insurance benefits. Consultant shall not, at any time or in any manner, represent that it or any of its agents, subconsultants, or employees are in any manner agents, subconsultants, or employees of City.

17. **LAWFUL PERFORMANCE.** Consultant shall abide by all federal, state, and local laws and regulations as may be related to the performance of duties under this Agreement. Consultant, at its sole expense, shall obtain and maintain during the term of this Agreement, all appropriate permits, licenses, and certificates that may be required in connection with the performance of Services under this Agreement.

18. **SAFETY REQUIREMENTS.** Consultant shall not perform any Services for the City when the Consultant is impaired by alcohol or a controlled substance. When there is reasonable cause to believe that any person has violated this provision, that person shall be immediately removed from the premises and be subject to any applicable civil and/or criminal penalties under the City's Code and/or under state law. All work performed under this Agreement shall be performed in such a manner as to provide safety to the public. The City reserves the right to issue restraining or cease and desist orders to Consultant when unsafe or harmful acts are observed or reported relative to the performance of the work under this Agreement. The acceptance of Consultant 's work by City shall not operate as a release of the Consultant from such standard of care and workmanship.

19. **STANDARD OF PERFORMANCE; WARRANTY.** Consultant agrees to perform all Services required by this Agreement in a professional and competent manner, in accordance with the degree of skill and diligence which is normally employed by reputable professionals performing similar Services under similar conditions in the same or similar locality. Such Services shall also be performed in a manner which is reasonably satisfactory to City Project Manager, or designee (hereinafter the "Project Manager"), provided that discretion in determining what is satisfactory shall not alter the foregoing standard of care.

    A. In accordance with the standard of care set forth in the first sentence of Section 19, the Consultant agrees that it:
    (1) Has thoroughly reviewed and considered the services and work to be performed; and
    (2) Has reviewed the issues regarding the Scope of Services and Task Orders to be provided; and
    (3) Has carefully considered how the services and related work should be performed; and
    (4) Fully understands the facilities, difficulties and restrictions associated with performance of the services required by this Agreement.

20. OWNERSHIP OF CONSULTANT'S WORK PRODUCT, CONFIDENTIALITY & DISCLOSURE, RECORDS & WARRANTY. City shall be the owner of any and all technical documents and records, including, computations, plans, correspondence, and/or other pertinent data and information, both hard copy and electronic, gathered or prepared by Consultant in performance of this Agreement and shall be entitled to immediate possession of the same upon completion of the work under this Agreement, or at any earlier or later time when the same may be requested by City.

A. Ownership of Documents. Every report, draft, work product, map, record, and other document reproduced, prepared, or caused to be prepared by the Consultant pursuant to or in connection with this Agreement shall be the exclusive property of the City.

B. Deliverables. Consultant shall deliver to the City the studies, plans, specifications, or other documents as are identified in the Scope of Services or Task Order; and Consultant shall, upon completion of all work or termination of this Agreement, submit to the City all information developed in the course of the Consultant 's services. Consultant shall, in such time and in such form as the City may require, furnish reports concerning the status of Services required under this Agreement. Consultant shall, upon request by City and upon completion or termination of this Agreement, deliver to the City all material furnished to Consultant by the City.

C. Records and Inspections**.** The Consultant shall maintain full and accurate records, with respect to all Services and matters covered under this Agreement. Books and records pertaining to costs shall be kept and prepared in accordance with generally accepted accounting principles. The City shall have free access at all reasonable times to such records, both hard copy and electronic, and the right to examine and audit the same and to make transcripts therefrom, and to inspect all program data, documents, proceedings, and activities.

D. Confidentiality. Information that is exempt from disclosure to the public is confidential. This includes information relating to the past, present, or future affairs of the City or information belonging to a third party whose information is in the City's possession or control under obligations of confidentiality. Consultant may be granted access to information that is exempt from disclosure to the public (Government Code Section 7920.505) and may contain "trade secrets" (see Government Code Section 7924.510(f)) when it is necessary for Consultant to perform its obligations pursuant to this Agreement. If Consultant is granted such

access to confidential information, Consultant shall not be considered to be a member of the public as that term is used in Government Code Section 7920.515.

E. Disclosure of Information. Consultant shall not disclose, publish, or authorize others to disclose or publish, design data, drawings, specifications, reports, or other information pertaining to the projects assigned to Consultant by the City or other information to which the Consultant has had access during the term of this Agreement without the prior written approval of the City's Designated Representative during the term of this Agreement and for a period of two (2) years after the termination of this Agreement.

F. No Warranty. Other than an obligation upon the City to deal in good faith, the City makes no warranties and shall bear no liability or responsibility for errors or omissions in any Confidential Information disclosed under this Agreement or for any business decisions made by Consultant in reliance on any Confidential Information disclosed under this Agreement.

21. NOTICE OF BREACH AND OPPORTUNITY TO CURE. Neither Party will be in breach of this Agreement where the breach is capable of being cured, or until written notice of the breach is received from the non-breaching Party. The Party charged with breach will have fifteen (15) calendar days from the date of receiving such notice in which to cure the breach or otherwise respond. If the circumstances leading to the charge that the Agreement was breached have not been cured or explained to the satisfaction of the other Party within fifteen (15) days from the date on which the breaching Party received notice of breach, the non-breaching Party may terminate this Agreement. Notice shall be given in the manner set forth in section 22.

22. NOTICE. All notices given or required to be given pursuant to this Agreement shall be in writing and may be given by personal delivery or by first-class mail. Notice sent by mail shall be addressed to each Party's Designated Representative as set forth above in Section 7. When addressed in accordance with this Section, such notice shall be deemed given upon deposit in the United States mail, postage prepaid. In all other instances, notices shall be deemed given at the time of actual delivery. Changes may be made in the names or addresses of persons to whom notices are to be given by giving notice in the manner prescribed in this Section.

23. INDEMNIFICATION, HOLD HARMLESS & DEFENSE. Except as set forth in Subsection A of this Section 23, and to the fullest extent permitted by law, Consultant shall immediately defend, indemnify, and hold harmless the City, its officers, employees, representatives, and agents (the "City Indemnitees"), from and against those actions, suits, proceedings, claims, demands, losses, costs, and expenses, including legal costs and reasonable attorneys' fees, for any personal injuries, deaths, or property damage, including property owned by the City (collectively "Claims") which may arise out of Consultant's negligence or willful misconduct in the performance of the services described in this Agreement, unless such Claims are proven to be caused by the negligence or willful misconduct of the City Indemnitees.

A. The provisions of this Subsection apply only in the event that Consultant is a design professional within the meaning of California Civil Code section 2782.8 ("Design Professional"). The term Design Professional, as defined in said section, is limited to licensed architects, licensed landscape architects, registered professional engineers, professional land surveyors, and the business entities that offer such services in accordance with the applicable provisions of the California Business and Professions Code.

   (1) Notwithstanding the provisions of Section 23 above, to the extent that the services to be provided under this Agreement are those of a Design Professional, Consultant's duty to indemnify, hold harmless, and defend the City Indemnitees shall be limited to the extent that any Claims arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, its officers, agents, employees or subconsultants in the performance of the services described in this Agreement.

   (2) In no event shall the costs of defense charged to Consultant exceed the Consultant's proportionate percentage of fault, except as otherwise set forth in said Civil Code section 2782.8, the provisions of which are incorporated into this Agreement by this reference. Nothing in this Subsection b shall be construed to require Consultant to provide indemnification for Claims caused by the active negligence or willful misconduct of the City Indemnitees

B. The City does not and shall not waive any rights that it may have against Consultant under this Section, because of the acceptance by the City, or the deposit with the City, of any insurance policy or certificate required pursuant to this Agreement. The hold harmless and indemnification

provisions of this Section 23 shall apply regardless of whether said insurance policies are determined to be applicable to the claim, demand, damage, liability, loss, cost, or expense described herein.

C. The obligation to indemnify and defend, as set forth in this Section 23, is binding on the successors, assigns, or heirs of Consultant and shall survive the expiration or any early termination of this Agreement.

24. INSURANCE. Consultant shall obtain and maintain during the performance of any Services under this Agreement the insurance coverages listed within "Exhibit C", which is attached hereto and incorporated herein by this reference, unless the Risk Manager waives, in writing, the requirement that Consultant obtain and maintain such insurance coverages. Such insurance must be issued by a company satisfactory to the Risk Manager. Consultant shall, before performance of any Services pursuant to this Agreement, file with the Risk Manager evidence of insurance coverage as specified in "Exhibit C". Maintenance of insurance coverages by Consultant is a material element of this Agreement. Consultant's failure to maintain or renew insurance coverages or to provide renewal evidence shall be considered a material breach of this Agreement.

25. LIVING WAGE REQUIREMENTS. During the term of this Agreement, Consultant understands and agrees that if Living Wages are applicable, subject to the 2002 Oxnard City Council Living Wage Policy, attached as "Exhibit E" to this Agreement, Consultant will pay and/or provide the wages and/or benefits required therein to all of its employees engaged in whole or in part in performing the Services provided for by this Agreement. The Living Wage is updated on July 1 of each year, and the duty to pay the correct wage is the responsibility of the Consultant.

26. PREVAILING WAGE REQUIREMENTS. The payment of State prevailing wages as designated for Ventura County shall apply to public works projects. However, this section shall not apply to work performed on a public works project of twenty-five thousand dollars ($25,000) or less when the project is for construction, alteration, demolition, installation, or repair work; or to work performed on a public works project of fifteen thousand dollars ($15,000) or less when the project is for maintenance work. Prevailing wages are required to be paid to all workers, including subcontracted employees. For further information regarding Prevailing Wage Requirements please refer to Exhibit "F" attached to this Agreement.

A. To determine if this Agreement is subject to compliance monitoring and enforcement, go to:

https://www.dir.ca.gov/Public-Works/PublicWorksSB854FAQ.html

B. It is unlawful to split, or separate into small portions, work orders, projects, purchases, or public works projects for the purpose of evading these prevailing wage requirements.

C. In the event that there is a difference between the amount of wages to be paid under the City of Oxnard's local Living Wage requirements and the requirements of this provision, the wage rate that is the higher of the two shall be applicable to this Agreement. The duty to pay the correct wage is the responsibility of the Consultant.

27. [RESERVED]

28. SUBCONTRACTING. If Consultant requires the assistance of a subcontractor to render any Services under this Agreement, Consultant shall obtain prior written consent from the City before a subcontractor performs any service pursuant to this Agreement. All subcontractors shall be identified in the Scope of Work or Task Order attached to this Agreement as "Exhibit A". Consultant is fully responsible for satisfactory completion of all its subcontractors' work. All subcontractors shall be properly licensed and insured; and bonded, if applicable. Consultant shall be responsible for all liabilities regardless of nature, type, or cause, arising out of or resulting from or in connection with subcontractors performance pursuant to this Agreement or subcontractors failure to comply with any of its obligations in connection with this Agreement.

29. CONFLICT OF INTEREST. Consultant covenants that it does not have any interest, nor shall it acquire any interest, directly or indirectly, which would conflict in any manner with the performance of Consultant's Services under this Agreement. Consultant further covenants that in the performance of Services under this Agreement, no officer, employee or agent of Consultant having such interest shall be employed by it. In the event the City determines that Consultant must disclose its financial interests by completing and filing a Fair Political Practices Commission Form 700, Statement of Economic Interests, Consultant shall file such Form 700 with the City Clerk's Office pursuant to the written instructions provided by the City Clerk. Acquisition or maintenance of a conflicting interest by Consultant may result in termination of this Agreement by the City.

30. DISPUTES. Except as otherwise provided in these provisions, any dispute concerning a question of fact arising under this Agreement, shall be decided by the City's Designated Representative, who shall reduce this decision to writing and mail

a copy to the Consultant. The decision of the City's Designated Representative shall be final and conclusive unless Consultant requests mediation within ten (10) calendar days. Pending final decision of a dispute, the Consultant shall proceed diligently with the performance of the Agreement and in accordance with the decision of the City's Designated Representative.

31. DISPUTE RESOLUTION. Should an unresolved dispute arise out of this Agreement, any Party may request that it be submitted to mediation. The Parties shall meet in mediation within a reasonable time not to exceed forty five (45) days of a request. The mediator shall be agreed to by the mediating Parties. In the absence of an Agreement on a mediator, the Parties shall each submit one name from mediators listed by the American Arbitration Association, the California State Board of Mediation and Conciliation, or other agreed-upon service. The mediator shall be selected by a "blindfold" process. The cost of mediation shall be borne equally by both Parties. Neither Party shall be deemed the prevailing Party. No Party shall be permitted to file a legal action without first meeting in mediation and making a good faith attempt to reach a mediated settlement. The mediation process, once commenced by a meeting with the mediator, shall last until Agreement is reached by the Parties but not more than sixty (60) calendar days, unless the maximum time is extended in writing by both Parties.

32. ASSIGNMENT. This Agreement is for the professional Services of Consultant. Any attempt by Consultant to assign the benefits or burdens of this Agreement without the prior written approval of City shall be prohibited and shall be null and void. Consultant's Services pursuant to this Agreement shall be provided by the Consultant's Designated Representative or directly under his/her supervision, and Consultant shall not assign another to supervise the Consultant 's performance of this Agreement without the prior written approval of City, by and through the City's Designated Representative.

33. CARE OF WORK. Should Consultant discover any latent or unknown conditions materially differing from those inherent in the Services or as represented by the City, Consultant shall immediately inform the City of such fact and shall not provide any Services, except at Consultant's risk, until written instructions are received from the Project Manager.

34. REPORTS. Upon request by the Project Manager or as otherwise required by this Agreement, including but not limited to, the Scope of Services or Task Orders set

forth in Exhibit “A”, Consultant shall prepare and submit reports to the City concerning Consultant's performance of the Services required by this Agreement.

35. AUDIT. City shall have the option of inspecting, auditing and/or reproducing all records and other written materials used by Consultant in preparing its billings to City as a condition precedent to any payment to Consultant, or for other purposes relating to the Agreement. Consultant will promptly furnish all documents requested by City. Additionally, if this Agreement is in excess of $10,000, the State Auditor may examine and audit Consultant for a period of 3 years after final payment under the Agreement. Regardless of whether a State audit is permitted, Consultant shall maintain and preserve all such records for a period of at least 3 years after final payment under the Agreement or until an audit has been completed and accepted by City, whichever occurs later. Consultant shall maintain all such records in City or to promptly reimburse City for all reasonable costs incurred in conducting the audit at a location other than in City, including but not limited to expenses for personnel, salaries, private auditor, travel, lodging, meals and overhead. Consultant shall include a copy of this Section in all contracts with its subcontractors, and Consultant shall be responsible for immediately obtaining those records or other written material from its subcontractors upon a request by the State Auditor and/or City.

36. ADVERTISING AND PUBLICITY. Consultant shall not use the name of or refer to City directly or indirectly in any advertisement, news release, or professional or trade publication without prior written approval from the City Manager. This Section shall survive the termination of this Agreement.

37. NONDISCRIMINATORY EMPLOYMENT. Consultant shall not unlawfully discriminate against any individual based on race, color, religion or religious creed, national origin, ancestry, ethnic group identification, primary language, physical disability, mental disability, medical condition, genetic information, marital status, gender, gender identity, gender expression, sex, sexual orientation, age, immigration status, citizenship or military and veteran status. Consultant understands and agrees that it is bound by and will comply with all legal nondiscrimination mandates. For every subcontractor who will perform Services, Consultant shall be responsible for such subcontractor’s compliance with this Section.

38. COVENANTS AND CONDITIONS. Each term and each provision of this Agreement to be performed by Consultant shall be construed to be both a covenant and a condition.

39. WAIVER. City's review or acceptance of, or payment for, work product prepared by Consultant under this Agreement will not be construed to operate as a waiver of any rights City may have under this Agreement or of any cause of action arising from Consultant's performance. A waiver by City of any breach of any term, covenant, or condition contained in this Agreement will not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant, or condition contained in this Agreement, whether of the same or different character.

40. FORCE MAJEURE. Neither the Consultant nor the City shall be responsible for any delay caused by any contingency beyond their control, including, but not limited to, war or insurrection, walkouts by the Party's own employees, fires, natural calamities, riots, or demands or requirements of governmental agencies other than the City.

41. GOVERNING LAW. The terms of this Agreement shall be interpreted according to the laws of the State of California. Should litigation occur, venue shall be in the Superior Court of California, County of Ventura.

42. SEVERABILITY. If any portion of this Agreement is declared by a court of competent jurisdiction to be invalid or unenforceable, then such portion will be deemed modified to the extent necessary in the opinion of the court to render such portion enforceable and, as so modified, such portion and the balance of this Agreement will continue in full force and effect and be enforceable.

43. INTEGRATED AGREEMENT. This Agreement and the attached exhibits referenced herein to this Agreement represent the entire understanding between the Parties. No verbal Agreement or implied covenant shall be held to vary the provisions of this Agreement. This Agreement shall bind and inure to the benefit of the Parties to this Agreement and any subsequent successors and assigns.

44. NO THIRD-PARTY BENEFICIARY. This Agreement shall not be construed to be an Agreement for the benefit of any third-party or parties, and no third party or parties shall have any claim or right of action under this Agreement.

45. AUTHORITY TO EXECUTE. Each Party hereto expressly warrants and represents that the signatories to this Agreement have the authority to execute this Agreement on behalf of its corporation, partnership, business entity, or governmental entity, and warrants and represents that the signatories have the authority to bind each Party to the performance of its obligations hereunder.

46. EXECUTION – COUNTERPARTS. This Agreement may be executed in any number of counterparts and each such duplicate counterpart shall constitute an original, but they shall not be effective nor enforceable unless and until it is executed with the handwritten signature or electronic signature of an authorized representative of each of the relevant Parties. No counterpart shall be deemed to be an original or presumed delivered unless and until the counterpart executed by the other Party to this Agreement is in the physical possession of the Party seeking enforcement thereof.

47. INCONSISTENT OR CONFLICTING TERMS. In the event of any contradictions or inconsistencies between any attached documents or exhibits incorporated by reference herein and the provisions of the Agreement itself, the terms of the Agreement shall control. Any exhibit that is attached and incorporated by reference shall be limited to the purposes for which it is attached, as specified in this Agreement. Any contractual terms or conditions contained in such exhibit imposing additional obligations on the City are not binding upon the City and City's Designated Representative unless specifically agreed to in writing, and initiated by City's Designated Representative, as to each additional contractual term or condition.

48. CAPTIONS AND HEADINGS. The captions and headings contained in this Agreement are provided for identification purposes only and shall not be interpreted to limit or define the content, scope, or intent of the provisions described under the respective caption or heading.

49. ACKNOWLEDGEMENT. By signing below, Consultant acknowledges that it has reviewed the City's Professional Services Agreement terms and conditions and insurance requirements and that Consultant hereby agrees to full compliance.

[Signatures on next page]

IN WITNESS WHEREOF, the Parties have entered into this Agreement effective on the date as written in Section 4 and upon signature of all Parties.

CITY OF OXNARD

_____ _____
☐Luis A. Mc Arthur, Mayor[21] Date
☐Libertad Macias, Purchasing Manager[32]

ATTEST:

_____ _____
Lourdes A. López, City Clerk Date
(only if Mayor authorizes)

APPROVED AS TO FORM:

_____ _____
Stephen M. Fischer, Date
City Attorney (always required)

TURNER & TOWNSEND HEERY, LLC

_____ _____
Robert Chomiak, President Date

_____ _____
Alberto Vela, Vice President[43] Date

[21] The City Council must authorize and the Mayor must execute any agreement over $220,000.

[32] The Purchasing Agent may execute any authorized agreement up to $220,000.

[43] The City requires the following for any contract:
● For a corporation, the signatures of the Board President, CEO or Vice President and of the Board Secretary, Assistant Secretary, CFO or Assistant Treasurer;
● For an LLC, the signatures of at least two managers of the LLC (company directors, not lower-level managers); or
● For a partnership, the signature of a partner. If the partnership is a limited partnership, the signer must be a general partner.
If the company has a different structure, or if the above-listed persons are not the appropriate signers, please submit to the City Attorney legally-binding documentation stating who can sign and bind your company.

EXHIBIT A

PROFESSIONAL SERVICE AGREEMENT
(CITY of Oxnard and Turner & Townsend Heery, LLC)

SCOPE OF SERVICES

PROJECT MANAGER: Abe Anebessaw

General Specifications

The awarded Consultant(s) under this agreement shall provide construction management and inspection support for the City's capital and other projects, as assigned. Specific services shall include, but not be limited to, providing Construction Management / Inspection Services for projects involving public buildings, housing, public works infrastructure, public parks, and such other facilities as may be required. Each individual project assigned by the City of Oxnard (City) will be composed of task orders. The task order proposal shall identify a concise schedule for completion of the task order (Task.) It is the Consultant's responsibility to determine the best and most cost-effective method to complete the Work so that the assigned task order can be completed to the satisfaction of the City. Task orders shall be negotiated as a lump sum amount per term based upon the hourly rate fee schedule as agreed to by the City and Consultant for all services and under the agreement amount. Task order funds will be encumbered based on the quote provided to the City by Consultant per task order. This Scope of Work will allow for additional professional services offered by the Consultant and the services noted below shall not be restricted to those directly stated.

Construction Management/Inspection services shall comply and be consistent with the industry standards and practices, to the full extent any provisions thereof relate or have applicability to such Projects.

The Scope of Work for Construction Management and Inspection Services shall include, but not be limited to the following:

Task 1- Management with City Staff

- **Project Management:** The Construction Manager (CM) shall coordinate all work efforts of the project team including representatives from the City, and shall facilitate regular Project progress meetings and provide regular updates on the Project status and budget. The CM shall become familiar with City processes, procedures, and objectives to provide services and assistance as directed by City staff. The CM shall work under the direction of the City Project Manager,

develop and maintain open lines of communications and cooperation between City staff, CM staff, contractors, and the public.

- **Project Kick-off Meeting:** At the commencement of the Project, the CM shall facilitate a "kick-off" meeting with the City to discuss the scope and parameters of the Project. The CM shall prepare and distribute a draft agenda in advance of the meeting for review and comment by the Project Manager. Specific Project goals will be identified and a strategy to accomplish these goals will be developed during the kick-off meeting. The CM shall prepare and distribute meeting minutes within two (2) working days of the meeting.

- **Progress Meetings:** The CM shall conduct bi-weekly progress meetings with the City for the duration of the project, and more frequently if individual situations warrant. The CM shall prepare an agenda that will include topics such as safety, RFI, submittals, change order, schedule, and construction progress. The CM shall be responsible for preparing and distributing meeting minutes from each meeting. Meeting minutes shall be in a format acceptable to the City's Project Manager and shall be distributed within two (2) working days of the project meeting. Project progress meetings will be held at the Public Works Conference rooms and project sites. At least monthly, the CM will present a summary of the monthly progress reports and discuss outstanding or upcoming project issues with the City.

- **CM Plan:** The CM shall prepare a CM Plan utilizing the final conformed contract documents, and shall include the following elements:

    1. Organization Chart
    2. CM coordination with City team and description of duties and responsibilities
    3. Safety compliance
    4. Claims avoidance strategy
    5. Special inspection requirements
    6. Inspection procedures
    7. List of all tests required for project
    8. Materials testing location
    9. Document management system
    10. Physical office location
    11. Project close out process

- **CM Staffing:** The CM shall provide appropriate staffing to accommodate the needs of the project.

Task 2- Construction Administration

The CM shall provide a Resident Engineer (RE) to provide construction administration and direct contractor activities whenever the contractor is working onsite. If the RE meets the certification requirements for the specialty inspectors, the RE may perform inspections, provided that the specialty inspections do not interfere with the primary resident engineering tasks. The RE shall be certified by the International Code Council (ICC) for any inspections they perform. For budgetary purposes, the CM shall assume that the RE shall be dedicated full time for the duration of the project. The Construction Administration tasks are described below.

- **Contract Administration:** The CM shall have the responsibility for the daily management of the construction project. The CM shall provide and coordinate construction management services of the following activities:

    1. **Administration:** The CM shall administer construction contracts and provide technical Construction Management support to City staff to facilitate completion of projects.

    2. **Contractor Communication:** The CM shall provide effective written and oral communication to the contractor and other stakeholders in the administration of the contract. The CM shall provide for timely, thorough, clear, effective and responsible communications to Requests for Information (RFI's), Requests for Change (RFC's), Requests for Proposal (RFP's), submittals, and other miscellaneous correspondence. CM shall receive, log, and track requests for information. CM shall provide a technical review of RFI's to determine if the issue is addressed adequately. CM shall respond where the RFI can be addressed in the Contract Documents. If the contract documents are not clear, the CM shall forward RFI’s to the Design CM. RFIs responded by the designer shall be tracked for a timely response. CM shall develop a project directory of key consulting and contractor personnel working on the project.

    3. **Quality Assurance:** The CM shall verify and manage the Contractor’s Quality Control Plan.

    4. **Substitution Requests:** The CM shall evaluate requests for material and equipment substitutions and changes based on compliance with contract specifications and taking into account the impacts to cost and schedule. Based upon the CMs evaluation of the request for substitutions, the CM shall inform the PM and Engineer of Record of the substitution request and request an evaluation and decision of the merits of the substitution.

    5. **Resource Loading:** The CM shall monitor the contractor's resource loading and advise on corrective actions needed to maintain schedule.
    6. **Submittal Review/Logging:** The CM shall receive, respond, log, and track submittals. If the contract documents are not clear, the CM shall forward

submittals to the Engineer of Record. Submittals responded by the designer shall be tracked for a timely response.

7. **Project Meetings:** The CM shall conduct weekly job site construction meetings involving the project team and maintain action items, minutes of said meetings and compliance with the contract provisions. Maintain and distribute meeting minutes within two (2) working days.

- **Safety and Security Monitoring:** The Contractor is responsible for enforcing its safety program on its employees and subcontractors' employees. It is the CM's responsibility to monitor, enforce safety, and promote a safe overall environment for all workers and visitors to the project site. Safety shall comply with all Federal, State and locally accepted safety regulations and measures including:

    1. **Safety:** The CM shall be responsible for providing all necessary personal protective equipment (PPE) including hard hats, vests, footwear, lights and other safety equipment for the CM Team. The CM shall prepare a safety plan for the CM team.

    2. **Job Site Security Verification:** Routinely check job site security and measures taken to protect the public from hazards.

    3. **Emergency Response Plan Review:** Review Contractor's emergency response plans. CM shall ensure that Contractor complies with State and Federal requirements but shall not be responsible for defining Contractor's safety programs. CM shall notify the Contractor of potential unsafe working conditions.

- **Environmental Monitoring:** The CM shall review and enforce requirements stipulated in permits issued by regulatory agencies and the environmental documents as shown or referenced in the contract documents.

- **Controls and Scheduling:** CM shall provide comprehensive project scheduling and control expertise as follows:

    1. **Baseline Schedule Review:** CM shall review and comment on contractor’s baseline and project schedule critical path, and logic review. CM shall ensure that schedule meets all requirements of the contract.

    2. **Progress Schedule Review:** CM shall review and monitor contractor's schedule monthly to monitor project progress and detect early delays. Report all schedule delays to the City’s Project Manager.
    3. **Cost and Budget:** CM shall monitor project construction costs, budgets, schedule and maintain current workflow projections.

4. **Reporting:** CM shall prepare and distribute monthly construction reports. CM shall provide at a minimum:

    - Daily inspection reports
    - Weekly job site meeting minutes
    - Monthly report overview
    - Project cost to date
    - Schedule updates
    - Recommendations to mitigate project delays

- **Progress Payment Review:** CM shall review and approve monthly contractor invoices, verify compliance to all terms and conditions of contract and make payment recommendations. The CM shall ensure that the contractor's request for payment does not represent more than the amount for work performed on a monthly basis.

- **Contract Extensions:** CM shall review, analyze, and make recommendations on contractor time extensions/requests.

- **Coordination with City Inspectors/PM:** CM shall coordinate with City inspection and project management resources, where applicable.

- **Miscellaneous Coordination:** CM shall coordinate and monitor work to be performed by others.

- **Project Notice Coordination:** CM shall receive and review project notices, and submit to the City with appropriate recommendations.

- **Monitor Time and Materials Work:** CM shall monitor contractor work performed on a time and materials (T&M) basis to ensure that the contractor labor charges are fair and appropriate, and that materials purchased are of quantity and quality necessary to the project, and documented on invoices.

- **Cost Estimating:** The CM shall maintain a cost estimating system that conforms to industry accepted practices and provide the following:

    1. **Contractor Proposals:** CM shall evaluate contractor cost reduction proposals in accordance with industry cost standards. CM shall provide detailed analysis of the contractor’s proposal along with a recommended outcome to the Project Manager.
    2. **Change Order Review:** The CM shall review proposed change orders. The CM shall provide a change order review standard that includes a detailed process, forms, and recommendations of actions to the PM. CM’s change order review shall provide additional analysis of both cost and time concurrently. Time impact analysis shall not be deferred to a later time.

- **Document Control:** The CM shall establish a document management system for the following:

    1. **Filing:** The CM shall utilize a filing system. CM shall use a web-based document management system as approved by the City. CM shall be responsible for the cost of the document management system and training.

    2. **Claims:** The CM shall identify, analyze and prepare construction claims and disputes by assessing or validating entitlement and quantification of damages and promoting a successful resolution within 21 calendar days (assuming the Contractor is cooperative.) The CM shall provide associated cost estimates and time impact analysis concurrently for Claims Evaluation.

    3. **Document Tracking:** All central receipts, control, storage, distribution, indexing and tracking of all documents.

    4. **Document Managing:** All documents, incoming and outgoing, associated with the construction management activity of all assigned projects, including, but not limited to submittals, requests for information (RFIs), requests for clarifications (RFCs), pay requests, change orders (COs) and correspondence.

    5. **As-Built Documents Administration:** Maintaining a current set of as built drawings and specifications.

    6. **Document Maintenance:** Maintaining all field documents, storing original documentation and furnishing to the City at project completion.

- **Operations and Maintenance Manuals:** The CM shall receive final O&M equipment manuals from contractor and coordinate their review. Final O&M manuals shall be delivered to the Operations Manager.

- **Change Order and Claims Management:** The CM shall implement a comprehensive claims management program to evaluate change order requests and recommend equitable disposition. When agreement cannot be reached, the CM shall support the City's position and assist in formulating a claims defense and participate in resolution including:

    1. **Document Managing:** Coordinate, assemble and review supporting documentation for change order processing and make final recommendations to City staff.

    2. **Contractor Request Review:** Review requests of alleged cost increases and/or time impacts for merit concurrently.

3. **Change Order Review:** Thoroughly analyze the proposal and develop a negotiating position. When necessitated by variations between contractor price for change and the CM's fair cost estimate, CM shall negotiate an equitable resolution with guidance from the City's Project Manager.

4. **Change Order Expediting:** After the equitable resolution is reached the CM shall expedite approval of the negotiated change order.

Task 3- Inspection

The CM shall provide inspection services and monitoring of construction to ensure construction is in compliance with the project construction documents. The CM's resident engineer and inspection staff shall verify construction compliance and Quality Assurance Quality Control with applicable permits, codes, construction documents and any environmental mitigation. CM shall maintain redline as-builts on a monthly basis.

- **Daily and Weekly Documentation:**

  1. **Documentation of Construction Activities:** Provide documentation of construction activities, duration of activities, labor resources, and equipment allocation.

  2. **Construction Reporting:** Provide daily construction activity reports, labor resources, on- site equipment, and work conditions.

  3. **Non-Conformance Reporting:** Provide non-conformance reports.
  4. **Photographic Records:** Provide weekly photographic/digital records of the project during construction.

- **Civil Inspections:** The CM shall provide qualified inspectors for all improvements to inspect, monitor, and report on construction improvements as required by the Plans and Technical Specifications.

- **Field Testing:** Witness field tests and startup procedures for electrical equipment as needed.

- **Soil and Materials Testing:** The CM shall provide qualified and approved testing laboratories and California registered Geotechnical Engineers and/or ICC-certified Soils Special Inspector-EC or equivalent staff to perform all necessary soils and materials testing required to verify the quality and proper placement. The Soils and Materials Inspector shall be responsible for the following:

1. **Material Sampling:** Sample on-site and imported materials for compliance with the specifications for use as backfill materials.

2. **Material Testing:** Perform maximum density tests and optimum moisture content tests on materials to be used as backfill. Examples of testing include: gradation, R-value, sand equivalence, etc.

3. **Conformance Testing:** Perform compaction tests for backfill. Separate testing shall be performed for the pavement zone, street zone, and areas of over-excavation. Provide recommendations for compaction or density testing of rock backfill materials. Sand cone test method is required for soil compaction testing. Alternate compaction testing may be utilized; including but not limited to, nuclear gauge.

4. **Data Review:** Tabulate test data and review failing tests. Provide immediate notification of any failure to meet the requirements of the project contract documents.

5. **Reporting:** Upon prior authorization from the City, prepare a final report at the completion of construction certifying that geotechnical issues comply with the contract documents.

- **Storm Water Pollution Prevention Plan Inspection:**

1. Review contractor's site-specific SWPPPs for compliance with applicable regulations.

2. Monitor contractor's activities regarding pollution prevention controls and activities for general compliance with the contractor's SWPPP Best Management Practice (BMP). The contractor is responsible for means and methods for complying with BMP's. The SWPPP inspector shall notify the contractor and the City if the pollution prevention controls are in or out of compliance with the SWPPP.

TASK 4- Construction Closeout

The CM shall manage the turnover of the assigned project to the City, including contract closeout, management of warranty period activities and demobilization of CM staff including:

- **Site Closeout:** The CM shall budget under the Task 2 Construction Administration budget to close out construction and oversee demobilization at each site. Site Closeout tasks shall include:

1. **Site Final Walk-Through:** Coordinate and conduct a site final walk-through to verify completion of contract and all related items of work within 7 days of substantial completion.

2. **Site Punch List:** Develop site punch list and verify completion and obtain final documentation and releases within 7 days of substantial completion.

3. **Site Record Drawing Preparation:** Verify and deliver contractor as-built marked up drawings for record drawing preparation within 14 calendar days of site substantial completion.

4. **Site Permitting:** Monitor permit and agency sign-offs within 14 calendar days of substantial completion.

5. **Site Final Reporting:** Prepare site summary report in accordance with the City within 7 days of final completion.

6. **Site Documentation Turnover:** Turnover site project files, contract, correspondence, and documentation within 14 calendar days of final completion.

7. **Site Warranty Coordination:** The CM shall prepare a list of warranty items, warranty period, and warranty repair procedures, and turn over to the City's Project Manager.

8. **Site Demobilization:** Demobilize the CM staff and facilities in accordance with the agreed upon plan.

- **Construction Contract Close Out:** The CM shall oversee the contract closeout process and assist in resolving O&M service disputes. The CM shall budget under the Task 3 budget for Construction Contract Close Out. The closeout shall entail sign offs by responsible parties and include:

    1. **Project-wide Final Walk-Through:** Coordinate and conduct a final walk-through to verify completion of contract and all related items of work within 7 days of substantial completion. The final walk-through shall be extended to include relevant City Departments and Divisions.

    2. **Project-wide Punch List:** Develop punch list and verify completion and obtain final documentation and releases within 7 days of substantial completion.

    3. **Project-wide Record Drawing Review and Corrections:** Review record drawings prepared by the Design Engineer or contractor as-built marked up

drawings delivered for each site for correctness and consistency within 14 calendar days of substantial completion.

4. **Final Payment/Close-Out Change Order Review:** Review final payment and close out change orders within 7 days of substantial completion.
5. Permitting: Confirm that all permits are in place within 14 calendar days of substantial completion.

6. **Final Reporting:** Prepare final summary report in accordance with the City within 7 days of final completion.

7. **Documentation Turnover:** Turnover project files, contract, correspondence, and documentation within 14 calendar days of final completion.

8. **Project Warranty Coordination:** The CM shall review and update as needed the list of warranty items, warranty period, and warranty repair procedures, and turn over to the City's Project Manager.

9. **Final Demobilization:** Demobilize the CM staff and facilities in accordance with the agreed upon plan.

City of Oxnard

Public Works Department

305 West Third Street, East Wing Oxnard, California 93030

TASK ORDER

All Task Orders must include a copy of the vendor proposal/estimate

Task Order No.:	Agreement No.:
Task Order NTE Amount:	Agreement NTE Amount:
City Purchase Order No.:	Agreement Type:
Agreement Expiration Date:	
Prime Consultant:	Subconsultant(s):

PROJECT TITLE OR SPECIFICATION NO.:

PROJECT DESCRIPTION:

DESCRIPTION OF SERVICES TO BE PERFORMED UNDER THIS TASK ORDER:

TIME FOR COMPLETION OF SERVICES UNDER THIS TASK ORDER:

COMPENSATION FOR SERVICES SHALL NOT EXCEED THE TASK ORDER NTE AMOUNT.

City Project Manager:

Consultant Project Manager:

Services under this Task Order shall not proceed until this Task Order is executed by the City and Consultant and the City issues a Notice to Proceed. This Task Order may only be modified in writing and subject to City approval. Consultant shall not exceed the scope of the task order or NTE amount.

City of Oxnard		[Consultant]	
[designated rep]	Date	[Name & Title]	Date
Insert Department Assistant Director/Director	Date	[Name & Title]	Date

For internal City Use Only

Account Number and Project Number	*Example 1011234-53200-CXXXX*

On-Call PSA/GSA 2024

EXHIBIT B

PROFESSIONAL SERVICE AGREEMENT
(CITY of Oxnard and Turner & Townsend Heery, LLC)

SCHEDULE OF COMPENSATION

Position	Rate
Project Executive	N/C
Contract Manager	$ 199.00
Sr. Project Manager	$ 215.00
Project Manager	$ 170.00
Sr. Construction Manager	$ 195.00
Construction Manager - Resident Engineer	$ 185.00
Construction Manager - Buildings	$ 170.00
Assistant Resident Engineer	$ 158.00
Assistant Project Manager	$ 150.00
Building Field Engineer	$ 148.00
Inspector	$ 142.00
Estimator	$ 190.00
Office Engineer	$ 105.00
Scheduler	$ 165.00
Planner	$ 170.00
Financial Analyst	$ 155.00
Coordinator	$ 110.00
Project Controls	$ 175.00
Commissioning	$ 175.00
Contract Procurements	$ 150.00

Inspection - See attached Twinning fee schedule
Other Direct Cost - approved ODC's expenses will be at cost
Reimbursable Expenses - approved reimbursable expenses will be at cost
Escalation will be at 2.8% or CPI index which ever is lower

[Continued on next page]

RVI CM (SBE/DBE)
SUBCONSULTANT RATE SHEET

Position	Rate
A. Roldan - Sr. Construction Manager - Resident Engineer	$ 261.25
A. Infate - Construction Manager - Resident Engineer	$ 250.80
F. Villasenor - Assistant Resident Engineer	$ 182.98
S. Avila - Inspector	$ 188.10
Office Engineer	$ 108.55

Twining Schedule of Fees 2025-2026
Note: Rates will be adjusted annually each July 1st to reflect increased costs.
Personnel Rates: Per Hour Unless Otherwise Noted

Task Code	Engineering And Consulting Personnel	Rate
10026	Senior Principal Advisor/Consultant	$ 410.00
10001	Principal Engineer/Geologist	$ 295.00
10017	Metallurgical Engineer	$ 410.00
70000	Registered Geotechnical Engineer	$ 295.00
10010	Technical Advisor	$ 275.00
10011	Material Scientist, Welding/NDT Consultant	$ 290.00
70003	Registered Geologist/Certified Engineering Geologist	$ 290.00
10003	Senior Engineer/Geologist	$ 265.00
10009	Registered Civil Engineer	$ 250.00
60003	Roofing/Waterproofing Consultant	$ 280.00
10013	Project Engineer/Manager	$ 245.00
30000	Quality Control Manager	$ 245.00
10005	Senior Staff Engineer/Geologist	$ 230.00
10007	Staff Engineer/Geologist	$ 215.00
10015	Quality Control Administrator	$ 215.00
10019	Metallurgical Technician	$ 185.00
90001	CADD Operator/Draftsperson	$ 170.00
95103	Administrative Support	$ 110.00
70107	Field Supervisor	$ 205.00
91030	Safety Supervisor	$ 205.00
20000	Laboratory Manager	$ 190.00
98000	Laboratory Technician	$ 165.00
90005	Expert Witness Testimony	$ 660.00
91010	Qualified SWPPP Developer	$ 230.00
91000	Qualified SWPPP Practitioner	$ 215.00
30001	Vibration Engineer	$ 250.00

[Continued on next page]

Task Code	Field Inspection Personnel		Rate
10101	Concrete/Reinforced Steel Inspector	$	141.00
10103	Prestressed/Post Tensioned Inspector	$	141.00
10105	Concrete ICC Inspector	$	141.00
10109	Drilled-In-Anchor Inspector	$	141.00
10111	Gunite/Shotcrete Inspector	$	141.00
10113	Masonry Inspector	$	141.00
10201	Structural Steel/Welding Inspector	$	141.00
10203	AWS Certified Welding Inspector	$	141.00
10207	Fireproofing Inspector	$	141.00
10501	Lead Inspector	$	155.00
10115	Firestop Special Inspector - IFC Premier	$	167.00
10117	Firestop Special Inspector - IQP	$	212.00
70109	L.A. Deputy Grading Inspector	$	157.00
75001	Asphalt Field and Plant Inspector/Technician	$	141.00
70103	Pile Driving Inspector	$	146.00
70101	Soils Technician	$	141.00
10107	Concrete Quality Control (ACI/Caltrans Technician)	$	141.00
10122	Wood Framing Inspector	$	146.00
60001	Roofing/Waterproofing Inspector	$	157.00
10500	Public Works Inspector	$	162.00
10515	Mechanical Inspector	$	192.00
10519	Electrical Inspector	$	192.00
10521	Plumbing Inspector	$	192.00
10523	Building Inspector	$	192.00
30002	Vibration Monitoring Technician	$	167.00
50003	Field Engineering Technician	$	146.00

Task Code	Shop Inspection Personnel		Rate
10301	Structural Steel Fabrication Inspector	$	146.00
10309	Batch Plant Quality Control Technician/Inspector	$	146.00
10325	Glue-Laminated Fabrication Inspector		Quotation
10328	Pre-Cast Concrete/Pipe Fabrication Inspector	$	146.00

Task Code	Nondestructive Testing Personnel		Rate
10401	NDE Ultrasonic Testing Technician	$	152.00
10403	NDE Magnetic Particle Testing Technician	$	152.00
10306	Phased Array Ultrasonic Technician	$	157.00
10405	NDE Dye Penetrant Testing Technician	$	152.00
10305	Combination NDE Technician/Welding Inspector	$	152.00
10306	Phased Array Ultrasonic Technician	$	157.00
10409	Radiographic Testing (Crew Of 2)		**Quotation**
10020	NDE Engineer	$	262.00

EXHIBIT C

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Turner & Townsend Heery, LLC)

INSURANCE REQUIREMENTS

Prior to contract approval and beginning of services under this agreement, Consultant must procure, agree to maintain and supply evidence of insurance at the levels listed and in accordance with the other provisions listed in this document.

[See next pages]

Exhibit INS-A

INSURANCE REQUIREMENTS FOR CONSULTANTS
(WITH ERRORS AND OMISSIONS REQUIREMENT)

1. Consultant shall obtain and maintain during the performance of any services under this Agreement the following insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of services hereunder by Consultant, its agents, representatives, employees or subconsultants.

a. Commercial General Liability Insurance, including Contractual Liability, in an amount not less than $1,000,000 combined single limit for bodily injury and property damage for each claimant for general liability with coverage equivalent to Insurance Services Office Commercial General Liability Coverage (Occurrence Form CG 0001). If a general aggregate limit is used, that limit shall apply separately to the project or shall be twice the occurrence amount;

b. Business automobile liability insurance in an amount not less than $1,000,000 combined single limit for bodily injury and property damage for each claimant for automobile liability with coverage equivalent to Insurance Services Office automobile liability coverage (Occurrence Form CA0001) covering Code No. 1, "any auto;"

c. Professional liability/errors and omissions insurance appropriate to Consultant's profession to a minimum coverage of $1,000,000, with neither Consultant nor listed subconsultants having less than $500,000 individually. The professional liability/errors and omissions insurance must be project specific with at least a one year extended reporting period, or longer upon request.

d. Workers' compensation insurance in compliance with the laws of the State of California, and employer's liability insurance in an amount not less than $1,000,000 per claimant. Additionally, the workers' compensation policy shall include a waiver of all rights of subrogation which the insurer may have against the City.

2. Consultant shall, prior to performance of any services, file with the Risk Manager certificates of insurance with original endorsements effecting coverage required by this Exhibit INS-A. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be on the attached forms or on other forms approved by the Risk Manager. All certificates and endorsements are to be received and approved by the Risk Manager before commencement of services. City reserves the right to require complete certified copies of all required insurance policies at any time. The certificates of insurance and endorsements shall be sent via email. If you have not received your request or are having difficulty with electronic upload, contact insurance@oxnard.org

3. Consultant agrees that all insurance coverages shall be provided by a California admitted insurance carrier with an A.M. Best rating of A:VII or better and shall be endorsed to state that coverage may not be suspended, voided, canceled, or reduced in coverage or limits without 30 days' prior written notice to the Risk Manager. The Risk Manager shall not approve or accept any endorsement if the endorsement contains "best effort" modifiers or if the insurer is relieved from the responsibility to give such notice.

4. Consultant agrees that the commercial general liability and business automobile liability insurance policies shall be endorsed to name City, its City Council, officers, employees, agents and volunteers as additional insureds as respects: liability arising out of activities performed by or on behalf of Consultant; products and completed operations of Consultant; premises owned, occupied or used by Consultant; or automobiles owned, leased, hired or borrowed by Consultant. The coverage shall contain no special limitations on the scope of protection afforded to City, its City Council, officers, employees, agents and volunteers. **The General Liability Special Endorsement Form and Automobile Liability Special Endorsement Form attached to this Exhibit INS-A or substitute forms containing the same information and acceptable to the Risk Manager shall be used to provide the endorsements (ISO form CG 2010 11/85 or if not available, CG 2010 with an edition date prior to 01/04 and CG 2037).**

5. The coverages provided to City shall be primary and not contributing to or in excess of any existing City insurance or self-insurance coverages (**this must be endorsed**). Additionally, the workers' compensation policy shall include a waiver of all rights of subrogation which the insurer may have against the City. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to City, its City Council, officers, employees and volunteers. The insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

6. The insurer shall declare any deductibles or self-insured retentions to and be approved by the Risk Manager. At the option of the Risk Manager, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects City, its City Council, officers, employees and volunteers, or the Consultant shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

7. All insurance standards applicable to Consultant shall also be applicable to Consultant's subconsultants. Consultant agrees to maintain appropriate agreements with subconsultants and to provide proper evidence of coverage upon receipt of a written request from the Risk Manager.

1/23

INSTRUCTION FOR SUBMITTING INSURANCE CERTIFICATES AND ENDORSEMENT FORMS

Certificates of Insurance

The sample accord form on the following page is provided to facilitate your preparation and submission of certificates of insurance. You may use this or any industry form that shows coverage as broad as that shown on the attached sample. **Please note the certificate holder address must be as shown on the attached sample accord form with the contract number and insurance exhibit identification information completed.** Improperly addressed certificates may delay the contract start-up date because the City's practice is to return unidentifiable insurance certificates to the insured for clarification as to the contract number. **Cancellation provisions must be endorsed to the policy. Modifying the certificate does not change coverage or obligate the carrier to provide notice of cancellation.**

Endorsement Forms

Original endorsements are required for commercial general liability and business automobile liability insurance policies and must be attached to the applicable certificate of insurance. City preference is that the Consultant/insurer use the endorsement forms which are attached. Substitute forms will be accepted, however, as long as they include provisions comparable to the sample accord form.

INS-A.doc

ACORD CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
CODE SUB-CODE	**COMPANIES AFFORDING INSURANCE COVERAGE**
INSURED	COMPANY LETTER A — SPECIFY COMPANY NAMES IN THIS SPACE
	COMPANY LETTER B

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	**GENERAL LIABILITY** [x] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [x] OCCUR. [x] OWNER'S & CONTRACTOR'S PROT.				GENERAL AGGREGATE PRODUCTS COMP/OP AGG . PERSONAL & ADV. INJURY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED. EXPENSE (Any one person)	$1,000,000 $1,000,000 $1,000,000 $1,000,000 $ $
A	**AUTOMOBILE LIABILITY** [x] ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS GARAGE LIABILITY				COMBINED SINGLE LIMIT BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE	$1,000,000 $ $ $
A	**EXCESS LIABILITY** UMBRELLA FORM OTHER THAN UMBRELLA FORM				EACH OCCURRENCE AGGREGATE	$ $
A	**WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY**				STATUTORY LIMITS EACH ACCIDENT DISEASE-POLICY LIMIT DISEASE-EACH EMPLOYEE	 $1,000,000 $1,000,000 $1,000,000
A	**OTHER** Errors and omissions insurance or malpractice insurance available for the insured's profession				Minimum coverage Each consultant/ & listed sub-consultant	$1,000,000 $500,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/RESTRICTIONS/SPECIAL ITEMS

CERTIFICATE HOLDER	CANCELLATION
CITY OF OXNARD % Evident ID, Inc. **8520 Allison Pointe Blvd. Ste 223** **PMB 5210** **Indianapolis, Indiana 462500-4299 US**	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ~~ENDEAVOR TO~~ MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, ~~BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.~~ AUTHORIZED REPRESENTATIVE

GENERAL LIABILITY SPECIAL ENDORSEMENT FOR THE CITY OF OXNARD (the "City")

SUBMIT IN DUPLICATE

ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER

Telephone:

NAMED INSURED

POLICY INFORMATION:
Insurance Company:
Policy No.:
Policy Period: (from) (to)
LOSS ADJUSTMENT EXPENSE ❒ Included in Limits ❒ In Addition to Limits

❒ Deductible ❒ Self-Insured Retention (check which) of $ _____
with an Aggregate of $_____ applies to _____
coverage. ❒ Per Occurrence ❒ Per Claim (which)

APPLICABILITY. This insurance pertains to the operations, products and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ❒ in which case only the following specific agreements and permits with the City are covered

CITY AGREEMENTS/PERMITS

TYPE OF INSURANCE

GENERAL LIABILITY
❒ COMMERCIAL GENERAL LIABILITY ❒ Claims Made
❒ COMPREHENSIVE GENERAL LIABILITY Retroactive Date _____
❒ OWNERS & CONTRACTORS PROTECTIVE ❒ Occurrence

OTHER PROVISIONS

COVERAGES	LIABILITY LIMITS IN THOUSANDS $	
	EACH OCCURRENCE	AGGREGATE
❒ GENERAL		
❒ PRODUCTS/COMPLETED OPERATIONS		
❒ PERSONAL & ADVERTISING INJURY		
❒ FIRE DAMAGE		
❒ _____		
❒ _____		

CLAIMS: Underwriter's representative for claims pursuant to this insurance.

Name: _____
Address: _____
_____
Telephone: ( ) _____

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, insurance company agrees as follows:

1. **INSURED.** The City, its officers, agents, employees and volunteers are included as insureds with regard to liability and defense of suits arising from the operations, products and activities performed by or on behalf of the named insured.
2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the named insured for or on behalf of the City; or (b) products sold by the named insured to the City; or (c) premises leased by the named insured from the City, the insurance afforded by this policy shall be primary insurance as respects the City, its officers, agents, employees or volunteers; or stand in an unbroken chain of coverage excess of the named insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the City, its officers, agents, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SEVERABILITY OF INTEREST.** This insurance applies separately to each insured against whom claim is made or suit is brought except with respect to the company's limits of liability. The inclusion of any person or organization as an insured shall not affect any right which such person or organization would have as a claimant if not so included.
4. **CANCELLATION NOTICE.** With respect to the interests of the City, this insurance shall not be canceled, or materially reduced in coverage or limits except after thirty (30) days prior written notice by receipted delivery has been given to the City.
5. **PROVISIONS REGARDING THE INSURED'S DUTIES.** Any failure to comply with reporting provisions of the policy or breaches or violations of warranties shall not affect coverage provided to the City, its officers, agents, employees or volunteers.
6. **SCOPE OF COVERAGE.** This policy, if primary, affords coverage at least as broad as:
   a. Insurance Services Office Commercial General Liability Coverage, "occurrence" form CG0001; or
   b. If excess, affords coverage which is at least as broad as the primary insurance form CG0001.

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER

CITY OF OXNARD % Evident ID, Inc.
8520 Allison Pointe Blvd. Ste 223
PMB 5210
Indianapolis, Indiana 462500-4299 US

AUTHORIZED REPRESENTATIVE

❒ Broker/Agent ❒ Underwriter ❒ _____

I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement.

Signature _____
(original signature required)
Telephone: ( ) _____ Date Signed: _____

AUTOMOBILE LIABILITY SPECIAL ENDORSEMENT FOR THE CITY OF OXNARD (the "City")	**SUBMIT IN DUPLICATE**	
	ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER	POLICY INFORMATION:
	Insurance Company: Policy No.: Policy Period: (from) (to) LOSS ADJUSTMENT EXPENSE ❒ Included in Limits ❒ In Addition to Limits
Telephone:	❒ Deductible ❒ Self-Insured Retention (check which) of $ _____ with an Aggregate of $_____ applies to coverage. ❒ Per Occurrence ❒ Per Claim (which)
NAMED INSURED	**APPLICABILITY**. This insurance pertains to the operations, products and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ❒ in which case only the following specific agreements and permits with the City are covered: CITY AGREEMENTS/PERMITS

TYPE OF INSURANCE	**OTHER PROVISIONS**
❒ COMMERCIAL AUTO POLICY ❒ BUSINESS AUTO POLICY ❒ OTHER	
LIMIT OF LIABILITY	**CLAIMS:** Underwriter's representative for claims pursuant to this insurance. Name: _____ Address: _____ _____ Telephone: (_____) _____
$ _____ per accident, for bodily injury and property damage.	

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, insurance company agrees as follows:

1. **INSURED.** The City, its officers, agents, volunteers and employees are included as insureds with regard to liability and defense of suits arising from the operations, products and activities performed by or on behalf of the named insured.
2. **CONTRIBUTION NOT REQUIRED.** As respects: (a) work performed by the named insured for or on behalf of the City; or (b) products sold by the named insured to the City; or (c) premises leased by the named insured from the City, the insurance afforded by this policy shall be primary insurance as respects the City, its officers, agents, employees or volunteers; or stand in an unbroken chain of coverage excess of the named insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the City, its officers, agents, employees or volunteers shall be in excess of this insurance and shall not contribute with it.
3. **SEVERABILITY OF INTEREST.** This insurance applies separately to each insured against whom claim is made or suit is brought except with respect to the company's limits of liability. The inclusion of any person or organization as an insured shall not affect any right which such person or organization would have as a claimant if not so included.
4. **CANCELLATION NOTICE.** With respect to the interests of the City, this insurance shall not be canceled, or materially reduced in coverage or limits except after thirty (30) days prior written notice by receipted delivery has been given to the City.
5. **PROVISIONS REGARDING THE INSURED'S DUTIES.** Any failure to comply with reporting provisions of the policy or breaches or violations of warranties shall not affect coverage provided to the City, its officers, agents, employees or volunteers.
6. **SCOPE OF COVERAGE.** This policy, if primary, affords coverage at least as broad as:
   a. Insurance Services Office Automobile Liability Coverage, "occurrence" form CA0001, code ("any auto"); or
   b. If excess, affords coverage which is at least as broad as the primary insurance form referenced in the preceding section (1).

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER	
CITY OF OXNARD % Evident ID, Inc. **8520 Allison Pointe Blvd. Ste 223** **PMB 5210** **Indianapolis, Indiana 462500-4299 US**	**AUTHORIZED REPRESENTATIVE** ❒ Broker/Agent ❒ Underwriter ❒ _____ I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement. Signature _____ *(original signature required)* Telephone: ( ) Date Signed _____

EXHIBIT D

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Turner & Townsend Heery, LLC)

[RESERVED]

EXHIBIT E

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Turner & Townsend Heery, LLC)

LIVING WAGE POLICY

Pursuant to the Living Wage Policy adopted July 9, 2002 by the City Council and effective October 1, 2002, the City Manager and City Attorney are directed to include the following language in all standard Consultant/Professional Services contracts that may be governed by the Living Wage Policy.

A. Consultant shall compensate any employee of Consultant who provides Services under this Agreement in accordance with the Living Wage Policy, attached hereto and incorporated herein by reference as the Living Wage Policy Exhibit. While this Agreement is in effect, Consultant shall pay such employee no less than $20.06 per hour for each hour that such employee provides Services under this Agreement. In addition, while this Agreement is in effect, Consultant shall provide to such employee no less than 96 hours of paid leave per calendar year.

B. Consultant agrees to post, at a location readily accessible to those employees providing Services to the City, a copy of the Living Wage Policy adopted by City Council on July 9, 2002 and effective October 1, 2002.

C. If Consultant fails to compensate such employee pursuant to the Living Wage Policy, the City Manager or designee shall terminate this Agreement on written notice to Consultant, effective immediately.

D. In addition, if Consultant fails to comply with the Living Wage Policy in any manner, Consultant shall pay to City a fine of $500 and shall pay to any employee providing Services under this Agreement a penalty of three times the amount or value of the compensation owed to such employee under the Living Wage Policy. Consultant shall pay such fine and penalty within fifteen (15) calendar days after the City Manager or designee provides written notice to Consultant of the amount owed.

CITY OF OXNARD LIVING WAGE REQUIREMENTS
EFFECTIVE JULY 1, 2025

Consultant shall compensate any employee of Consultant who provides Services under this Agreement in accordance with the Living Wage Policy, attached hereto and incorporated herein by reference as Exhibit E. While this Agreement is in effect, Consultant shall pay such employee no less than $20.06 per hour for each hour that such employee provides Services under this Agreement. This hourly rate shall be adjusted on July 1, 2026, and each July 1 thereafter, according to the percentage change in the Consumer Price Index, all items, prepared by the Bureau of Labor Statistics for the Los Angeles area relating to all urban consumers (CPI-U), index base 1982-84=100, comparing May of the previous year to May of the current year. In addition, while this Agreement is in effect, Consultant shall provide to such employee no less than 96 hours of paid leave per calendar year.

a. Consultant agrees to post, at a location readily accessible to those employees providing Services to the City, a copy of the Living Wage Policy adopted by the Oxnard City Council on July 9, 2002 and effective October 1, 2002.

b. If Consultant fails to compensate such employee pursuant to the Living Wage Policy, the City Manager or designee shall terminate this Agreement on written notice to Consultant, effective immediately.

c. In addition, if Consultant fails to comply with the Living Wage Policy in any manner, Consultant shall pay to City a fine of $500 and shall pay to any employee providing Services under this Agreement a penalty of three times the amount or value of the compensation owed to such employee under the Living Wage Policy. Consultant shall pay such fine and penalty within fifteen (15) calendar days after the City Manager or designee provides written notice to Consultant of the amount owed.

EXHIBIT F

PROFESSIONAL SERVICES AGREEMENT
(CITY of Oxnard and Turner & Townsend Heery, LLC)

PREVAILING WAGE

1. Consultant acknowledges that the Project defined in the Agreement between Consultant and City is a "public work" as defined in Division 2, Part 7, Chapter 1 of the California Labor Code ("Chapter 1"), and that this Agreement is subject to Chapter 1 and the rules and regulations established by the Director of Industrial Relations ("DIR") implementing such statutes. Consultant shall perform the Project as a public work. Consultant shall comply with and be bound by all the terms, rules and regulations described in Chapter 1 and the DIR's rules and regulations as though set forth in full herein.

2. Pursuant to Labor Code Section 1773.2, copies of the prevailing rate of per diem wages for each craft, classification, or type of worker needed to perform the Agreement are on file at City Hall and will be made available to any interested party on request. Consultant acknowledges receipt of a copy of the DIR determination of such prevailing rate of per diem wages, and Consultant shall post such rates at each job site covered by this Agreement.

3. Consultant is required to post job site notices, as prescribed by regulation. See Labor Code Section 1771.4(a)(2).

4. Consultant shall comply with and be bound by the provisions of Labor Code Sections 1774 and 1775 concerning the payment of prevailing rates of wages to workers and the penalties for failure to pay prevailing wages. Consultant shall, as a penalty to City, forfeit not more than $200 for each calendar day or portion thereof for each worker paid less than the DIR's determined prevailing rates for the work or craft in which the worker is employed pursuant to this Agreement by Consultant or any subcontractor. The Labor Commissioner shall determine the amount of the penalty as described in Section 1775.

5. Consultant shall comply with Labor Code Section 1776, which requires Consultant and each subcontractor to (1) keep accurate payroll records and verify such records in writing under penalty of perjury, (2) certify and make such payroll records available for inspection, and (3) inform City of the location of the records.

6. Consultant shall comply with Labor Code Sections 1777.5, 1777.6 and 1777.7 and California Administrative Code Title 8, Section 200 et seq. concerning the employment of apprentices on public works projects for all apprenticeable occupations. Before commencing work under this Agreement, Consultant shall provide City with a copy of the information submitted to any applicable apprenticeship program. Within 60

days after concluding the Project, Consultant and each of its subcontractors shall submit to City a verified statement of the journeyman and apprentice hours performed under this Agreement.

7. Consultant may not be debarred or suspended throughout the Agreement Term pursuant to Labor Code Section 1777.1 or 1777.7. If he, she or it becomes debarred or suspended in the Agreement Term, Consultant must immediately notify City.

8. Consultant is not qualified to bid on, be listed in a Bid proposal, or engage in the performance of any contract for public work, as defined in Labor Code Sections 1720 through 1861, unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. Consultant shall continue without interruption to stay registered and qualified to perform public work pursuant to Section 1725.5 for the duration of the term of this Agreement. This provision does not apply to construction, alteration, demolition, installation or repair work of $25,000 or less or to maintenance work of $15,000 or less.

9. Consultant acknowledges that 8 hours labor constitutes a legal day's work. Consultant shall comply with and be bound by Labor Code Section 1810.

10. Consultant shall comply with and be bound by Labor Code Section 1813 concerning penalties for workers who work excess hours. Consultant shall, as a penalty to City, forfeit $25 for each worker employed in the performance of this Agreement by Consultant or by any subcontractor for each calendar day during which such worker is required or permitted to work more than 8 hours in any calendar day and 40 hours in any one calendar week in violation of the provisions of Division 2, Part 7, Chapter 1, Article 3 of the Labor Code. Pursuant to Labor Code Section 1815, work performed by Consultant's employees in excess of 8 hours per day and 40 hours per week shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1 ½ times the basic rate of pay.

11. The Project listed in the Agreement is subject to compliance monitoring and enforcement by the DIR.

12. Consultant shall be responsible for each and every one of its subcontractors' compliance with Chapter 1, the DIR's rules and regulations, and Labor Code Sections 1860 and 3700. Consultant shall include in the written contract between it and each subcontractor a copy of, and a requirement that each subcontractor shall comply with, those statutory provisions. Consultant shall be required to take all actions necessary to enforce such contractual provisions and ensure subcontractors' compliance, including without limitation, conducting a periodic review of the certified payroll records of each subcontractor, and upon becoming aware of the failure of the subcontractor to pay its workers the specified prevailing rate of wages, Consultant shall diligently take corrective action to halt or rectify any failure.

13. To the maximum extent, Consultant shall hold harmless, defend (with counsel approved by the City Attorney) and indemnify City, its legislative bodies, and its officials, officers, employees and agents from any demand or claim for damages, compensation, fines, penalties or other amounts arising out of or incidental to any acts or omissions listed above by any person or entity (including Consultant, its subcontractors, and each of their officials, officers, employees and agents) in connection with any work undertaken or in connection with the Agreement, including without limitation the payment of all attorneys' fees and other related costs. All duties of Consultant under this Section shall survive Agreement termination.

Multiple Agreements for On-Call Construction Management and Inspection Services

Public Works and Transportation Committee
May 26, 2026

Morgan Kessler, PE
City Engineer

CITY OF OXNARD CALIFORNIA

RECOMMENDATION

That the Public Works and Transportation Committee recommend that the City Council approve and authorize the Mayor to execute the following Agreements, each with an initial term of three years from July 1, 2026, to June 30, 2029, with an option for two consecutive one-year period extensions ending June 30, 2031, for on-call construction management and inspection services:

1. Agreement 32600484 with Filippin Engineering, Inc., for a total amount not to exceed $500,000.00;
2. Agreement 32600485 with Michael K. Nunley & Associates, LLP, for a total amount not to exceed $500,000.00;
3. Agreement 32600486 with MNS Engineers, Inc. for a total amount not to exceed $500,000.00; and
4. Agreement 32600488 with Turner & Townsend Heery, LLC, for a total amount not to exceed $500,000.00.

BACKGROUND

- Utilizing professional consulting firms provides licensed, technical expertise in environmental services that support the development and implementation of the Capital Improvement Program (CIP), as well as other non-CIP projects.

- Utilization of these specialized contractors is necessary to provide services that supplement the skills and experience of City staff.

- It is in the City's interest to have a pool of service contractors available on-call so that needed work can proceed in relatively short order.

- Having pre-approved, on-call professional service agreements reduces the amount of time necessary to procure service contractors.

BACKGROUND

These specialized services specific to these agreements include, but are not limited to:

- management and inspection functions such as contract management
- coordination of contractors
- coordination of grants
- pay quantity review and approvals
- field change reviews
- technical and material inspections
- responding to requests for information (RFIs)
- negotiating change orders
- inspection of work performed
- construction plan compliance
- as-built development and approvals
- other related functions.

DISCUSSION

- The Purchasing Department released Request for Proposals (RFP) 26-47 for On-Call Construction Management and Inspection Services
  - Released November 25, 2025
  - Due date January 22, 2026

- RFP 26-47 was directly sent to potential vendors, and published on www.PublicPurchase.com as well as the City's Purchasing website.
- A total of 11 proposals were received
- After review by City staff, four recommended firms were selected:

Filippin Engineering, Inc.
Michael K. Nunley & Associates, LLP
MNS Engineers, Inc.
Turner & Townsend Heery, LLC

DISCUSSION

- The qualifications were reviewed by:
  - Engineering Division (Division Manager),
  - Two Senior Construction Project Managers,
  - Construction Project Manager

- And ranked by the following scoring criteria:
  - Company profile
  - Assigned staff
  - Relevant experience
  - Overall responsiveness

FINANCIAL IMPACT

- Each agreement shall not exceed $500,000, over five years, if extended;
- Funding for individual tasks will be sourced from projects identified in the CIP, or per Division needs;
- The respective Division/Project Manager will ensure sufficient funding is available prior to initiating work orders or services performed;
- Subsequent fiscal year allocations will be requested during the annual budget process.

CITY OF OXNARD CALIFORNIA

End of Presentation