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
 - o 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 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 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 ($R^2 = 0.9766$)

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 acrefeet (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 longterm 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 areaspecific 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.

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Table 1-1	
Estimate of Project Cost and Water Supply for First 5 Yea	rs

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	Operations and Monitoring Costs	Management, Administration and Other Costs	5-Year GSP	10% Contingency	Totalb
2020	\$1,000,000	\$1,455,000	\$300.000	\$275 500	\$3,030,500
2020	\$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

			Acres within		
Ownership	Jurisdiction	Description	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	ivate City of Ventura South edge of the City consisting of an office park/warehouse/retail/commercial district (water served by Ventura Water Department)				
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 1-5Oxnard 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	
			Rev	olon Slougi	h 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	s 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.

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 1-6Oxnard Plain Precipitation Station Information

Station	Station Name	Record	Record	A	L efferde	Lougitude	Elevation	Otačina Tran	Mean Annual Rainfall (inches) for Period of
Number	Station Name	Start	Ena	Active ?	Latitude	Longitude	(π msi)	Station Type	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

Table 1-6Oxnard Plain Precipitation Station Information

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 1-7Drought 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	1990		1993		2001		2005		2015		
Category	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/Op	en 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/B	uilt-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.

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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/gma p.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/gma p.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/sto ries/reports/GW-Conditions-Reports/ 2013%20GW%20and%20SW%20 Conditions%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/sto ries/reports/GW-Conditions-Reports/ 2013%20GW%20and%20SW%20 Conditions%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 Monitorin	g 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%20 Conditions%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 Program	ms			
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%20 Conditions%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/DraftSaltandNutrient ManagementPlan/Section1Introduction andGoals.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%20 Conditions%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	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
District Water		instead of pumping groundwater.				4-1, 4-2 (Figure 4-1), 0-1, 0-13.	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	s, 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_FINALamended_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.

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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	
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FCGMA Public Meetings on Oxnard Subbasin GSI	P

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 1-12FCGMA 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.







Groundwater Sustainability Plan for the Oxnard Subbasin



Average Daily Flows (thousands of cfs) 100 А Station 708 80 Station 708A Station 723 Station 724 60 40 20 0 1920 1940 1960 1980 2000 2020

Western Santa Clara River Average Daily Flows -**Monthly Minimum**



Revolon Slough Watershed Average Daily Flows



Calleguas Creek Average Daily Flows

Revolon Slough Watershed Average Daily Flows -Monthly Minimum





Groundwater Sustainability Plan for the Oxnard Subbasin







