CHAPTER 5
PROJECTS AND MANAGEMENT ACTIONS

5.1 INTRODUCTION TO PROJECTS AND MANAGEMENT ACTIONS

Projects and management actions have been developed to meet the sustainability goal, measurable objectives, and undesirable results identified for the Oxnard Subbasin (Subbasin) in Chapter 3, Sustainability Management Criteria, of this Groundwater Sustainability Plan (GSP). Seawater intrusion in the aquifers of the Upper Aquifer System (UAS) and Lower Aquifer System (LAS) has been identified as the undesirable result that will impact beneficial uses of groundwater in the Subbasin.

To address potential impacts to beneficial uses and users of groundwater in the Subbasin resulting from groundwater production in excess of the current sustainable yield, several projects were developed for the Subbasin. The projects listed below were suggested by stakeholders, selected for inclusion in the GSP through a process by the Operations Committee of the Fox Canyon Groundwater Management Agency (FCGMA) Board of Directors (Board), and approved for inclusion in the GSP by the FCGMA Board. The criteria for including a project in the GSP included the following:

- Sufficient project information is available for evaluation and modeling.
- Project increases sustainable yield, or reduces groundwater demand.
- Project implementation is planned within 20 years.
- Project meets GSP Emergency Regulations Section 354.44 criteria.
- There is an agency proponent for the project.
- Funding for the project is identified.

In the Oxnard Subbasin, five projects were determined by the Operations Committee to meet the above criteria. These five projects were incorporated into the future model scenarios to the extent possible (see Section 2.4.5, Projected Future Water Budget and Sustainable Yield). The inclusion of these projects does not constitute a commitment by the FCGMA Board to construct or fund the projects, but rather signals that these projects were sufficiently detailed to be included in groundwater modeling efforts that examined the quantitative impacts of the projects on groundwater elevations and the sustainable yield of the Subbasin. As currently envisioned, the projects in this GSP would be implemented by the project proponent or sponsoring agency. However, FCGMA may opt to implement projects in the future as necessary to achieve sustainability in the Subbasin. Additionally, all projects undertaken in the Subbasin will need to be approved and permitted by all relevant regulatory agencies. These agencies may include, but are not limited to, the Regional Water Quality Control Board and the State Water Resources Control Board.

In addition to the projects discussed in this chapter, the FCGMA Board has the authority to implement management actions to ensure that the Subbasin does not experience undesirable results. The primary management action that can be implemented by the FCGMA Board is restrictions on groundwater production. This authority was granted to the FCGMA Board in the enabling legislation that formed the FCGMA, and this action has been undertaken in the past to eliminate overdraft.

As discussed in Chapter 2, Basin Setting, groundwater modeling was used to evaluate projected water budget conditions and potential impacts to beneficial uses and users of groundwater in the basin. Without the type of projects described below, substantially greater reductions in groundwater production will be needed to meet the sustainability goal for the basin, which would lead to significant economic disruption and prevent groundwater in the basin from being put to beneficial use to the fullest extent possible. It is anticipated, and recommended, that FCGMA will evaluate, model, and conduct feasibility studies of other projects for achieving sustainable groundwater management for the 5-year update to this GSP to optimize basin management and minimize extraction restrictions.

5.2 PROJECT NO. 1 – GREAT PROGRAM ADVANCED WATER PURIFICATION FACILITY

5.2.1 Description of Project No. 1

The Groundwater Recovery Enhancement and Treatment (GREAT) Program's Advanced Water Purification Facility (AWPF) is part of the City of Oxnard's GREAT Program, which focuses on using existing water resources more efficiently. The AWPF provides the City of Oxnard with a source of reclaimed water that can be used for landscape irrigation, agricultural, industrial process water, and groundwater recharge. The AWPF is designed to initially treat approximately 8 to 9 million gallons per day (mgd) of secondary effluent from the Oxnard Wastewater Treatment Plant and produce 6.25 mgd of product water for reclaimed water uses. This is equivalent to 7,000 acre-feet per year (AFY) of product water that can be delivered through existing infrastructure. The AWPF is currently producing up to 4,600 AFY. Advanced purified water was first delivered to agricultural operators in 2016. The portion of the project that is being considered for inclusion in GSP is the additional water that is being purchased by FCGMA to reduce groundwater extractions for which no Recycled Water Pumping Allocation is issued.

5.2.2 Relationship of Project No. 1 to Sustainability Criteria

GREAT Program AWPF Project water was included in future groundwater modeling scenarios to examine the impact that the project may have on the sustainability criteria. This project was incorporated in the modeling along with the expansion of the GREAT Program AWPF (see Section 5.3, Project No. 2 – GREAT Program Advanced Water Purification Facility Expansion Project)

and the temporary fallowing of agricultural land (see Section 5.6, Project No. 5 – Temporary Agricultural Land Fallowing Project). Therefore, the relationship between the impact of this project alone and the sustainability indicators has not been quantified. Rather, the potential effect of this project in the context of all three of these projects is presented in this discussion.

Relationship to Minimum Thresholds

The minimum thresholds for both the UAS and the LAS in the Oxnard Subbasin are higher than the historical low water levels and the spring 2015 water levels (see Chapter 3). In the UAS, the minimum thresholds are approximately 41 feet higher than historical low water levels and 25 feet higher than spring 2015 water levels. In the LAS, the minimum thresholds are approximately 70 feet higher than historical low water levels, and 38 feet higher than spring 2015 water levels.

The numerical groundwater model simulation of the Future Baseline With Projects scenario, which incorporates potential future projects including the GREAT Program AWPF Project, results in higher groundwater elevations than the Future Baseline scenario, which does not incorporate projects (see Section 2.4). Incorporation of the projects resulted in groundwater elevations at the end of the 50-year model simulation that were, on average, approximately 2 feet higher in the UAS and approximately 8 feet higher in the LAS. This suggests that the projects will assist with water level recovery in the Subbasin, a necessary first step to avoid exceedance of the minimum thresholds. Although implementation of the projects increases water levels in the Subbasin, these projects alone did not provide sufficient recycled water or redistribution of groundwater production to avoid exceedance of the minimum thresholds.

As modeled, the GREAT Program AWPF Project supplied approximately 4,600 AFY of recycled water to farmers in the vicinity of Hueneme Road (Chapter 2). This accounts for approximately half of the water delivered in the Future Baseline With Projects scenario. Because groundwater elevations were higher in the Future Baseline With Projects scenario than they were in the Future Baseline scenario, and because the GREAT Program AWPF Project supplied approximately half of the project water modeled this project is anticipated to result in measurably higher groundwater elevations in the Oxnard Subbasin. Therefore, the GREAT Program AWPF Project is anticipated to benefit the Subbasin and assist with raising groundwater elevations above the minimum thresholds in the future.

Relationship to Measurable Objectives

The relationship of the GREAT Program AWPF Project to the measurable objectives is similar to the relationship with the minimum thresholds. By measurably increasing water levels in the Subbasin, the GREAT Program AWPF Project water will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.2.3 Expected Benefits of Project No. 1

The AWPF product water that will be put to use in the Oxnard Subbasin is secondary wastewater effluent that is currently discharged to the Pacific Ocean. Therefore, this project provides a new source of water for use in the Subbasin. This additional water is expected to benefit the Oxnard Subbasin by providing water that would otherwise be pumped from the Subbasin to farmers in the vicinity of Hueneme Road, an area that is currently threatened by the inland migration of the saline water impact front (see Section 2.3, Groundwater Conditions).

5.2.4 Timetable for Implementation of Project No. 1

Phase 1 of the GREAT Program AWPF Project has already been permitted and constructed, and the AWPF Project is currently operating in the Subbasin. Under the current program, AWPF water is being delivered to farmers. The City of Oxnard receives a Recycled Water Pumping Allocation for delivered water used by farmers in lieu of groundwater production. Implementation of the project relative to the GSP will depend on the timetable necessary to deliver the GREAT Program AWPF water to farmers for in-lieu groundwater production for which no allocation or credits are provided to the City of Oxnard. Therefore, if the GREAT Program AWPF Project is incorporated into management of the Oxnard Subbasin for the purpose of increasing groundwater elevations to meet the sustainability criteria, the time for implementing the GREAT Program AWPF Project will depend on acquiring the necessary agreements between FCGMA and the City of Oxnard. This is anticipated to require less than 1 year.

5.2.5 Metrics for Evaluation of Project No. 1

Evaluation of the GREAT Program AWPF Project will be based on the quantity of water delivered to farmers in the vicinity of Hueneme Road and the associated reduction in groundwater production from this area. Groundwater producers in the Oxnard Subbasin have been required to report groundwater production to FCGMA since 1983. The GREAT Program AWPF water delivered to farmers will also have to be reported to FCGMA if this project is implemented as part of the GSP.

5.2.6 Economic Factors and Funding Sources for Project No. 1

The capital to construct the GREAT Program AWPF Project facilities has already been funded by City of Oxnard bonds and federal grant money (FCGMA 2018). Ongoing operations and maintenance are anticipated to equal approximately $300 per acre-foot (AF) of water generated by the project (FCGMA 2018). Funding for operations and maintenance has not been identified; however, as proposed, funding may come from a replenishment fee implemented by the FCGMA Board.

Any action taken by the FCGMA Board, acting as the Groundwater Sustainability Agency for the portion of the Oxnard Subbasin in its jurisdiction, to impose or increase a fee shall be taken by ordinance or resolution. Should the FCGMA Board decide to fund a project through imposition of a replenishment fee, FCGMA will hold at least one public meeting, at which oral or written presentations may be made. Notice of the meeting will include an explanation of the fee to be considered and the notice shall be published pursuant to Section 6066 of the Government Code.[1] At least 20 days prior to the meeting, the Groundwater Sustainability Agency will make the data on which the proposed fee is based available to the public.

5.3 PROJECT NO. 2 – GREAT PROGRAM ADVANCED WATER PURIFICATION FACILITY EXPANSION PROJECT

5.3.1 Description of Project No. 2

The GREAT Program's AWPF is part of the City of Oxnard's GREAT Program, which focuses on using existing water resources more efficiently. The purpose of the GREAT Program AWPF Expansion Project is to increase the production of high-quality recycled water within the City of Oxnard, the Oxnard Subbasin, and the Pleasant Valley Basin. This project will provide additional reclaimed water for Subbasin recharge. The AWPF Expansion Project is predicated on the availability of secondary effluent from the Oxnard Wastewater Treatment Plant or other available and appropriate source water. The main project components include purchase and installation of additional microfiltration, reverse osmosis, and ultraviolet/advanced oxidation equipment. Additionally, the project will require construction of influent flow equalization facilities. The AWPF Expansion Project could occur in phases, which would be dictated by the availability of source water, recycled water uses and needs, and project funding.

5.3.2 Relationship of Project No. 2 to Sustainability Criteria

GREAT Program AWPF Expansion Project water was included in future groundwater modeling scenarios to examine the impact that the project will have on the sustainability criteria. This project was incorporated in the modeling along with the GREAT Program AWPF Project (see Section 5.2, Project No. 1 – GREAT Program Advanced Water Purification Facility) and the temporary fallowing of agricultural land (see Section 5.6). Therefore, the relationship between the impact of this project alone and the sustainability indicators has not been quantified. Rather, the potential effect of this project in the context of all of three of these projects is presented in this discussion.

[1] Publication of notice pursuant to Section 6066 of the Government Code: "shall be once a week for two successive weeks. Two publications in a newspaper, published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates are sufficient."

Relationship to Minimum Thresholds

The numerical groundwater model simulation of the Future Baseline With Projects scenario, which incorporates potential future projects including the GREAT Program AWPF Expansion Project, results in higher groundwater elevations than the Future Baseline scenario, which does not incorporate projects (see Section 2.4, Water Budget). Incorporation of the projects resulted in groundwater elevations at the end of the 50-year model simulation that were, on average, approximately 2 feet higher in the UAS and approximately 8 feet higher in the LAS. This suggests that the projects will assist with water level recovery in the Subbasin, a necessary first step to avoid exceedance of the minimum thresholds. Although implementation of the projects increases water levels in the basin, these projects alone did not provide sufficient recycled water or redistribution of groundwater production to meet the minimum thresholds.

The AWPF Expansion Project water accounts for approximately half of the water delivered in the Future Baseline With Projects scenario. Because groundwater elevations were higher in the Future Baseline With Projects scenario compared to the Future Baseline scenario, and because the AWPF Expansion Project supplied approximately half of the project water modeled, the AWPF Expansion Project is anticipated to result in measurably higher groundwater elevations in the Oxnard Subbasin. Therefore, this project is anticipated to benefit the Subbasin and assist with raising groundwater elevations above the minimum thresholds in the future.

As modeled, the GREAT Program AWPF Expansion Project supplied approximately 4,500 AFY of recycled water to the United Water Conservation District (UWCD) Saticoy Spreading Grounds (see Section 2.4.5). This would be a recharge, rather than an in-lieu, program. However, the exact use of the AWPF Expansion Project water is not currently specified. It can be used for groundwater recharge, but it can also be used as part of an in-lieu program or for indirect potable reuse.

Relationship to Measurable Objectives

The relationship of the GREAT Program AWPF Expansion Project to the measurable objectives is similar to the relationship with the minimum thresholds. By measurably increasing water levels, the GREAT Program AWPF Expansion Project will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.3.3 Expected Benefits of Project No. 2

The AWPF Expansion Project product water that will be put to use in the Oxnard Subbasin is secondary wastewater effluent that is currently discharged to the Pacific Ocean. Therefore, this project provides a new source of water for use in the Subbasin. This additional water is expected to benefit the Oxnard Subbasin by providing additional recharge via the Saticoy Spreading Grounds (see Section 2.3).

5.3.4 Timetable for Implementation of Project No. 2

The City of Oxnard has already constructed and already operates the GREAT Program AWPF. As discussed in Section 5.3.1, Description of Project No. 2, the AWPF Expansion Project will require purchase and installation of additional equipment, as well as construction of influent flow equalization facilities. The expansion can occur in phases; therefore, the timetable for implementing the project is not fixed at this time. The implementation timetable for expansion of the AWPF is not dependent on permits or completion of California Environmental Quality Act (CEQA) documentation, which has already been obtained. The City of Oxnard estimates that the construction timetable for implementation of the AWPF Expansion Project is approximately 1 year.

The timetable for incorporating the GREAT Program AWPF Expansion Project water into sustainable management programs will also depend on how the water will be used. If, for example, the water will be conveyed to the Saticoy Spreading Grounds, the necessary infrastructure to convey the water will need to be constructed, in addition to construction of the expanded facility. Depending on the permitting required and construction time frames, it is anticipated that the timetable for incorporation of the AWPF Expansion Project water in sustainable management programs may take an additional 1 to 5 years beyond what was estimated by the City of Oxnard for construction of the expanded AWPF alone.

5.3.5 Metrics for Evaluation of Project No. 2

Evaluation of the GREAT Program AWPF Expansion Project will be based on the quantity of water delivered by the project. This water will be metered and the quantity of water delivered will be reported to FCGMA annually.

5.3.6 Economic Factors and Funding Sources for Project No. 2

Expansion of the AWPF can occur in phases, and the degree to which the AWPF is expanded will depend on the quantity of water available and the demand for the water produced. Therefore, the exact cost of expanding the GREAT Program AWPF is not currently known. Under one potential expansion scenario, the facility upgrades are anticipated to cost approximately $16,600,000 (FCGMA 2018). Under this scenario, the water produced by the facility would cost approximately $1,900 per AF. Operations and maintenance costs for the expanded AWPF would be approximately $440 per AF. Funding sources have not yet been identified for this project, although a portion of the project may be funded by replenishment fees implemented by the FCGMA Board. Any action taken by the FCGMA Board to impose or increase a fee shall be taken by ordinance or resolution, and notice shall be provided of any meeting at which imposition of the ordinance or resolution will be discussed (see Section 5.2.6, Economic Factors and Funding Sources for Project No. 1).

5.4 PROJECT NO. 3 – RIVERPARK–SATICOY GRRP RECYCLED WATER PROJECT

5.4.1 Description of Project No. 3

The RiverPark–Saticoy Groundwater Replenishment and Reuse Project (GRRP) Recycled Water Project will convey water produced by the GREAT Program AWPF Expansion Project (see Section 5.3) to the Saticoy Groundwater Recharge Facility and El Rio Groundwater Recharge Facility operated by UWCD (FCGMA 2018). In 2016, the City of Oxnard completed the northernmost portion of its 9.5-mile north–south Recycled Water Backbone Pipeline, which terminates at the RiverPark development adjacent to the Santa Clara River, north of Highway 101. This pipeline does not currently reach UWCD's groundwater recharge facilities. Under the GRRP Recycled Water Project, the Recycled Water Backbone Pipeline will be extended by 3 miles to convey water from the AWPF Expansion Project to UWCD groundwater recharge facilities. The 3-mile pipeline extension is called the RiverPark–Saticoy Pipeline. Up to 4,800 AFY of water will be conveyed to the UWCD recharge facilities via the Recycled Water Backbone and RiverPark–Saticoy Pipelines. It should be noted that this project does not provide water in addition to Project No. 2; rather, it provides the infrastructure to deliver the GREAT AWPF expansion water to the Saticoy Spreading Grounds.

5.4.2 Relationship of Project No. 3 to Sustainability Criteria

The RiverPark–Saticoy GRRP Recycled Water Project, using the AWPF Expansion Project product water to recharge groundwater in the Oxnard Forebay, was included in future groundwater modeling scenarios to examine the impact that the project will have on the sustainability criteria. The RiverPark–Saticoy GRRP Recycled Water Project is the same as the GREAT Program AWPF Expansion Project, as incorporated into the numerical groundwater model simulations, because the RiverPark–Saticoy GRRP Recycled Water Project simply provides the infrastructure to convey the water. It does not provide additional water to the Subbasin beyond what was modeled for the GREAT Program AWPF project. As discussed in Section 5.2.2, Relationship of Project No. 1 to Sustainability Criteria, and Section 5.3.2, Relationship of Project No. 2 to Sustainability Criteria, the relationship between the impact of this project alone and the sustainability indicators has not been quantified. Rather, the potential effect of this project in the context of all three of these projects is presented in this discussion.

Relationship to Minimum Thresholds

As modeled, the RiverPark–Saticoy GRRP Recycled Water Project provided the infrastructure to supply approximately 4,500 AFY of recycled water to the UWCD Saticoy Spreading Grounds (see Section 2.4.5). This would be a recharge, rather than an in-lieu, program. The numerical groundwater model simulation of the Future Baseline With Projects scenario, which incorporates

potential future projects including the RiverPark–Saticoy GRRP Recycled Water Project, results in higher groundwater elevations than the Future Baseline scenario, which does not incorporate projects (see Section 2.4). This suggests that the projects will assist with water level recovery in the Subbasin, a necessary first step to avoid exceedance of the minimum thresholds. Although implementation of the projects increases water levels in the basin, these projects alone did not provide sufficient recycled water or redistribution of groundwater production to avoid the exceedance of the minimum thresholds.

The AWPF Expansion Project water, delivered via the RiverPark–Saticoy GRRP Recycled Water Project, accounts for approximately half of the water delivered in the Future Baseline With Projects scenario. Because groundwater elevations were higher in the Future Baseline With Projects scenario than they were in the Future Baseline scenario, and because the RiverPark–Saticoy GRRP Recycled Water Project supplied approximately half of the project water modeled, the RiverPark–Saticoy GRRP Recycled Water Project is anticipated to result in measurably higher groundwater elevations in the Oxnard Subbasin. Therefore, the RiverPark–Saticoy GRRP Recycled Water Project is anticipated to benefit the Subbasin and assist with raising groundwater elevations above the minimum thresholds in the future.

Relationship to Measurable Objectives

The relationship of the RiverPark–Saticoy GRRP Recycled Water Project to the measurable objectives is similar to the relationship with the minimum thresholds. By measurably increasing water levels, the RiverPark–Saticoy GRRP Recycled Water Project will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.4.3 Expected Benefits of Project No. 3

The RiverPark–Saticoy GRRP Recycled Water Project is expected to benefit the Oxnard Subbasin by providing the infrastructure to take secondary treated wastewater from the Oxnard Water Treatment Plant and using it for groundwater recharge (FCGMA 2018). Currently, this water is being discharged to the Pacific Ocean. The RiverPark–Saticoy Pipeline and the GRRP will help ensure that excess flows from the AWPF will be used for groundwater recharge. In addition, the product water from the AWPF Expansion Project is of higher quality than groundwater in the Oxnard Forebay. Therefore, by using this water to recharge groundwater in the Forebay, implementation of the GRRP Recycled Water Project is expected to improve groundwater quality in the Forebay (FCGMA 2018).

5.4.4 Timetable for Implementation of Project No. 3

UWCD estimates that the RiverPark–Saticoy GRRP Recycled Water Project could be implemented in 18 to 24 months. The project is already in the preliminary design phase and a draft

initial study/mitigated negative declaration has been prepared. The required project permits (a groundwater replenishment reuse permit and a California Department of Transportation (Caltrans) permit) are anticipated to take 12 to 18 months to obtain, and the likelihood of obtaining these permits is anticipated to be high (FCGMA 2018).

5.4.5 Metrics for Evaluation of Project No. 3

The metric for evaluation of the RiverPark–Saticoy GRRP Recycled Water Project will be the quantity of water delivered to UWCD's groundwater recharge facilities. UWCD will meter the deliveries and will report these to FCGMA for incorporation in the annual and periodic GSP evaluation process.

5.4.6 Economic Factors and Funding Sources for Project No. 3

Funding sources for the RiverPark–Saticoy GRRP Recycled Water Project is proposed to come from either UWCD Zone B or FCGMA funds (FCGMA 2018). UWCD proposes funding assistance from FCGMA for the capital cost of the project, which is estimated to be $6.4 million, with an annual operations and maintenance cost of approximately $5 million to $7.5 million. The resulting water cost would be approximately $1,000 to $1,500 per AF. These operating costs are anticipated to be provided by a pump charge administered by FCGMA. The timeline necessary to secure funding for the project is anticipated to be the same as the construction timeline.

Any action taken by the FCGMA Board to impose or increase a fee shall be taken by ordinance or resolution, and notice shall be provided of any meeting at which imposition of the ordinance or resolution will be discussed (see Section 5.2.6).

5.5 PROJECT NO. 4 – FREEMAN EXPANSION PROJECT

5.5.1 Description of Project No. 4

UWCD currently operates the Freeman Diversion on the Santa Clara River, which diverts surface water flows from the river into recharge facilities for the purpose of providing additional recharge to the Oxnard Subbasin, and for direct delivery to growers via UWCD pipelines. Through time, more restrictive environmental regulatory requirements have lessened the amount of Santa Clara River surface water available to be diverted at the Freeman Diversion. The Freeman Expansion Project proposes constructing facilities capable of diverting surface water at higher flow rates and with higher sediment loads than the currently diverted flows (FCGMA 2018). Using the higher flows, which are less conducive to fish migration, has been encouraged by both regulatory agencies and non-governmental organizations (FCGMA 2018).

The Freeman Expansion Project would expand the recharge facilities, using two former gravel mines located adjacent to UWCD's Noble Basin recharge facility that have not previously been used for groundwater recharge, and would increase the capacity of UWCD's diversion system (FCGMA 2018). The project would also include modification and expansion of existing fish screens, modifications to the existing desilting basin, and construction of a high-capacity conveyance to the former Ferro aggregate mining pit. Although the exact capacity of the project is not currently known, UWCD anticipates that at full project build-out, the expanded facility could provide an additional 7,400 AF of diversions relative to the current diversion capacity (FCGMA 2018).

5.5.2 Relationship of Project No. 4 to Sustainability Criteria

Historically UWCD has diverted over 62,000 AFY from the Freeman Diversion (see Table 2-8). The Freeman Expansion Project would provide up to an additional 7,400 AF. Although expansion of UWCD's diversion capabilities at the Freeman Diversion was not explicitly modeled in the GSP future projects scenarios, historical groundwater elevations are strongly and positively correlated with the quantity of surface water diverted by UWCD. Therefore, increased surface water diversions that will be delivered directly to agricultural users, thereby offsetting groundwater production, or that will be recharged via UWCD's recharge facilities will help increase water levels in the Subbasin.

Relationship to Minimum Thresholds

Groundwater elevations in the Oxnard Subbasin are currently below the minimum thresholds proposed in Chapter 3 of this GSP. Increased recharge of surface water that currently flows to the Pacific Ocean will help water levels recover to elevations above the proposed minimum thresholds. The magnitude of the groundwater level rise will depend on the quantity of additional recharge available via the expanded diversion facilities.

Relationship to Measurable Objectives

The relationship of the Freeman Expansion Project to the measurable objectives is the same as the relationship with the minimum thresholds. By increasing water levels in the Subbasin, the Freeman Diversion Project will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.5.3 Expected Benefits of Project No. 4

The Freeman Expansion Project will provide an additional source of water to the Oxnard Subbasin by diverting high flows, which are not as suitable for fish migration, from the Santa Clara River and using those flows to provide additional groundwater recharge. The surface water flows in the Santa Clara River are lower in total dissolved solids and nitrate concentration compared to the

groundwater in the Oxnard Forebay. Therefore, this project will reduce the concentrations of these constituents in the groundwater. Additionally, replenishing the groundwater will reduce pump lift, and therefore energy consumption, for municipal and agricultural pumpers (FCGMA 2018).

5.5.4 Timetable for Implementation of Project No. 4

The timetable for implementation of the Freeman Expansion Project is estimated to be between 2 and 10 years (FCGMA 2018). The required modifications to the conveyance system needed to deliver turbid water have been analyzed, and this project was included in the UWCD Habitat Conservation Plan (FCGMA 2018). However, the project has not yet undergone environmental review, engineering design, or permitting.

5.5.5 Metrics for Evaluation of Project No. 4

The metric for evaluation of the Freeman Expansion Project would be the quantity of surface water diverted at flow rates that are higher than the current maximum flow rate that can be diverted. UWCD meters diversions from the Santa Clara River and would report these to FCGMA.

5.5.6 Economic Factors and Funding Sources for Project No. 4

Improvements to the conveyance system, fish screens, and desilting basin inlet are estimated to cost $31 million (FCGMA 2018). The annual operations and maintenance cost is estimated to be $700,000. The combined capital and operations and maintenance cost of the water is estimated to be approximately $4,300 AFY. Funding sources for the project are anticipated to include grant money, UWCD rate payers, and replenishment fees from FCGMA.

Any action taken by the FCGMA Board to impose or increase a fee shall be taken by ordinance or resolution, and notice shall be provided of any meeting at which imposition of the ordinance or resolution will be discussed (see Section 5.2.6).

5.6 PROJECT NO. 5 – TEMPORARY AGRICULTURAL LAND FALLOWING PROJECT

5.6.1 Description of Project No. 5

The Temporary Agricultural Land Fallowing Project would use replenishment fees to lease and temporarily fallow agricultural land (FCGMA 2018). This would result in decreased groundwater production on the parcels or ranches that are fallowed, and an overall reduction in groundwater demand in the Subbasin. Parcels or ranches in areas susceptible to seawater intrusion would be targeted with this project (FCGMA 2018).

5.6.2 Relationship of Project No. 5 to Sustainability Criteria

Temporary fallowing of agricultural land was included in future groundwater modeling scenarios to examine the impact that the project will have on the sustainability criteria (see Section 2.4.5). As discussed in Sections 5.2.2 and 5.3.2, the relationship between the impact of this project alone and the sustainability indicators has not been quantified. Rather, the potential effect of this project in the context of all three of these projects is presented in this discussion.

Relationship to Minimum Thresholds

As modeled, the Temporary Agricultural Land Fallowing Project reduced production from the Subbasin by approximately 500 AFY (see Section 2.4.5). The numerical groundwater model simulation of the Future Baseline With Projects scenario, which incorporates potential future projects including the Temporary Agricultural Land Fallowing Project, results in higher groundwater elevations than the Future Baseline scenario, which does not incorporate projects (see Section 2.4). This suggests that the projects will assist with water level recovery in the Subbasin, a necessary first step to meet the minimum threshold. Although implementation of the projects increases water levels in the basin, these projects alone did not provide sufficient supplemental water or redistribution of groundwater production to meet the minimum thresholds. Additionally, the Temporary Agricultural Land Fallowing Project accounted for approximately 7% of the total volume of water delivered or saved by all of the projects in the Oxnard Subbasin that were incorporated into the future groundwater model scenarios. The effect of this project on groundwater elevations is likely smaller than that of other projects incorporated into the future model scenarios. However, the value of this project is more directly connected with the location of the land that would be fallowed. If the project can target areas that are prone to seawater intrusion, the impact of this project will be greater than would be indicated by a comparison of the volume of water supplied.

Relationship to Measurable Objectives

The relationship of the Temporary Agricultural Land Fallowing Project to the measurable objectives is similar to the relationship with the minimum thresholds. By increasing water levels and fallowing agricultural land prone to seawater intrusion, the Temporary Agricultural Land Fallowing Project will help the Oxnard Subbasin meet the measurable objective water levels defined in Chapter 3.

5.6.3 Expected Benefits of Project No. 5

Temporary fallowing is a quick way to reduce demand with no capital costs or infrastructure needed. Because it is inexpensive, it is envisioned that temporary fallowing could be implemented early, while other long-term solutions are investigated and implemented. The Temporary

Agricultural Land Fallowing Project will benefit the Oxnard Subbasin by mitigating seawater intrusion in the Subbasin. This project would complement a water market that is currently being developed for the Subbasin by providing an alternative method for landowners to monetize pumping allocations (FCGMA 2018).

5.6.4 Timetable for Implementation of Project No. 5

The project is currently in the planning phase but does not require construction of new facilities and is unlikely to require permitting. CEQA compliance has not yet been initiated but the project proponents anticipate that a negative declaration or a mitigated negative declaration may be sufficient (FCGMA 2018). The project could be implemented when FCGMA is able to collect replenishment fees, and willing lessors are found to participate.

5.6.5 Metrics for Evaluation of Project No. 5

The metric for evaluation of the Temporary Agricultural Land Fallowing Program will be the volume of groundwater that is not produced from wells that supply the fallowed acreage. FCGMA has required groundwater production reporting since 1983. Groundwater production rates from before the project is implemented will be compared to groundwater production rates when the parcel or ranch has been fallowed. If the project is implemented, the historical production rates and associated base period for calculating those rates will be determined.

5.6.6 Economic Factors and Funding Sources for Project No. 5

The funding source for this project is anticipated to be replenishment fees collected by FCGMA. The cost of water under this project is estimated to be $1,200 to $1,800 per acre-foot. Any action taken by the FCGMA Board to impose or increase a fee shall be taken by ordinance or resolution, and notice shall be provided of any meeting at which imposition of the ordinance or resolution will be discussed (see Section 5.2.6)

5.7 MANAGEMENT ACTION NO. 1 – REDUCTION IN GROUNDWATER PRODUCTION

5.7.1 Description of Management Action No. 1

The primary management action proposed under this GSP is a Reduction in Groundwater Production from the Oxnard Subbasin. FCGMA has had the authority to monitor and regulate groundwater production in the Oxnard Subbasin since 1983. The FCGMA Board has used its authority to reduce groundwater production from the Subbasin in the past, and will continue to exert its authority over groundwater production as the Groundwater Sustainability Agency for the Subbasin.

The estimated long-term rate of groundwater production in the UAS that will prevent net seawater intrusion after 2040 is approximately 32,000 AFY ± 4,100 to 6,000 AFY (see Section 2.4.5). The estimated long-term rate of groundwater production in the LAS that will prevent net seawater intrusion after 2040 is approximately 7,000 AFY ± 2,300 to 3,600 AFY (see Section 2.4.5). Reductions in groundwater production were modeled as a linear decrease from the 2015–2017 production rates. The exact reductions that will be implemented in the Subbasin over the next 5 years will be determined by the FCGMA Board based on the data collected and analyzed for this GSP. These reductions will be evaluated based on the potential paths to reaching sustainability discussed in Chapter 3.

5.7.2 Relationship of Management Action No. 1 to Sustainability Criteria

Reducing groundwater production in the Oxnard Subbasin has a measurable impact on groundwater elevations. Groundwater elevations, in turn, control seawater intrusion. Seawater intrusion occurs in the Subbasin when groundwater elevations fall below threshold elevations that maintain sufficient hydrostatic pressure to keep seawater from moving landward. The relationship between seawater intrusion and groundwater elevation is impacted by groundwater production throughout the Subbasin, but is strongest in wells adjacent to the coast.

The effect of Reduction in Groundwater Production on groundwater level elevations was simulated using a numerical groundwater model (see Section 2.4.5). The results of the model and the relationship between Reduction in Groundwater Production and the sustainability criteria is discussed below.

Relationship to Minimum Thresholds

In the absence of additional projects, purchase of imported water, and shifting groundwater production locations, Reduction in Groundwater Production in the Subbasin is a critical component of achieving sustainability. When groundwater production was reduced from the 2015–2017 average production rates, simulated future groundwater elevations in the Subbasin recovered to elevations that remained above the minimum threshold after 2040 (see Section 2.4.5). The long-term production rate necessary to maintain groundwater elevations above the minimum threshold depended on several factors, including the simulated future climate, the quantity of surface water available to recharge the Subbasin, and the number of projects undertaken. Therefore, the numerical groundwater simulation results suggest a range of potential reductions in groundwater production that will maintain groundwater elevations above the minimum thresholds. This range is anticipated to change as additional data are collected and additional projects are implemented over the next 5 years. Therefore, any reductions implemented by the FCGMA Board over the initial 5-year period after the GSP is adopted will be evaluated and may be changed as warranted by future conditions in the Subbasin.

Relationship to Measurable Objectives

The relationship between Reduction in Groundwater Production and the measurable objectives is similar to the relationship between Reduction in Groundwater Production and the minimum thresholds. Numerical groundwater model simulations suggest a range of potential groundwater production rates that would result in groundwater elevations that are higher than the measurable objective half of the time and lower than the measurable objective half of the time (see Section 3.5, Measurable Objectives). As discussed previously, this range is anticipated to change as additional data are collected and additional projects are implemented over the next 5 years. Therefore, any reductions implemented by the FCGMA Board over the initial 5-year period after the GSP is adopted will be evaluated and may be changed as warranted by future conditions in the Subbasin.

5.7.3 Expected Benefits of Management Action No. 1

The primary benefit related to Reduction in Groundwater Production is recovery of groundwater elevations that have historically allowed for seawater intrusion in the Oxnard Subbasin. Reduction in Groundwater Production can be used to close any differential between groundwater elevations that can be obtained through implementation of projects and the groundwater elevations necessary to prevent future net seawater intrusion in the UAS and the LAS.

5.7.4 Timetable for Implementation of Management Action No. 1

The FCGMA Board already has the authority to reduce groundwater production in the Subbasin. Therefore, reductions can be implemented within months of GSP adoption, once the proposed reductions have gone through the FCGMA Board approval process.

5.7.5 Metrics for Evaluation of Management Action No. 1

The metric for evaluation of Reduction in Groundwater Production will be groundwater elevations in the UAS and the LAS. As groundwater elevations recover, additional projects are developed, and basin management is optimized, groundwater production rates will continue to be evaluated and adjusted accordingly.

5.7.6 Economic Factors and Funding Sources for Management Action No. 1

Program administration, investigations, inspections, compliance assistance, and enforcement of the Reduction in Groundwater Production management action will rely on funding from pumping fees imposed by FCGMA. Economic factors that will affect Reduction in Groundwater Production include impacts to the users of groundwater in the Subbasin. Potential economic impacts to stakeholders will be considered in the decision process for selecting future groundwater production rates and reductions necessary to meet the sustainability goal for the Subbasin.

5.7.7 Management Action No. 1 Uncertainty

Groundwater production from the Oxnard Subbasin has resulted in historical seawater intrusion, and groundwater model simulations indicate that sustainable groundwater production rates will need to be lower than historical rates to prevent net seawater intrusion in each aquifer system after 2040. Nevertheless, uncertainty remains regarding the exact reductions in groundwater production required to achieve the sustainability goals for the Subbasin. Uncertainty in the hydrogeologic conceptual model and the numerical groundwater model is discussed in Chapter 2 of this GSP. Uncertainty in the minimum thresholds and measurable objectives is discussed in Chapter 3. Chapters 2 and 3 also discuss uncertainty associated with the future location of groundwater production and impacts of projects that will optimize management of the Subbasin.

Because of the existing uncertainty associated with future conditions in the Subbasin, a plan for exact reductions and groundwater elevation triggers for those reductions has not been developed as part of this GSP. Instead, FCGMA will work to develop this plan over next 20 years, as the level of uncertainty is reduced. FCGMA recognizes that a specific long-term plan that incorporates stakeholder feedback and the need for flexibility in groundwater management will have to be adopted by 2040 to provide users of groundwater in the Subbasin with the tools necessary to plan for sustainable groundwater production into the future.

5.8 MANAGEMENT ACTION NO. 2 – WATER MARKET PILOT PROGRAM

A Water Market Pilot Program is currently being conducted by the FCGMA as a means of increasing operational management of groundwater in the Subbasin. The pilot program will run through July 2019 and may be extended to October 2019 (FCGMA 2019). The program is open to agricultural operators in the Oxnard Subbasin who are authorized by FCGMA to participate. Participants are able to submit anonymous bids and offers to an electronic trading desk that matches potential buyers and sellers. Matching takes place at 4:00 p.m. on Friday each week of the pilot program (FCGMA 2019). Transfer of extraction allocation will be reported to FCGMA by the Exchange Administrator.

Trades are limited by both geography and quantity. Transfers that result in a net increase in the total market allocation for participants in the Saline Water Intrusion Management Area or Pumping Depression Management Areas are not allowed. Additionally, participants with a well located in the Saline Water Intrusion Management Area may receive a transfer of market allocation only from another participant with a well in the Saline Water Intrusion Management Area. The same is true for participants in the Pumping Depression Management Areas.

Analysis of the Water Market Pilot Program will be conducted and its suitability for incorporation as a management action for the Subbasin will be determined after the pilot program is completed in July 2019.

5.9 REFERENCES CITED

FCGMA. 2018. "Full Agenda Package: Special Board Meeting of August 29, 2018." Meeting agenda, minutes, and preliminary project descriptions for GSPs currently in progress. August 29, 2018 Accessed May 10, 2019. https://ventura.granicus.com/MetaViewer.php?view_id=45&clip_id=5067&meta_id=661400.

FCGMA. 2019. "Rules and Regulations Phase 2 (Extended Water Market Pilot Program)." Accessed May 15, 2019. http://www.fcgma.org/images/WMPilot-RulesRegs-Phase2ext.pdf.