APPENDIX W

Ground Water Demands

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
1552 Eureka Road, Suite 100, Roseville, CA 95661 (916) 773-1189

TECHNICAL MEMORANDUM

Technical Memorandum No. 2

Ground Water Demands

SunCreek Specific Plan

Rancho Cordova, CA

November 12, 2010
(Revised May 24, 2011)

Job No.: 7991-10
Task No.: Task D.2.b

Table of Contents

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
1552 Eureka Road, Suite 100, Roseville, CA 95661 (916) 773-1189

TECHNICAL MEMORANDUM

Date:	November 16, 2010 (Revised May 24, 2011)[1]
To:	Bob Shattuck, Lennar Communities
From:	Ken Giberson, MacKay & Somps
TM No.:	Technical Memorandum No. 2
Subject:	Ground Water Demands SunCreek Specific Plan Rancho Cordova, CA
Job No.:	7991-10
Task No.:	Task D.2.b

A. Introduction

The Sacramento County Water Agency (SCWA) issued a Master Water Study (MWS) for the SunCreek Specific Plan (Final Report) in October 2008[2]. The MWS projected the water demands for the project under the then current land use plan for the SunCreek Specific Plan. Since that time the land use plan has undergone several minor land use changes in response to requirements imposed by the City of Rancho Cordova and other related local agencies.

These changes in land use were the subject of a Technical Memorandum prepared by MacKay & Somps Civil Engineers, Inc., issued on July 14, 2010. The differences between the projected water demands of the prior and updated land use plans were found to be insignificant. In fact, the demands projected in the MWS are slightly higher than those anticipated to result from the updated land use plan.

The purpose of this technical memorandum is to project the increased demand for ground water that will result from the development of the SunCreek Specific Plan over the twenty year planning horizon required by SB 610. Additionally, this analysis will include similar impacts for the four land use alternatives that are to be included in the joint EIR/EIS for the project.

This analysis will be based on the findings of the July 14, 2010 Technical Memorandum mentioned above. Additionally, this analysis will be based on the

[1] Revised to correct typographical errors in Appendix A Scenarios 4 and 5 and corresponding text changes in the body of the technical memorandum.
[2] Prepared by MWH Americas, Inc.

results of the MWS referenced above, as well as SCWA's Zone 40 Water System Infrastructure Plan (WSIP) prepared by MWH in April 2006.

B. SCWA Water Supply Program

SCWA will be the water purveyor for the SunCreek development. SCWA's water supply program consists of both ground and surface water supplies. Separate facilities for these two water supply components are shown in Figure 1.

Groundwater Program

SCWA currently serves the North Service Area (NSA) from two existing groundwater sources:

1. Anatolia Groundwater Treatment Plant. The Anatolia Groundwater Treatment Plant (AGWTP) is supplied by the Excelsior Well Field via an existing 30-inch diameter transmission pipeline. This system has a current capacity of 4.3 MGD, but an ultimate capacity of approximately 8.92 MGD.
2. Mather Housing Groundwater Treatment Plant. The Mather Housing Groundwater Treatment Plant (MHGWTP) and associated well field have a current capacity of approximately 6.0 MGD. Expansion of this facility is not feasible at this time.

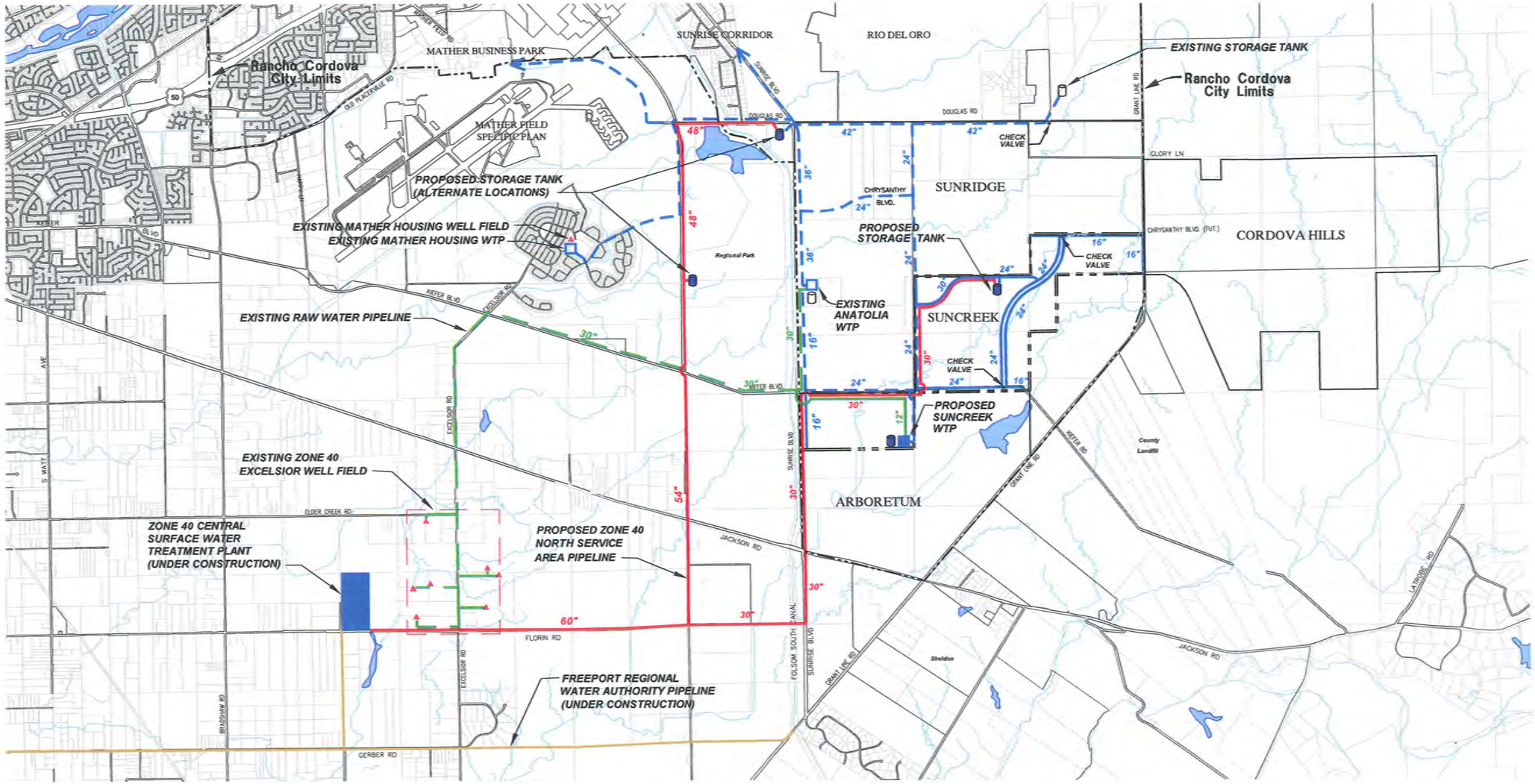
These two groundwater facilities provide treated groundwater to SCWA's existing customers in the south Mather and Sunrise/Douglas areas (portions of the NSA). These facilities have the capability to be expanded from their current combined capacity of 10.3 MGD to 14.92 MGD, but not without some difficulty associated with the procurement and development of additional well sites in the Excelsior Well Field.

Surface Water Program

While SCWA currently serves the Sunrise/Douglas area (a portion of their North Service Area (NSA)) from groundwater supplies, it is SCWA's long term plan to serve the NSA with both ground and surface water in a conjunctive use program. In fact, to further that goal, SCWA is currently completing a major surface water project, the Freeport Regional Water Authority (FRWA) project. The FRWA project is actually a joint water supply project sponsored by SCWA and East Bay Municipal Utility District (EBMUD).

SCWA's portion of the project consists of participation in a large diversion facility on the Sacramento River just north of the community of Freeport, and a recently completed transmission pipeline that will convey diversions easterly to:

(a) SCWA's new Central Surface Water Treatment Plant (CSWTP) that is currently nearing completion at the northeast corner of the intersection of Florin Road and Knox Road for treatment prior to delivery to SCWA's customers, and



LEGEND

- 16" — PROPOSED OFFSITE WATER TRANSMISSION PIPELINE
- 48" — PROPOSED NORTH AREA SERVICE (NSA) PIPELINE
- PROPOSED RAW SURFACE WATER PIPELINE (FRWA)
- PROPOSED RAW GROUND WATER PIPELINE
- EXISTING WATER TRANSMISSION PIPELINE
- EXISTING RAW GROUND WATER PIPELINE

0 2500 5000 10,000

SCALE: 1" = 5000'

MACKAY & SOMPS
CIVIL ENGINEERS, INC.
ROSEVILLE, CALIFORNIA (916) 773-1189

FIGURE 1

SCWA Water Facility Plan

Suncreek Specific Plan

County of Sacramento, California
July, 2010
Revised: November, 2010

7991-00

11-16-2010 14:03:11 bborgen P:\7991\7991-SC\00\Master Plans\Water\Regional Water Facility Concept Plan071510.dwg
[1] P:\7968\7968-SC\10\Master Plans\Water\Exhibits\RegionalBase.dwg

(b) The Folsom South Canal where EBMUD will discharge their flows for conveyance southerly to their Mokelumne Aqueduct for subsequent delivery to EBMUD's service area in the East Bay Area.

The CSWTP is nearing completion and it anticipated to be on line to meet summer time demands in 2011. In order to be able to deliver treated surface water to the NSA, SCWA is planning a major water transmission pipeline, the NSA Pipeline. SCWA approved a CEQA document for this project in September 2010. It is their intent to secure approval of the necessary permits and construction documents for this facility so that it can be constructed in a timely fashion when the demand for water within the NSA exceeds the capacity of the groundwater system now serving their customers in this service area.

The date of construction of the NSA Pipeline is unknown at this time. Depending on future growth in demand and the availability of construction financing, the NSA Pipeline could be needed to meet demands in the next 2 – 5 years. Obviously, the need for this facility will be triggered by improvement in the local economy that has been stagnant for the last few years.

It is reasonable to anticipate that the NSA Pipeline will be brought on line as growth in the demand for treated water begins to exceed the available groundwater supply. SCWA has a stated policy of encouraging new development to utilize surface water supplies in lieu of further development of the groundwater element of their conjunctive use program at this time.

The logic makes sense. SCWA issued a huge infrastructure bond to raise the capital needed to pay for its share of the FRWA diversion structure and pipeline, as well as the CSWTP. Debt service of this bond is projected to come in part from an expanding customer base (new development) in the NSA. Any additional investments in new groundwater infrastructure would thus divert funds that could otherwise be used to serve the existing debt.

Once surface water is available, there will be an ample supply of surface water for many years to come. Only after many years of increasing demand for water within the SCWA service area will the surface water element of the conjunctive use program reach its planned capacity. Therefore, SCWA believes that it is premature to invest in additional groundwater infrastructure until the increasing demand for treated water taxes the capacity of the soon to be operational surface water supply program. Accordingly, not until demands start to approach the capacity of the CSWTP and the NSA Pipeline would it be appropriate to construct additional groundwater capacity.

Additional Groundwater Capacity

Notwithstanding SCWA's stated policy discouraging further development of groundwater facilities at this time, the current economic situation and the extremely large capital cost of the NSA Pipeline may dictate expansion of additional groundwater supply facilities as an interim measure to meet increasing demands and to help serve the existing FRWA and CSWTP debt.

This could occur in one of three ways:

1. Expansion of Excelsior Well Field and Anatolia Groundwater Treatment Plant. These facilities could be expanded to meet the increasing demands for a significant period of time since they have a planned ultimate capacity of 8.92 MGD. Expansion of the well field is problematic, though, as the procurement and permitting of additional well sites is a time consuming and expensive process. The well field is located in an environmentally sensitive area and as such would make the environmental permitting a time consuming affair and related construction expensive. Additionally, acquisition of rights-of-way for these facilities has been difficult to procure in the past.
2. Reoperation of the Mather Housing Groundwater System (Mather System). This well field and treatment plant current serve development in and around Mather Field as well as development along the Sunrise Blvd. corridor. While inter-connected to the Sunrise/Douglas system that is served by the Excelsior Well Field and Anatolia Groundwater Treatment Plant, treated water from the Mather System is prevented from reaching the Sunrise/Douglas area due to differences in pressure (Sunrise/Douglas being higher in elevation than Mather Field). This physical limitation prevents SCWA from utilizing the full capacity of the Mather System (6.0 MGD). From a practical perspective, the Mather System has idle capacity that could be more fully utilized if additional pumping facilities were installed to transport treated water from the Mather System to the Sunrise/Douglas area. It is envisioned that SCWA will make the necessary pumping modifications as demand dictates.
3. Construction of the SunCreek Groundwater Well Field and Treatment Plant. The planned SunCreek wells and treatment facilities could be developed to meet the increasing demand for water within the NSA. While it appears relatively easy to construct these facilities during the early stages of development within the SunCreek Specific Plan area as the facilities would all be located within the overall development envelope, there is always the chance that something could delay these facilities. This facility would be capable of delivering 4.0 MGD of treated water upon completion.

Early Delivery of Surface Water

Alternatively, there exists the opportunity to convert portions of the existing 30-inch diameter raw groundwater pipeline to a treated surface water transmission pipeline. This pipeline currently conveys groundwater pumped from the Excelsior Well Field to the Anatolia Groundwater Treatment Plant (AGWTP). If this conversion was accomplished in a timely fashion, surface water could be delivered to the NSA relatively easily once the CSWTP is operational in 2011. In order to accomplish this conversion, the following measures would be required:

1. Construct Phase 1 of the NSA Pipeline. A relatively short portion of the NSA Pipeline would need to be constructed from the CSWTP to the Excelsior Well Field and connect to the existing raw water pipeline.
2. Temporary Shutdown of Existing Wells. The existing groundwater wells in the Excelsior Well Field could be taken off line temporarily and saved for reactivation when needed to meet conjunctive use water demands in the future.
3. Temporarily Shutdown AGWTP. The AGWTP would be temporarily shut down until needed to meet conjunctive use demands in the future.
4. Treated Water Piping Modifications. Minor piping modifications in and around the vicinity of the AGWTP would be required to connect the converted raw groundwater transmission pipeline to the treated water side of the AGWTP.

In this manner, treated surface water could be delivered to the NSA in a relatively short period of time. The benefit of this alternative is the utilization of existing transmission capacity and the deferral of significant capital expenditures associated with the construction of the entirety of the NSA Pipeline. The downside would be the temporary shutdown of the existing Excelsior Well Field and the AGWTP. The duration of this shutdown could be minimized and initiation of the conjunctive use program could be accelerated once sufficient demand exists to support the massive cost of constructing the NSA Pipeline.

C. SunCreek Water Supply Program

As described in MWS, SCWA envisions a three-phased water supply program to serve the SunCreek Specific Plan:

1. Phase 1. Utilize available groundwater capacity until demands begin to approach the capability of the groundwater system.
2. Phase 2. As the capacity of the groundwater system is reached, construct the NSA Pipeline and begin to deliver surface water to the NSA.
3. Phase 3. As demand approaches the capacity of the NSA Pipeline, construct the remaining groundwater facilities to complete the conjunctive use program envisioned by SCWA.

To quantify the demand for groundwater and surface water over time within the SunCreek Specific Plan, the MWS assumed a limited amount of groundwater will be available to satisfy the initial water demands resulting from early stages of development within the project area (until approximately 2011).

In order to continue to meet the demands generated from new development within SunCreek, the MWS further envisioned that the NSA Pipeline will need to be

operational in 2011. Finally, as growth within the NSA occurs over many years, additional groundwater capacity will be needed as explained above.[3]

D. Land Use Alternatives

In addition to the need to estimate the increased demands for groundwater resulting from the development of the proposed project, several land use alternatives are being evaluated in the EIR/EIS for the project. Accordingly, this technical memorandum will estimate the increased demands for groundwater for these alternatives, as well.

These alternatives are briefly described as follows:

Alt. No.	Alternative	Description
1	Proposed Project	As described in TM No. 1
2	Agency Conceptual Strategy	A slightly less intense development plan that conforms slightly better to the Conceptual Level Strategy for the project than Proposed Project.
3	Biological Impact Minimization	A significantly less intense development plan as compared to the Proposed Project.
4	No USACE Permit	An even less intense development plan as compared to the Proposed Project.
5	Increased Development	A more intense development plan as compared to the Proposed Project.

Note: Refer to the EIR/EIS for a full description of these land use alternatives.

E. Projected Water Demands

Prior Water Demand Projections

The MWS projected the demand for water service within the SunCreek Specific Plan area at 5.72 MGD (Maximum Day Demand (MDD)). The above referenced Technical Memorandum has updated that same demand to 5.46 MGD based on the updated land use plan. The MWS (October 2008) and SCWA's Zone 40 Water System Infrastructure Plan (MWH, April 2006) both included projections for demands within the NSA over time. Unfortunately, the timing of these projections has been affected by the economic downturn of the last couple of years. Accordingly, prior demand projections do not reflect the significant lack of new connections that have materialized over the last couple of years. In essence, prior projections need to be adjusted for this economic phenomenon.

[3] Refer to the MWS for the details on the ability of the existing groundwater system and the new surface water system to serve the demands generated within the SunCreek Specific Plan area.

Adjustments to Prior Water Demand Projections

An analysis of the combined surface and ground water supplies to meet this 5.46 MGD (MDD) requirement was prepared and is included in Appendix A. This analysis is based on the MWS (October 2008) and SCWA's Zone 40 Water System Infrastructure Plan (WSIP) prepared by MWH in April 2006.

Since that time there has been negligible change in the current and projected demands, principally due to the severe economic climate and the resulting cessation of new development with the NSA since that time. Given that the projected demands for water within the NSA are "of record" and no significant changes have occurred in the last couple of years, it is prudent to adjust the timing of those projected demands to reflect the lack of significant new connections in the intervening year or two since these projections were prepared.

Therefore, it makes sense to simply adjust the timing of increasing water demands by a year rather than develop a new analysis that would require some amount of algebraic manipulation of published data to "bring the analysis current". Restated, if one simply adjusts the timing of projected demands by adding one year to each of the annual projections contained in the MWS and WSIP, the results would be indicative of these demands adjusted to reflect the results of the current economic situation.[4]

Fortunately, the projections within the MWS and the WSIP were for the period ending 2030 (a 22 year period). Accordingly, the analysis still has the requisite 20 year prospective required by SB 610 (2010 – 2030). This approach is considered to be adequate for the purposes of projecting the groundwater demands for the project over the required 20 year planning horizon.

It is important to note that the analysis of supply v. demand contained herein assumes the worst case scenario with regards to SCWA's operational discretion in the operation of their conjunctive use program. That is to say, for purposes of analysis, it has been assumed SCWA will continue to operate groundwater facilities at maximum capacity after surface water deliveries begin as opposed to placing the first call for water to meet system demands on the surface water facilities.

This operational assumption differs with the operational philosophy implied in the Zone 40 Water System Infrastructure Plan ("WSIP", MWH April 2006). A close inspection of Figures 4-12 and 4-13 of the WSIP imply that SCWA intends to operate the NSA system as a surface water dominant system (no groundwater pumping in wet water years), and calling on groundwater supplies only during dry years (approximately 6.6% of the annual demand being met from groundwater supplies and 93.4% being met from surface supplies).

[4] For instance, if one reads the year 2012 in either the MWS or the WSIP, simply utilize the corresponding demand as though it really was projected to occur in 2013 (i.e., 2012 + one year = 2013).

Obviously, the year-to-year mix of surface and groundwater will vary depending on a large number of variables. Operationally, SCWA has the discretion to operate the system anywhere along the conjunctive use water supply spectrum in order to meet varying conditions. To avoid speculation on the specifics of the surface and groundwater mix that SCWA may use in the future, making a conservative operational assumption to use the groundwater intensive end of SCWA's operational spectrum seems appropriate for this analysis.

F. Supply v. Demand Comparison

The analysis included in Appendix A utilizes the following methodology:

1. Demands for the NSA are projected for the period of 2010 through 2031 utilizing MWS and WSIP water demand projections adjusted in time as described above.
2. Ground and surface water supplies (existing and future) are similarly projected over the same period of time.
3. The relative percentage of projected ground and surface water supplies are then calculated.
4. Annual and monthly demands for water within the SunCreek Specific Plan area were then estimated over a projected build-out period for the project. Average day, maximum day and peak hour demands were also projected.
5. Annual water demands within the SunCreek Specific Plan area were then compared to the available water supply available in each year broken down between ground and surface water supplies.

Given the current slump in development activity and the nearly complete lack of new connections, it is clear that this methodology is conservative. That is to say, this methodology assumes an immediate and strong upturn in the economy with the associated rapid ramp up in development activity and a radical increase in the rate of new connections as compared to the status quo.

While everyone is hopeful that the recent sign of a coming uptick in economic activity is the beginning of a significant economic recovery, there are no signs that this recovery will be rapid. Most experts agree that this recovery will actually be a slow steady climb over the next several years. As such, in all likelihood, the demand for water within the NSA will significantly lag the projections contained in this analysis. Accordingly, it is reasonable to conclude this analysis is conservative in nature.

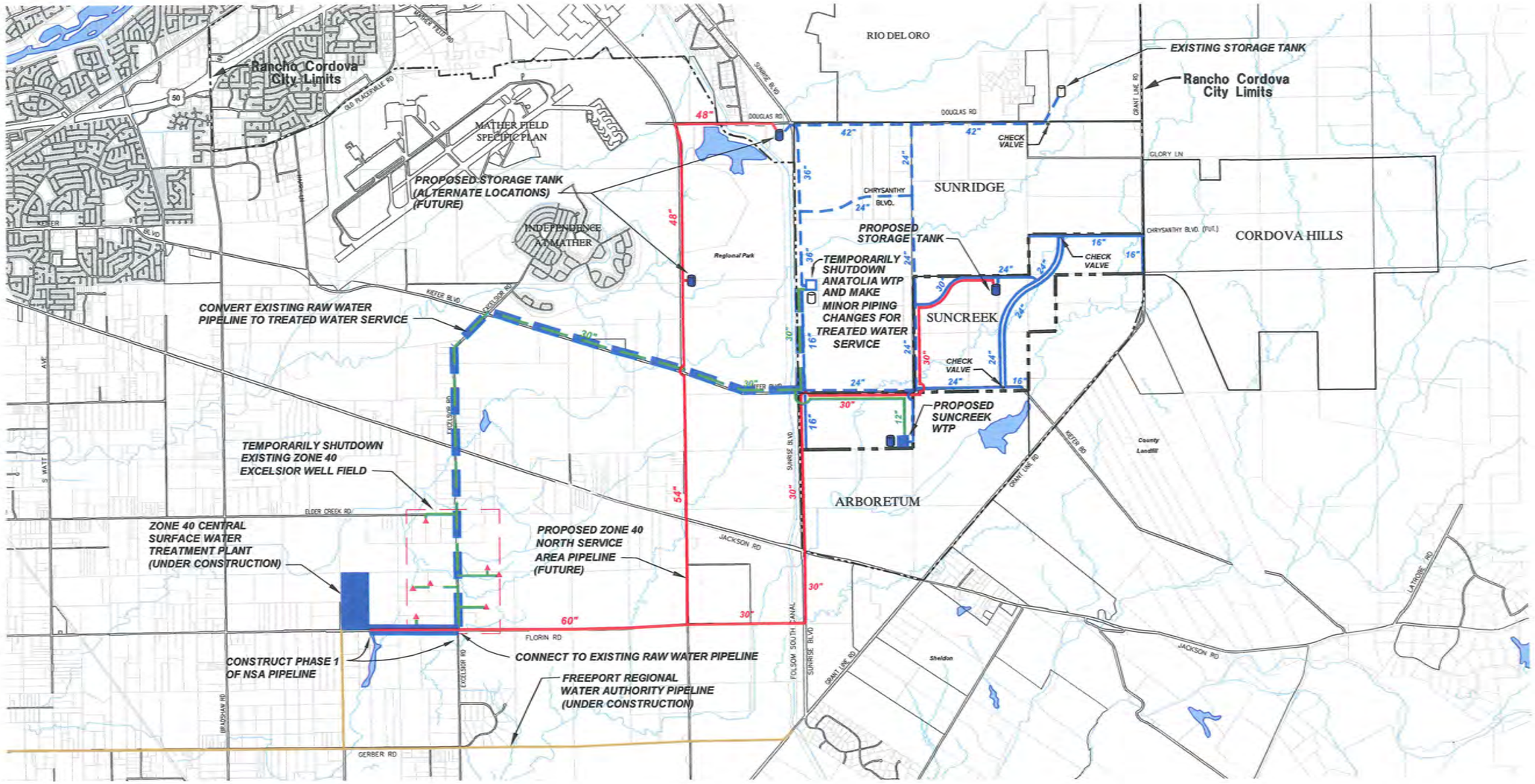
The net result of this analysis is a year by year projection of the increase in demand for groundwater that results from the development of the SunCreek Specific Plan area. Since there appear to be several alternatives for meeting the projected water demands generated by the development of the project, it became apparent that the above described analysis would be needed for the various water delivery scenarios.

Water Delivery Scenarios

Five basic water delivery scenarios were developed for this analysis.

These scenarios are briefly described below:

1. **Accelerated Construction of the NSA Pipeline With SunCreek Project**. This scenario has the following implications: (Refer to Figure 1).
    a. Conversion of the existing raw groundwater transmission pipeline not required.
    b. NSA Pipeline needs to be operational in 2012. (Water demands in the NSA will start exceeding existing developed groundwater supply capacity in 2012).
    c. SunCreek Groundwater Treatment Plant is not required to meet the demands created by development of the SunCreek Specific Plan Area.
    d. Excelsior Well Field and Anatolia Groundwater Treatment Plant expansions not required for the foreseeable future.
    e. Reoperation of the Mather System will be accomplished by SCWA to meet demands over time.
2. **Delayed Construction of the NSA Pipeline With SunCreek Project**. This scenario has the following implications: (Refer to Figure 1).
    a. Conversion of the existing raw groundwater transmission pipeline not required.
    b. NSA Pipeline needs to be operational in 2013.
    c. SunCreek Groundwater Treatment Plant is not required to meet the demands created by development of the SunCreek Specific Plan Area.
    d. Excelsior Well Field and Anatolia Groundwater Treatment Plant expansions are required in 2012.
    e. Reoperation of the Mather System will be accomplished by SCWA to meet demands over time.
3. **Conversion of the Raw Ground Water Pipeline With SunCreek Project**. This scenario has the following implications: (Refer to Figure 2).
    a. Conversion of the existing raw groundwater transmission pipeline needs to be operational in 2012.
    b. NSA Pipeline needs to be operational in 2019.
    c. SunCreek Groundwater Treatment Plant is not required to meet the demands created by development of the SunCreek Specific Plan Area.



LEGEND

- 16" — PROPOSED OFFSITE WATER TRANSMISSION PIPELINE
- 48" — PROPOSED NORTH AREA SERVICE (NSA) PIPELINE
- PROPOSED RAW SURFACE WATER PIPELINE (FRWA)
- PROPOSED RAW GROUND WATER PIPELINE
- EXISTING WATER TRANSMISSION PIPELINE
- EXISTING RAW GROUND WATER PIPELINE

0 2500 5000 10,000

SCALE: 1" =5000'

MACKAY & SOMPS
CIVIL ENGINEERS, INC.
ROSEVILLE, CALIFORNIA (916) 773-1189

FIGURE 2

Raw Water Pipeline Conversion Conceptual Plan

Suncreek Specific Plan

County of Sacramento, California
July, 2010

7991-00

11-16-2010 14:06:53 bborgen P:\7991\7991-SC\00\Master Plans\Water\Raw Water Pipe Conversion Concept Plan071510.dwg
[1] P:\7968\7968-SC\10\Master Plans\Water\Exhibits\RegionalBase.dwg

d. Excelsior Well Field and Anatolia Groundwater Treatment Plant expansions not required for the foreseeable future.
e. Reoperation of the Mather System will be accomplished by SCWA to meet demands over time.

4. **Groundwater Intensive Development Without SunCreek Project.** This scenario has the following implications: (Refer to Figure 1).
    a. Conversion of the existing raw groundwater transmission pipeline not required.
    b. NSA Pipeline needs to be operational in 2013.
    c. SunCreek Groundwater Treatment Plant is not required (no Project).
    d. Excelsior Well Field and Anatolia Groundwater Treatment Plant expansions are required in 2012.
    e. Reoperation of the Mather System will be accomplished by SCWA to meet demands over time.
5. **Groundwater Intensive Development With SunCreek Project**. This scenario has the following implications: (Refer to Figure 1).
    a. Conversion of the existing raw groundwater transmission pipeline not required.
    b. NSA Pipeline needs to be operational in 2015.
    c. SunCreek Groundwater Treatment Plant is required to be operational by 2013.
    d. Excelsior Well Field and Anatolia Groundwater Treatment Plant expansions are required in 2012.
    e. Reoperation of the Mather System will be accomplished by SCWA to meet demands over time.

Analysis Results

Each of these scenarios results in different demands being placed on the groundwater basin to serve the project.

The results of these different scenarios on the groundwater demands created by the SunCreek Specific Plan area itself are summarized in Table 1.

Table 2 is a tabulation of all groundwater demands within the NSA for each of the water supply scenarios.

Tables 3-1 through 3-5 provides an accounting of both ground and surface water demands within the NSA for each of the water supply scenarios for the twenty year planning horizon required by SB 610 (by five year increments).

Table 4 provides an accounting of water demands for SunCreek Specific Plan Area for each of the land use alternatives for the twenty year planning horizon required by SB 610 (by five year increments).

Tables 5-1 through 5-5 provide a comparison of supply and demand within the NSA for each of the water supply scenarios for the twenty year planning horizon required by SB 610 (by 5 year increments).

Table 1

Comparison of Groundwater Demands by Scenario
SunCreek Specific Plan Only
Year 2025 - Average Day Demands

Land Use Alternative	**Scenario 1** Accelerated Construction of NSA Pipeline With SunCreek Project	**Scenario 2** Delayed Construction of NSA Pipeline With SunCreek Project	**Scenario 3** Conversion of Raw Groundwater Pipeline With SunCreek Project	**Scenario 4** Groundwater Intensive Development Without Project	**Scenario 5** Groundwater Intensive Development With Project
Project	0.57 MGD	0.83 MGD	0.57 MGD	0.83 MGD	1.05 MGD
Agency Conceptual Strategy	0.55 MGD	0.80 MGD	0.55 MGD	0.80 MGD	1.01 MGD
Biological Impact Minimization	0.50 MGD	0.73 MGD	0.50 MGD	0.73 MGD	0.92 MGD
No USACE Permit	0.38 MGD	0.55 MGD	0.38 MGD	0.55 MGD	0.70 MGD
Increased Development	0.65 MGD	0.94 MGD	0.65 MGD	0.94 MGD	1.20 MGD

Clearly, after reviewing Tables 1, 2 and 3, Scenario No. 5 has the greatest impact to the groundwater basin for the foreseeable future. Scenario Nos. 1 and 3, nearly identical in magnitude, have the least impacts on the groundwater basin for the 20-year planning horizon required by SB 610. The impacts associated with Scenario Nos. 2 and 4 are somewhat less than Scenario No. 5 and somewhat greater than Scenario Nos.1 and 3.

Appendix B contains a breakdown of water demands for the five land use scenarios by development phase.

G. Summary

This technical memorandum estimates the magnitude of increased demand for groundwater resulting from the development within the SunCreek Specific Plan. For the reasons related to the economy stated explained above, it is our opinion

that this projection is a conservative estimate of the anticipated increased demand for groundwater resulting from the development of the project.

Table 2

SCWA's North Service Area (NSA) Groundwater Demands

Year	**Scenario No. 1** Accelerated Construction of NSA Pipeline With SunCreek Project			**Scenario No. 2** Delayed Construction of NSA Pipeline With SunCreek Project			**Scenario No. 3** Conversion of Raw Groundwater Pipeline With SunCreek Project			**Scenario No. 4** Groundwater Intensive Development Without SunCreek Project			**Scenario No. 5** Groundwater Intensive Development With SunCreek Project		
	Max. Day (MGD)	Avg. Day (MGD)	Annually (AF)	Max. Day (MGD)	Avg. Day (MGD)	Annually (AF)	Max. Day (MGD)	Avg. Day (MGD)	Annually (AF)	Max. Day (MGD)	Avg. Day (MGD)	Annually (AF)	Max. Day (MGD)	Avg. Day (MGD)	Annually (AF)
2010	10.30	5.15	5,769.1	10.30	5.15	5,769.1	10.30	5.15	5,769.1	10.30	5.15	5,769.1	10.30	5.15	5,769.1
2011	10.30	5.15	5,769.1	10.30	5.15	5,769.1	10.30	5.15	5,769.1	10.30	5.15	5,769.1	10.30	5.15	5,769.1
2012	10.30	5.15	5,769.1	12.73	6.37	7,130.2	6.00	3.00	3,360.7	12.43	6.22	6,962.2	12.78	6.39	7,158.2
2013	10.30	5.15	5,769.1	14.92	7.46	8,356.8	6.00	3.00	3,360.7	14.59	7.30	8,172.0	15.25	7.63	8,541.7
2014	10.30	5.15	5,769.1	14.92	7.46	8,356.8	6.00	3.00	3,360.7	14.92	7.46	8,356.8	17.73	8.87	9,930.8
2015	10.30	5.15	5,769.1	14.92	7.46	8,356.8	6.00	3.00	3,360.7	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2016	10.30	5.15	5,769.1	14.92	7.46	8,356.8	6.00	3.00	3,360.7	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2017	10.30	5.15	5,769.1	14.92	7.46	8,356.8	6.00	3.00	3,360.7	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2018	10.30	5.15	5,769.1	14.92	7.46	8,356.8	6.00	3.00	3,360.7	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2019	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2020	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2021	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2022	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2023	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2024	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2025	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2026	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2027	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2028	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2029	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2030	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3
2031	10.30	5.15	5,769.1	14.92	7.46	8,356.8	10.30	5.15	5,769.1	14.92	7.46	8,356.8	18.92	9.46	10,597.3

Table 3-1
2010 - 2030 Water Supply
SCWA's North Service Area (NSA)
Water Supply Scenario No. 1
(Accelerated Construction of NSA Pipeline With SunCreek Project)

Water Year	Water Source	Alternative No. 1 Proposed Project				Alternative No. 2 Agency Conceptual Strategy				Alternative No. 3 Biological Impact Minimization				Alternative No. 4 No USACE Permit				Alternative No. 5 Increased Development			
		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)	
2010	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0	
	Total	5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1	
2015	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	4.86		5,444.3		4.85		5,433.1		4.82		5,399.5		4.76		5,332.2		4.90		5,489.1	
	Total	10.01		11,213.4		10.00		11,202.2		9.97		11,168.6		9.91		11,101.4		10.05		11,258.2	
2020	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	10.94		12,249.6		10.89		12,193.6		10.76		12,048.0		10.48		11,734.3		11.13		12,462.4	
	Total	16.09		18,018.7		16.04		17,962.7		15.91		17,817.1		15.63		17,503.4		16.28		18,231.6	
2025	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	17.01		19,054.9		16.92		18,954.1		16.70		18,707.7		16.19		18,136.4		17.35		19,435.8	
	Total	22.16		24,824.1		22.07		24,723.3		21.85		24,476.8		21.34		23,905.5		22.50		25,205.0	
2030	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	23.09		25,860.3		22.99		25,748.3		22.74		25,468.2		22.17		24,829.7		23.47		26,286.0	
	Total	28.24		31,629.4		28.14		31,517.4		27.89		31,237.3		27.32		30,598.8		28.62		32,055.1	

Table 3-2
2010 - 2030 Water Supply
SCWA's North Service Area (NSA)
Water Supply Scenario No. 2
(Delayed Construction of NSA Pipeline With SunCreek Project)

Water Year	Water Source	Alternative No. 1 Proposed Project				Alternative No. 2 Agency Conceptual Strategy				Alternative No. 3 Biological Impact Minimization				Alternative No. 4 No USACE Permit				Alternative No. 5 Increased Development			
		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)	
2010	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0	
	Total	5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1	
2015	Excelsior Well Field	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%
	Mather Well Field	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%
	Surface Water	2.55		2,856.6		2.54		2,845.4		2.51		2,811.8		2.45		2,744.5		2.59		2,901.4	
	Total	10.01		11,213.4		10.00		11,202.2		9.97		11,168.6		9.91		11,101.4		10.05		11,258.2	
2020	Excelsior Well Field	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%
	Mather Well Field	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%
	Surface Water	8.63		9,661.9		8.58		9,605.9		8.45		9,460.3		8.17		9,146.6		8.82		9,874.7	
	Total	16.09		18,018.7		16.04		17,962.7		15.91		17,817.1		15.63		17,503.4		16.28		18,231.6	
2025	Excelsior Well Field	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%
	Mather Well Field	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%
	Surface Water	14.70		16,467.2		14.61		16,366.4		14.39		16,120.0		13.88		15,548.7		15.04		16,848.1	
	Total	22.16		24,824.1		22.07		24,723.3		21.85		24,476.8		21.34		23,905.5		22.50		25,205.0	
2030	Excelsior Well Field	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%
	Mather Well Field	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%
	Surface Water	20.78		23,272.6		20.68		23,160.6		20.43		22,880.5		19.86		22,242.0		21.16		23,698.3	
	Total	28.24		31,629.4		28.14		31,517.4		27.89		31,237.3		27.32		30,598.8		28.62		32,055.1	

Table 3-3
2010 - 2030 Water Supply
SCWA's North Service Area (NSA)
Water Supply Scenario No. 3
(Conversion of Raw Groundwater Pipeline With SunCreek Project)

Water Year	Water Source	Alternative No. 1 Proposed Project				Alternative No. 2 Agency Conceptual Strategy				Alternative No. 3 Biological Impact Minimization				Alternative No. 4 No USACE Permit				Alternative No. 5 Increased Development			
		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)	
2010	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0	
	Total	5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1	
2015	Excelsior Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Mather Well Field	3.00	100.0%	3,360.7	58.3%	3.00	100.0%	3,360.7	58.3%	3.00	100.0%	3,360.7	58.3%	3.00	100.0%	3,360.7	58.3%	3.00	100.0%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	3.00	100.0%	3,360.7	58.3%	3.00	100.0%	3,360.7	58.3%	3.00	100.0%	3,360.7	58.3%	3.00	100.0%	3,360.7	58.3%	3.00	100.0%	3,360.7	58.3%
	Surface Water	7.01		7,852.7		7.00		7,841.5		6.97		7,807.9		6.91		7,740.7		7.05		7,897.6	
	Total	10.01		11,213.4		10.00		11,202.2		9.97		11,168.6		9.91		11,101.4		10.05		11,258.2	
2020	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	10.94		12,255.2		10.89		12,199.2		10.76		12,053.6		10.48		11,739.9		11.13		12,468.1	
	Total	16.09		18,024.3		16.04		17,968.3		15.91		17,822.7		15.63		17,509.0		16.28		18,237.2	
2025	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	39.2%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	54.6%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.49	93.8%	5,769.1	100.0%
	Surface Water	17.01		19,054.9		16.92		18,954.1		16.70		18,707.7		16.19		18,136.4		17.35		19,435.8	
	Total	22.16		24,824.1		22.07		24,723.3		21.85		24,476.8		21.34		23,905.5		22.84		25,205.0	
2030	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	23.09		25,865.9		22.99		25,753.9		22.74		25,473.8		22.17		24,835.3		23.47		26,291.6	
	Total	28.24		31,635.0		28.14		31,523.0		27.89		31,242.9		27.32		30,604.4		28.62		32,060.7	

Table 3-4
2010 - 2030 Water Supply
SCWA's North Service Area (NSA)
Water Supply Scenario No. 4
(Groundwater Intensive Development Without SunCreek Project)

Water Year	Water Source	Alternative No. 1 Proposed Project				Alternative No. 2 Agency Conceptual Strategy				Alternative No. 3 Biological Impact Minimization				Alternative No. 4 No USACE Permit				Alternative No. 5 Increased Development			
		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)	
2010	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0	
	Total	5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1	
2015	Excelsior Well Field	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%
	Mather Well Field	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%
	Surface Water	1.99		2,229.2		1.98		2,218.0		1.95		2,184.4		1.89		2,117.2		2.03		2,274.0	
	Total	9.45		10,586.1		9.44		10,574.9		9.41		10,541.3		9.35		10,474.1		9.49		10,630.9	
2020	Excelsior Well Field	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%
	Mather Well Field	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%
	Surface Water	7.39		8,278.4		7.34		8,222.4		7.21		8,076.8		6.93		7,763.1		7.58		8,491.3	
	Total	14.85		16,635.3		14.80		16,579.3		14.67		16,433.6		14.39		16,120.0		15.04		16,848.1	
2025	Excelsior Well Field	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%
	Mather Well Field	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%
	Surface Water	12.79		14,322.0		12.70		14,221.2		12.48		13,974.7		11.97		13,403.4		13.13		14,702.9	
	Total	20.25		22,678.9		20.16		22,578.0		19.94		22,331.6		19.43		21,760.3		20.59		23,059.7	
2030	Excelsior Well Field	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%	4.46	59.8%	4,996.2	86.6%
	Mather Well Field	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%	3.00	40.2%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%	7.46	100.0%	8,356.8	144.9%
	Surface Water	18.18		20,365.6		18.08		20,253.6		17.83		19,973.5		17.26		19,335.0		18.56		20,791.3	
	Total	25.64		28,722.4		25.54		28,610.4		25.29		28,330.4		24.72		27,691.8		26.02		29,148.1	

Table 3-5
2010 - 2030 Water Supply
SCWA's North Service Area (NSA)
Water Supply Scenario No. 5
(Groundwater Intensive Development With SunCreek Project)

Water Year	Water Source	Alternative No. 1 Proposed Project				Alternative No. 2 Agency Conceptual Strategy				Alternative No. 3 Biological Impact Minimization				Alternative No. 4 No USACE Permit				Alternative No. 5 Increased Development			
		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)		ADD (MGD)		Yield (AFA)	
2010	Excelsior Well Field	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%	2.15	41.7%	2,408.5	41.7%
	Mather Well Field	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%	3.00	58.3%	3,360.7	58.3%
	SunCreek Well Field	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%
	Total Groundwater	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%	5.15	100.0%	5,769.1	100.0%
	Surface Water	0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0		0.00		0.0	
	Total	5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1		5.15		5,769.1	
2015	Excelsior Well Field	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%
	Mather Well Field	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%
	SunCreek Well Field	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%
	Total Groundwater	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%
	Surface Water	0.64		716.9		0.63		705.7		0.60		672.1		0.54		604.9		0.68		761.7	
	Total	10.10		11,314.2		10.09		11,303.0		10.06		11,269.4		10.00		11,202.2		10.14		11,359.0	
2020	Excelsior Well Field	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%
	Mather Well Field	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%
	SunCreek Well Field	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%
	Total Groundwater	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%
	Surface Water	6.83		7,651.1		6.78		7,595.1		6.65		7,449.5		6.37		7,135.8		7.02		7,863.9	
	Total	16.29		18,248.4		16.24		18,192.4		16.11		18,046.7		15.83		17,733.1		16.48		18,461.2	
2025	Excelsior Well Field	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%
	Mather Well Field	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%
	SunCreek Well Field	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%
	Total Groundwater	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%
	Surface Water	13.02		14,579.7		12.93		14,478.8		12.71		14,232.4		12.20		13,661.1		13.36		14,960.5	
	Total	22.48		25,176.9		22.39		25,076.1		22.17		24,829.7		21.66		24,258.4		22.82		25,557.8	
2030	Excelsior Well Field	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%	4.46	47.1%	4,996.2	86.6%
	Mather Well Field	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%	3.00	31.7%	3,360.7	58.3%
	SunCreek Well Field	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%	2.00	21.1%	2,240.4	38.8%
	Total Groundwater	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%	9.46	100.0%	10,597.3	183.7%
	Surface Water	19.21		21,513.8		19.11		21,401.8		18.86		21,121.8		18.29		20,483.2		19.59		21,939.5	
	Total	28.67		32,111.1		28.57		31,999.1		28.32		31,719.0		27.75		31,080.5		29.05		32,536.8	

Table 4
2010 - 2030 Water Demands
SunCreek Specific Plan Area
(Shown by Land Use Alternative)

Water Year	Alternative No. 1 Proposed Project			Alternative No. 2 Agency Conceptual Strategy			Alternative No. 3 Biological Impact Minimization			Alternative No. 4 No USACE Permit			Alternative No. 5 Increased Development		
	Max. Day (MGD)	Avg. Day (MGD)	Annaully (AFA)	Max. Day (MGD)	Avg. Day (MGD)	Annaully (AFA)	Max. Day (MGD)	Avg. Day (MGD)	Annaully (AFA)	Max. Day (MGD)	Avg. Day (MGD)	Annaully (AFA)	Max. Day (MGD)	Avg. Day (MGD)	Annaully (AFA)
2010	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
2015	0.55	0.28	308.1	0.53	0.27	296.9	0.48	0.24	268.9	0.36	0.18	201.6	0.62	0.31	347.3
2020	2.73	1.37	1,529.1	2.63	1.32	1,473.1	2.38	1.19	1,333.1	1.82	0.91	1,019.4	3.10	1.55	1,736.3
2025	4.91	2.46	2,750.1	4.74	2.37	2,654.9	4.29	2.15	2,402.9	3.27	1.64	1,831.6	5.59	2.80	3,131.0
2030	5.46	2.73	3,058.2	5.27	2.64	2,951.8	4.77	2.39	2,671.7	3.63	1.82	2,033.2	6.21	3.11	3,478.3

Note: The water demands for these land use alternatives do not vary by water supply scenario. The water demands of the project vary only by changes in land uses between the various land use alternatives.

Table 5-1
Comparison of Water Supply and Demand
Scenario No. 1 - Accelerated Construction of NSA Pipeline With SunCreek Project
(Acre Feet Per Year)

No.	Sources & Uses of Water	2010	2015	2020	2025	2030
Alt. No. 1 - Proposed Project	**Supply**					
	Groundwater	5,769	5,769	5,769	5,769	5,769
	Surface Water	-	5,444	12,250	19,055	25,860
	Total Supply	**5,769**	**11,213**	**18,019**	**24,824**	**31,629**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	308	1,529	2,750	3,058
	Total Demand	**4,873**	**11,213**	**18,019**	**24,824**	**31,629**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 2 - Agency Conceptual Strategy	**Supply**					
	Groundwater	5,769	5,769	5,769	5,769	5,769
	Surface Water	-	5,433	12,194	18,960	25,754
	Total Supply	**5,769**	**11,202**	**17,963**	**24,729**	**31,523**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	297	1,473	2,655	2,952
	Total Demand	**4,873**	**11,202**	**17,963**	**24,729**	**31,523**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 3 - Biological Impact Minimization	**Supply**					
	Groundwater	5,769	5,769	5,769	5,769	5,769
	Surface Water	-	5,405	12,054	18,708	25,474
	Total Supply	**5,769**	**11,174**	**17,823**	**24,477**	**31,243**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	269	1,333	2,403	2,672
	Total Demand	**4,873**	**11,174**	**17,823**	**24,477**	**31,243**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 4 - No USACE Permit	**Supply**					
	Groundwater	5,769	5,769	5,769	5,769	5,769
	Surface Water	-	5,338	11,740	18,136	24,835
	Total Supply	**5,769**	**11,107**	**17,509**	**23,905**	**30,604**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	202	1,019	1,832	2,033
	Total Demand	**4,873**	**11,107**	**17,509**	**23,905**	**30,604**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 5 - Increased Development	**Supply**					
	Groundwater	5,769	5,769	5,769	5,769	5,769
	Surface Water	-	5,483	12,457	19,436	26,280
	Total Supply	**5,769**	**11,252**	**18,226**	**25,205**	**32,049**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	347	1,736	3,131	3,478
	Total Demand	**4,873**	**11,253**	**18,226**	**25,205**	**32,049**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**

Note: Figures may not agree with those in Tables 3-1 through 3-5 due to round off error.

Table 5-2
Comparison of Water Supply and Demand
Scenario No. 2 - Delayed Construction of NSA Pipeline With SunCreek Project
(Acre Feet Per Year)

No.	Sources & Uses of Water	2010	2015	2020	2025	2030
Alt. No. 1 - Proposed Project	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,857	9,662	16,467	23,273
	Total Supply	**5,769**	**11,213**	**18,019**	**24,824**	**31,629**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	308	1,529	2,750	3,058
	Total Demand	**4,873**	**11,213**	**18,019**	**24,824**	**31,629**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 2 - Agency Conceptual Strategy	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,845	9,606	16,372	23,166
	Total Supply	**5,769**	**11,202**	**17,963**	**24,729**	**31,523**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	297	1,473	2,655	2,952
	Total Demand	**4,873**	**11,202**	**17,963**	**24,729**	**31,523**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 3 - Biological Impact Minimization	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,817	9,466	16,120	22,886
	Total Supply	**5,769**	**11,174**	**17,823**	**24,477**	**31,243**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	269	1,333	2,403	2,672
	Total Demand	**4,873**	**11,174**	**17,823**	**24,477**	**31,243**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 4 - No USACE Permit	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,750	9,152	15,549	22,248
	Total Supply	**5,769**	**11,107**	**17,509**	**23,906**	**30,605**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	202	1,019	1,832	2,033
	Total Demand	**4,873**	**11,107**	**17,509**	**23,905**	**30,604**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 5 - Increased Development	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,896	9,869	16,848	23,693
	Total Supply	**5,769**	**11,253**	**18,226**	**25,205**	**32,050**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	347	1,736	3,131	3,478
	Total Demand	**4,873**	**11,253**	**18,226**	**25,205**	**32,049**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**

Note: Figures may not agree with those in Tables 3-1 through 3-5 due to round off error.

Table 5-3
Comparison of Water Supply and Demand
Scenario No. 3 - Conversion of Raw Groundwater Pipeline With SunCreek Project
(Acre Feet Per Year)

No.	Sources & Uses of Water	2010	2015	2020	2025	2030
Alt. No. 1 - Proposed Project	**Supply**					
	Groundwater	5,769	3,361	5,769	5,769	5,769
	Surface Water	-	7,853	12,250	19,055	25,860
	Total Supply	**5,769**	**11,213**	**18,019**	**24,824**	**31,629**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	308	1,529	2,750	3,058
	Total Demand	**4,873**	**11,213**	**18,019**	**24,824**	**31,629**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 2 - Agency Conceptual Strategy	**Supply**					
	Groundwater	5,769	3,361	5,769	5,769	5,769
	Surface Water	-	7,842	12,194	18,960	25,754
	Total Supply	**5,769**	**11,203**	**17,963**	**24,729**	**31,523**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	297	1,473	2,655	2,952
	Total Demand	**4,873**	**11,202**	**17,963**	**24,729**	**31,523**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 3 - Biological Impact Minimization	**Supply**					
	Groundwater	5,769	3,361	5,769	5,769	5,769
	Surface Water	-	7,814	12,054	18,708	25,474
	Total Supply	**5,769**	**11,175**	**17,823**	**24,477**	**31,243**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	269	1,333	2,403	2,672
	Total Demand	**4,873**	**11,174**	**17,823**	**24,477**	**31,243**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 4 - No USACE Permit	**Supply**					
	Groundwater	5,769	3,361	5,769	5,769	5,769
	Surface Water	-	7,746	11,740	18,136	24,835
	Total Supply	**5,769**	**11,107**	**17,509**	**23,905**	**30,604**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	202	1,019	1,832	2,033
	Total Demand	**4,873**	**11,107**	**17,509**	**23,905**	**30,604**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 5 - Increased Development	**Supply**					
	Groundwater	5,769	3,361	5,769	5,769	5,769
	Surface Water	-	7,892	12,457	19,436	26,280
	Total Supply	**5,769**	**11,253**	**18,226**	**25,205**	**32,049**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	347	1,736	3,131	3,478
	Total Demand	**4,873**	**11,253**	**18,226**	**25,205**	**32,049**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**

Note: Figures may not agree with those in Tables 3-1 through 3-5 due to round off error.

Table 5-4
Comparison of Water Supply and Demand
Scenario No. 4 - Groundwater Intensive Development without SunCreek Project
(Acre Feet Per Year)

No.	Sources & Uses of Water	2010	2015	2020	2025	2030
Alt. No. 1 - Proposed Project	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,857	9,662	16,467	23,273
	Total Supply	**5,769**	**11,213**	**18,019**	**24,824**	**31,629**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	11,213	18,019	24,824	31,629
	SunCreek Project	-	-	-	-	-
	Total Demand	**4,873**	**11,213**	**18,019**	**24,824**	**31,629**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 2 - Agency Conceptual Strategy	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,856	9,662	16,467	23,272
	Total Supply	**5,769**	**11,213**	**18,019**	**24,824**	**31,629**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	11,213	18,019	24,824	31,629
	SunCreek Project	-	-	-	-	-
	Total Demand	**4,873**	**11,213**	**18,019**	**24,824**	**31,629**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 3 - Biological Impact Minimization	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,817	9,466	16,120	22,886
	Total Supply	**5,769**	**11,174**	**17,823**	**24,477**	**31,243**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	11,174	17,823	24,477	31,243
	SunCreek Project	-	-	-	-	-
	Total Demand	**4,873**	**11,174**	**17,823**	**24,477**	**31,243**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 4 - No USACE Permit	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,750	9,152	15,549	22,248
	Total Supply	**5,769**	**11,107**	**17,509**	**23,906**	**30,605**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	11,107	17,509	23,906	30,605
	SunCreek Project	-	-	-	-	-
	Total Demand	**4,873**	**11,107**	**17,509**	**23,906**	**30,605**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**
Alt. No. 5 - Increased Development	**Supply**					
	Groundwater	5,769	8,357	8,357	8,357	8,357
	Surface Water	-	2,896	9,869	16,848	23,693
	Total Supply	**5,769**	**11,253**	**18,226**	**25,205**	**32,050**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	11,253	18,226	25,205	32,050
	SunCreek Project	-	-	-	-	-
	Total Demand	**4,873**	**11,253**	**18,226**	**25,205**	**32,050**
	Difference (Supply minus Demand)	**896**	**-**	**-**	**-**	**-**

Note: Figures may not agree with those in Tables 3-1 through 3-5 due to round off error.

Table 5-5
Comparison of Water Supply and Demand
Scenario No. 5 - Groundwater Intensive Development with SunCreek Project
(Acre Feet Per Year)

No.	Sources & Uses of Water	2010	2015	2020	2025	2030
Alt. No. 1 - Proposed Project	**Supply**					
	Groundwater	5,769	10,597	10,597	10,597	10,597
	Surface Water	-	616	7,421	14,227	21,032
	Total Supply	**5,769**	**11,213**	**18,019**	**24,824**	**31,629**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	308	1,529	2,750	3,058
	Total Demand	**4,873**	**11,213**	**18,019**	**24,824**	**31,629**
	Difference (Supply minus Demand)	**896**	-	-	-	-
Alt. No. 2 - Agency Conceptual Strategy	**Supply**					
	Groundwater	5,769	10,597	10,597	10,597	10,597
	Surface Water	-	605	7,365	14,132	20,926
	Total Supply	**5,769**	**11,202**	**17,962**	**24,729**	**31,523**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	297	1,473	2,655	2,952
	Total Demand	**4,873**	**11,202**	**17,963**	**24,729**	**31,523**
	Difference (Supply minus Demand)	**896**	-	-	-	-
Alt. No. 3 - Biological Impact Minimization	**Supply**					
	Groundwater	5,769	10,597	10,597	10,597	10,597
	Surface Water	-	577	7,225	13,880	20,646
	Total Supply	**5,769**	**11,174**	**17,822**	**24,477**	**31,243**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	269	1,333	2,403	2,672
	Total Demand	**4,873**	**11,174**	**17,823**	**24,477**	**31,243**
	Difference (Supply minus Demand)	**896**	-	-	-	-
Alt. No. 4 - No USACE Permit	**Supply**					
	Groundwater	5,769	10,597	10,597	10,597	10,597
	Surface Water	-	510	6,912	13,308	20,007
	Total Supply	**5,769**	**11,107**	**17,509**	**23,905**	**30,604**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	202	1,019	1,832	2,033
	Total Demand	**4,873**	**11,107**	**17,509**	**23,905**	**30,604**
	Difference (Supply minus Demand)	**896**	-	-	-	-
Alt. No. 5 - Increased Development	**Supply**					
	Groundwater	5,769	10,597	10,597	10,597	10,597
	Surface Water	-	655	7,629	14,608	21,452
	Total Supply	**5,769**	**11,252**	**18,226**	**25,205**	**32,049**
	Demand					
	NSA (SunCreek project not inlcuded)	4,873	10,905	16,490	22,074	28,571
	SunCreek Project	-	347	1,736	3,131	3,478
	Total Demand	**4,873**	**11,253**	**18,226**	**25,205**	**32,049**
	Difference (Supply minus Demand)	**896**	-	-	-	-

Note: Figures may not agree with those in Tables 3-1 through 3-5 due to round off error.

The findings of this analysis are summarized as follows:

1. Scenario No. 1 (Accelerated Construction of the NSA Pipeline With SunCreek Project) has the following implications:
    a. Nearly the same demand for groundwater as projected in Scenario No. 3, but less than Scenario Nos. 2, 4 and 5 for the 20 year planning horizon required by SB 610.
    b. Construction of the capital intensive NSA Pipeline in 2012. This is probably not achievable from a financing and permitting perspective in the time frame available (2 years).
    c. No need for construction of the SunCreek Groundwater Treatment Plant and associated well field in foreseeable future.
    d. No foreseeable expansion of the Anatolia Groundwater Treatment Plant and associated Excelsior Well Field.
    e. No need to convert the existing raw groundwater transmission pipeline.
    f. Re-operation of the Mather System as demands dictates.
2. Scenario No. 2 (Delayed Construction of the NSA Pipeline with SunCreek Project) has the following implications:
    a. Less demand for groundwater than Scenario Nos. 4 and 5, but more than Scenario Nos. 1 and 3, within the 20 year planning horizon required by SB 610.
    b. Delay of the capital intensive NSA Pipeline until 2013. This is probably not achievable from a financing and permitting perspective in the time frame available (3 years).
    c. No need for construction of the SunCreek Groundwater Treatment Plant and associated well field in foreseeable future.
    d. Expansion of the Anatolia Groundwater Treatment Plant and associated Excelsior Well Field required in 2012.
    e. No need to convert the existing raw groundwater transmission pipeline.
    f. Re-operation of the Mather System as demands dictates.
3. Scenario No. 3 (Conversion of the Raw Ground Water Pipeline With SunCreek Project) has the following implications:
    a. The demand for groundwater for this scenario is nearly identical to Scenario No 1, less than required for Scenario No. 2, and significantly less than projected for Scenario Nos. 4 and 5.

b. Delay of the capital intensive NSA Pipeline until 2019. This is very feasible from a financing and permitting perspective in the time frame available (9 years).

c. No need for construction of the SunCreek Groundwater Treatment Plant and associated well field in foreseeable future.

d. No foreseeable expansion of the Anatolia Groundwater Treatment Plant and associated Excelsior Well Field.

e. Conversion of the existing raw groundwater transmission pipeline required by 2012.

f. Re-operation of the Mather System as demands dictates.

4. Scenario No. 4 (Groundwater Intensive Development Without SunCreek Project) has the following implications:

   a. The demand for groundwater for this scenario is less than projected for Scenario No. 5, but greater than required for Scenario Nos. 1 – 3.

   b. Delay of the capital intensive NSA Pipeline until 2013. This is probably not achievable from a financing and permitting perspective in the time frame available (3 years).

   c. No need for construction of the SunCreek Groundwater Treatment Plant and associated well field in foreseeable future (no Project).

   d. Expansion of the Anatolia Groundwater Treatment Plant and associated Excelsior Well Field required in 2012.

   e. No need to convert the existing raw groundwater transmission pipeline.

   f. Re-operation of the Mather System as demands dictates.

5. Scenario No. 5 (Groundwater Intensive Development With SunCreek Project) has the following implications:

   a. The demand for groundwater for this scenario is greater than all other scenarios.

   b. Delay of the capital intensive NSA Pipeline until 2015. This is very feasible from a financing and permitting perspective in the time frame available (5 years) in light of the stagnant economy and forecasted slow recovery.

   c. Construction of the SunCreek Groundwater Treatment Plant and associated well field in 2013.

   d. Expansion of the Anatolia Groundwater Treatment Plant and associated Excelsior Well Field required in 2012.

e. No need to convert the existing raw groundwater transmission pipeline.

f. Re-operation of the Mather System as demands dictates.

Clearly, Scenario No. 3 is the most advantageous alternative. If this alternative is determined not to be feasible for some reason, then some combination of additional groundwater development and timely delivery of the NSA Pipeline will be needed to provide service to the Project. The challenge will be to minimize the magnitude of groundwater development that will be required on an interim basis until the NSA Pipeline can be operational.

The exact amount of additional groundwater development will be determined by the timing of delivery of surface water from the CSWTP and the demand for new service within the NSA. This analysis, though, brackets the range of possibilities and, therefore, reasonably estimates the resulting impacts to the groundwater basin.

Appendix A

Groundwater Demands by Land Use Alternative

Scenario 1

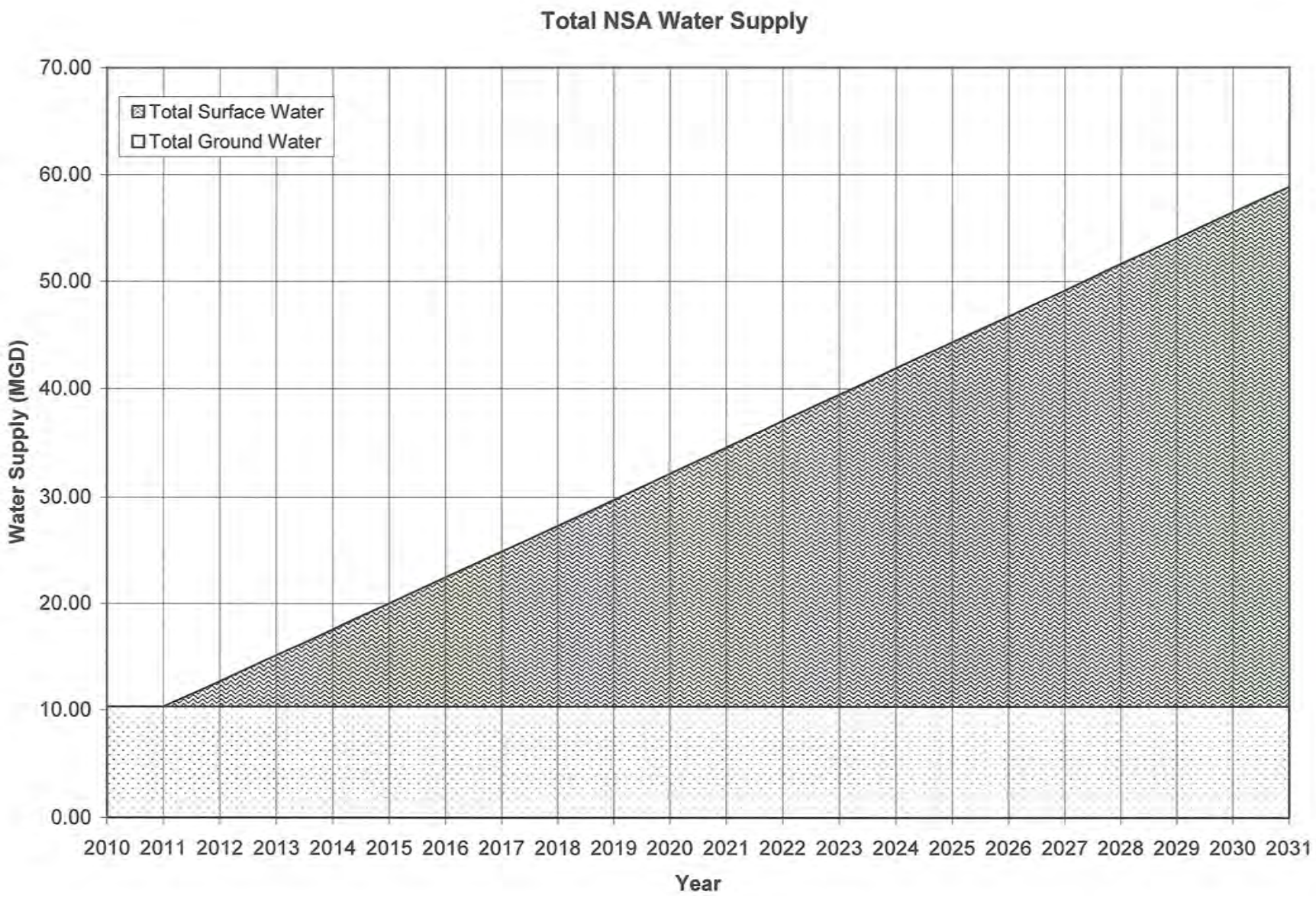
Accelerated Construction of the NSA Pipeline With SunCreek Project

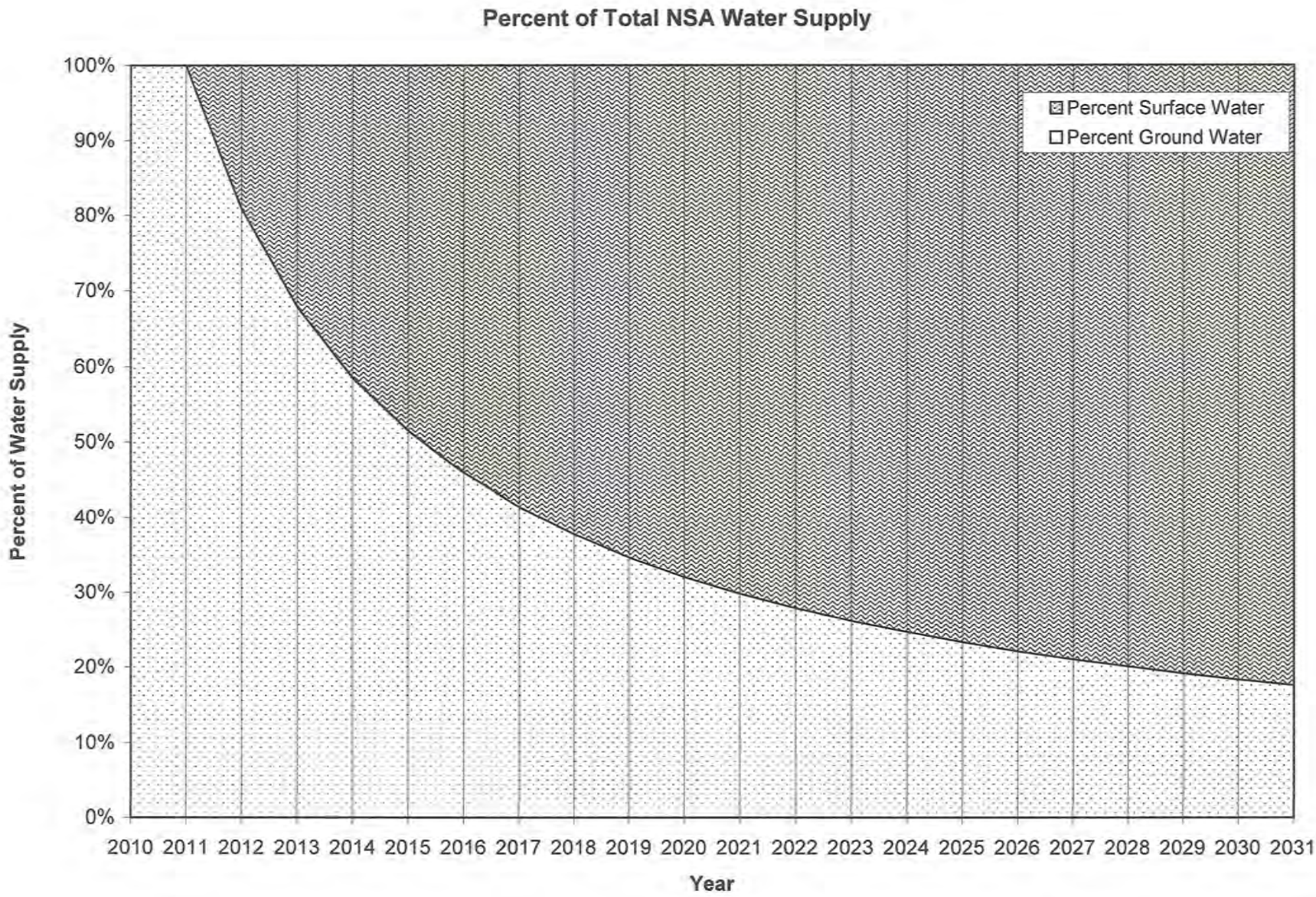
North Service Area (NSA)
Total Water Supply vs. Total Water Demand
Scenario No. 1 (Assuming Accelerated Construction of NSA Pipeline With SunCreek Project)

	Water Demand (MGD)																					
Water Demand Area	2010 [2]	2011 [2]	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031 [3]
Total NSA Water Demand (Maximum Day Demands)	**8.70**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**

	Water Supply (MGD)																					
Water Supply Source [1]	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Anatolia WTP	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Mather Housing WTP	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Suncreek WTP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ground Water	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**
Convert Raw Groundwater Pipeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vineyard WTP (NSA Pipeline Deliveries)	0.00	0.00	2.43	4.86	7.29	9.72	12.15	14.58	17.01	19.44	21.87	24.30	26.73	29.16	31.59	34.02	36.45	38.88	41.31	43.74	46.17	48.60
Total Surface Water	**0.00**	**0.00**	**2.43**	**4.86**	**7.29**	**9.72**	**12.15**	**14.58**	**17.01**	**19.44**	**21.87**	**24.30**	**26.73**	**29.16**	**31.59**	**34.02**	**36.45**	**38.88**	**41.31**	**43.74**	**46.17**	**48.60**
Total Water Supply	**10.30**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**
Percentage of Total Water Supply																						
Percent Ground Water	100%	100%	81%	68%	59%	51%	46%	41%	38%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	19%	32%	41%	49%	54%	59%	62%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%

Footnote:
1. Water Treatment Plant (WTP)
2. Source Sacramento County Water Agency Master Water Study for the Suncreek Specific Plan dated October 2008 prepared by MWH (Beginning Year of 2010 = MWS Year of 2009 + 1 year)
3. Source Sacramento County Water Agency Zone 40 Water System Infrastructure Plan dated April 2006 prepared by MWH (Beginning Year of 2010 = MWS Year of 2009 + 1 year)


Total NSA Water Supply
Total Surface Water
Total Ground Water
Water Supply (MGD)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year


Percent of Total NSA Water Supply
Percent Surface Water
Percent Ground Water
Percent of Water Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year

Suncreek Annual Water Demand - Alt 1
Proposed Project

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	169.4	2.89	489.6
Medium Density Residential (MDR)	Multi-Family Low Density	322.7	3.70	1194.0
Compact Density Residential (CMDR)	Multi-Family Low Density	20.1	3.70	74.4
High Density Residential (HDR)	Multi-Family High Density	34.6	4.12	142.6
Commerial Mixed Use (CMU)	Mixed Use	31.9	2.51	80.1
Local Town Center (Commercial & Employment)	Local Town Center	59.4	2.51	149.1
Public/Quasi Public (PQP)	Public	13.0	1.04	13.5
School	Public Recreation	110.9	3.46	383.7
Community Park	Public Recreation	43.1	3.46	149.1
Neighborhood Park (PP)	Public Recreation	44.0	3.46	152.2
Neighborhood Green	Public Recreation	4.3	3.46	14.9
Parkway, Paseos and Trails (PC)	Right-of-Way	9.1	0.21	1.9
Wetland Buffer/Bike Path Corridor	Vacant	45.2	0.00	0.0
Wetland Perserve	Vacant	203.7	0.00	0.0
Storm Drain Channel	Vacant	5.0	0.00	0.0
Detention Basin (DB)	Vacant	46.9	0.00	0.0
Minor Roads	Vacant	23.2	0.00	0.0
Major Roads	Vacant	79.0	0.00	0.0
		1265.5		
Subtotal				2845.0
System Loss (7.5%)				213.4
Total (AF/Yr)				**3058.4**
Average Day Demand (MGD)				**2.73**
Max Day Demand (MGD)[2]				**5.46**
Peak Hour Demand (gpm)[3]				**7584.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 1

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	134.6	1.5
February	4.0%	122.3	1.3
March	4.8%	146.8	1.6
April	6.8%	208.0	2.3
May	9.5%	290.5	3.2
June	11.4%	348.7	3.8
July	13.7%	419.0	4.6
August	13.6%	415.9	4.5
September	11.5%	351.7	3.8
October	9.5%	290.5	3.2
November	6.0%	183.5	2.0
December	4.8%	146.8	1.6
Total	**100.0%**	**3058.4**	

Suncreek
Water Supply vs. Demand - Alt 1

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 1 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	81%	68%	59%	51%	46%	41%	38%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	19%	32%	41%	49%	54%	59%	62%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.04	0.07	0.13	0.28	0.38	0.45	0.62	0.76	0.87	0.98	1.06	1.14	1.14	1.14	1.14	1.14	1.09	1.04	1.00	0.95
Total Surface Water (MGD)	0.00	0.00	0.01	0.04	0.09	0.27	0.44	0.64	1.02	1.43	1.86	2.30	2.76	3.23	3.50	3.77	4.04	4.32	4.37	4.42	4.46	4.51
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 2
Agency Conceptual Strategy Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	141.5	2.89	408.9
Medium Density Residential (MDR)	Multi-Family Low Density	410.9	3.70	1520.3
Compact Density Residential (CMDR)	Multi-Family Low Density	18.5	3.70	68.5
High Density Residential (HDR)	Multi-Family High Density	12.5	4.12	51.5
Commerial Mixed Use (CMU)	Mixed Use	10.9	2.51	27.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	7.2	1.04	7.5
School	Public Recreation	108.4	3.46	375.1
Community Park	Public Recreation	74.2	3.46	256.7
Neighborhood Park (PP)	Public Recreation	7.8	3.46	27.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	11.6	0.21	2.4
Wetland Buffer/Bike Path Corridor	Vacant	13.0	0.00	0.0
Wetland Perserve	Vacant	310.2	0.00	0.0
Storm Drain Channel	Vacant	6.4	0.00	0.0
Detention Basin (DB)	Vacant	14.9	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	117.5	0.00	0.0
		1265.5		
Subtotal				2745.3
System Loss (7.5%)				205.9
Total (AF/Yr)				**2951.2**
Average Day Demand (MGD)				**2.63**
Max Day Demand (MGD)[2]				**5.27**
Peak Hour Demand (gpm)[3]				**7318.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 2

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	129.9	1.4
February	4.0%	118.0	1.3
March	4.8%	141.7	1.5
April	6.8%	200.7	2.2
May	9.5%	280.4	3.0
June	11.4%	336.4	3.7
July	13.7%	404.3	4.4
August	13.6%	401.4	4.4
September	11.5%	339.4	3.7
October	9.5%	280.4	3.0
November	6.0%	177.1	1.9
December	4.8%	141.7	1.5
Total	**100.0%**	**2951.2**	

Suncreek
Water Supply vs. Demand - Alt 2

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 2 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	81%	68%	59%	51%	46%	41%	38%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	19%	32%	41%	49%	54%	59%	62%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.04	0.07	0.12	0.27	0.36	0.44	0.60	0.73	0.84	0.94	1.03	1.10	1.10	1.10	1.10	1.10	1.05	1.00	0.96	0.92
Total Surface Water (MGD)	0.00	0.00	0.01	0.03	0.09	0.26	0.43	0.62	0.98	1.38	1.79	2.22	2.66	3.12	3.38	3.64	3.90	4.17	4.22	4.26	4.31	4.35
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Water Supply Shortfall (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 3
Biological Impact Minimization Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	166.7	2.89	481.8
Medium Density Residential (MDR)	Multi-Family Low Density	391.3	3.70	1447.8
Compact Density Residential (CMDR)	Multi-Family Low Density	11.6	3.70	42.9
High Density Residential (HDR)	Multi-Family High Density	6.2	4.12	25.5
Commerial Mixed Use (CMU)	Mixed Use	0.0	2.51	0.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.1	1.04	4.3
School	Public Recreation	52.0	3.46	179.9
Community Park	Public Recreation	78.3	3.46	270.9
Neighborhood Park (PP)	Public Recreation	8.3	3.46	28.7
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	6.7	0.21	1.4
Wetland Buffer/Bike Path Corridor	Vacant	14.6	0.00	0.0
Wetland Perserve	Vacant	411.1	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	15.8	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	98.8	0.00	0.0
		1265.5		
Subtotal				2483.3
System Loss (7.5%)				186.2
Total (AF/Yr)				**2669.5**
Average Day Demand (MGD)				**2.38**
Max Day Demand (MGD)[2]				**4.77**
Peak Hour Demand (gpm)[3]				**6619.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 3

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	117.5	1.3
February	4.0%	106.8	1.2
March	4.8%	128.1	1.4
April	6.8%	181.5	2.0
May	9.5%	253.6	2.8
June	11.4%	304.3	3.3
July	13.7%	365.7	4.0
August	13.6%	363.1	3.9
September	11.5%	307.0	3.3
October	9.5%	253.6	2.8
November	6.0%	160.2	1.7
December	4.8%	128.1	1.4
Total	**100.0%**	**2669.5**	

Suncreek
Water Supply vs. Demand - Alt 3

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 3 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	81%	68%	59%	51%	46%	41%	38%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	19%	32%	41%	49%	54%	59%	62%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.04	0.06	0.11	0.25	0.33	0.39	0.54	0.66	0.76	0.85	0.93	1.00	1.00	1.00	1.00	1.00	0.95	0.91	0.87	0.83
Total Surface Water (MGD)	0.00	0.00	0.01	0.03	0.08	0.23	0.39	0.56	0.89	1.25	1.62	2.01	2.41	2.82	3.06	3.29	3.53	3.77	3.82	3.86	3.90	3.93
Total Water Supply (MGD)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 4
No USACE Permit Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	54.3	2.89	156.9
Medium Density Residential (MDR)	Multi-Family Low Density	287.1	3.70	1062.3
Compact Density Residential (CMDR)	Multi-Family Low Density	97.7	3.70	361.5
High Density Residential (HDR)	Multi-Family High Density	18.1	4.12	74.6
Commerial Mixed Use (CMU)	Mixed Use	6.7	2.51	16.8
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.8	1.04	5.0
School	Public Recreation	29.0	3.46	100.3
Community Park	Public Recreation	32.2	3.46	111.4
Neighborhood Park (PP)	Public Recreation	1.0	3.46	3.5
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.6	0.21	0.1
Wetland Buffer/Bike Path Corridor	Vacant	3.3	0.00	0.0
Wetland Perserve	Vacant	607.0	0.00	0.0
Storm Drain Channel	Vacant	0.8	0.00	0.0
Detention Basin (DB)	Vacant	14.3	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	108.6	0.00	0.0
		1265.5		
Subtotal				1892.4
System Loss (7.5%)				141.9
Total (AF/Yr)				**2034.3**
Average Day Demand (MGD)				**1.82**
Max Day Demand (MGD)[2]				**3.63**
Peak Hour Demand (gpm)[3]				**5044.8**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 4

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	89.5	1.0
February	4.0%	81.4	0.9
March	4.8%	97.6	1.1
April	6.8%	138.3	1.5
May	9.5%	193.3	2.1
June	11.4%	231.9	2.5
July	13.7%	278.7	3.0
August	13.6%	276.7	3.0
September	11.5%	233.9	2.5
October	9.5%	193.3	2.1
November	6.0%	122.1	1.3
December	4.8%	97.6	1.1
Total	**100.0%**	**2034.3**	

Suncreek
Water Supply vs. Demand - Alt 4

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 4 (MGD) (Maximum Day Demands)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	81%	68%	59%	51%	46%	41%	38%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	19%	32%	41%	49%	54%	59%	62%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.03	0.05	0.09	0.19	0.25	0.30	0.41	0.50	0.58	0.65	0.71	0.76	0.76	0.76	0.76	0.76	0.72	0.69	0.66	0.64
Total Surface Water (MGD)	0.00	0.00	0.01	0.02	0.06	0.18	0.29	0.43	0.68	0.95	1.23	1.53	1.84	2.15	2.33	2.51	2.69	2.87	2.91	2.94	2.97	3.00
Total Water Supply (MGD)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 5
Increased Development Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	609.8	2.89	1762.3
Medium Density Residential (MDR)	Multi-Family Low Density	173.0	3.70	640.1
Compact Density Residential (CMDR)	Multi-Family Low Density	0.0	3.70	0.0
High Density Residential (HDR)	Multi-Family High Density	31.4	4.12	129.4
Commerial Mixed Use (CMU)	Mixed Use	17.7	2.51	44.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	0.0	1.04	0.0
School	Public Recreation	94.4	3.46	326.6
Community Park	Public Recreation	96.0	3.46	332.2
Neighborhood Park (PP)	Public Recreation	0.0	3.46	0.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.0	0.21	0.0
Wetland Buffer/Bike Path Corridor	Vacant	0.0	0.00	0.0
Wetland Perserve	Vacant	97.4	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	0.0	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	145.8	0.00	0.0
		1265.5		
Subtotal				3235.0
System Loss (7.5%)				242.6
Total (AF/Yr)				**3477.6**
Average Day Demand (MGD)				**3.10**
Max Day Demand (MGD)[2]				**6.21**
Peak Hour Demand (gpm)[3]				**8623.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 5

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	153.0	1.7
February	4.0%	139.1	1.5
March	4.8%	166.9	1.8
April	6.8%	236.5	2.6
May	9.5%	330.4	3.6
June	11.4%	396.4	4.3
July	13.7%	476.4	5.2
August	13.6%	473.0	5.1
September	11.5%	399.9	4.3
October	9.5%	330.4	3.6
November	6.0%	208.7	2.3
December	4.8%	166.9	1.8
Total	**100.0%**	**3477.6**	

Suncreek
Water Supply vs. Demand - Alt 5

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 5 (MGD) (Maximum Day Demands)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	81%	68%	59%	51%	46%	41%	38%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	19%	32%	41%	49%	54%	59%	62%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.05	0.08	0.15	0.32	0.43	0.51	0.70	0.86	0.99	1.11	1.21	1.30	1.30	1.30	1.30	1.30	1.24	1.18	1.13	1.09
Total Surface Water (MGD)	0.00	0.00	0.01	0.04	0.10	0.30	0.50	0.73	1.16	1.62	2.11	2.62	3.14	3.67	3.98	4.29	4.60	4.91	4.97	5.03	5.08	5.12
Total Water Supply (MGD)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Scenario 2

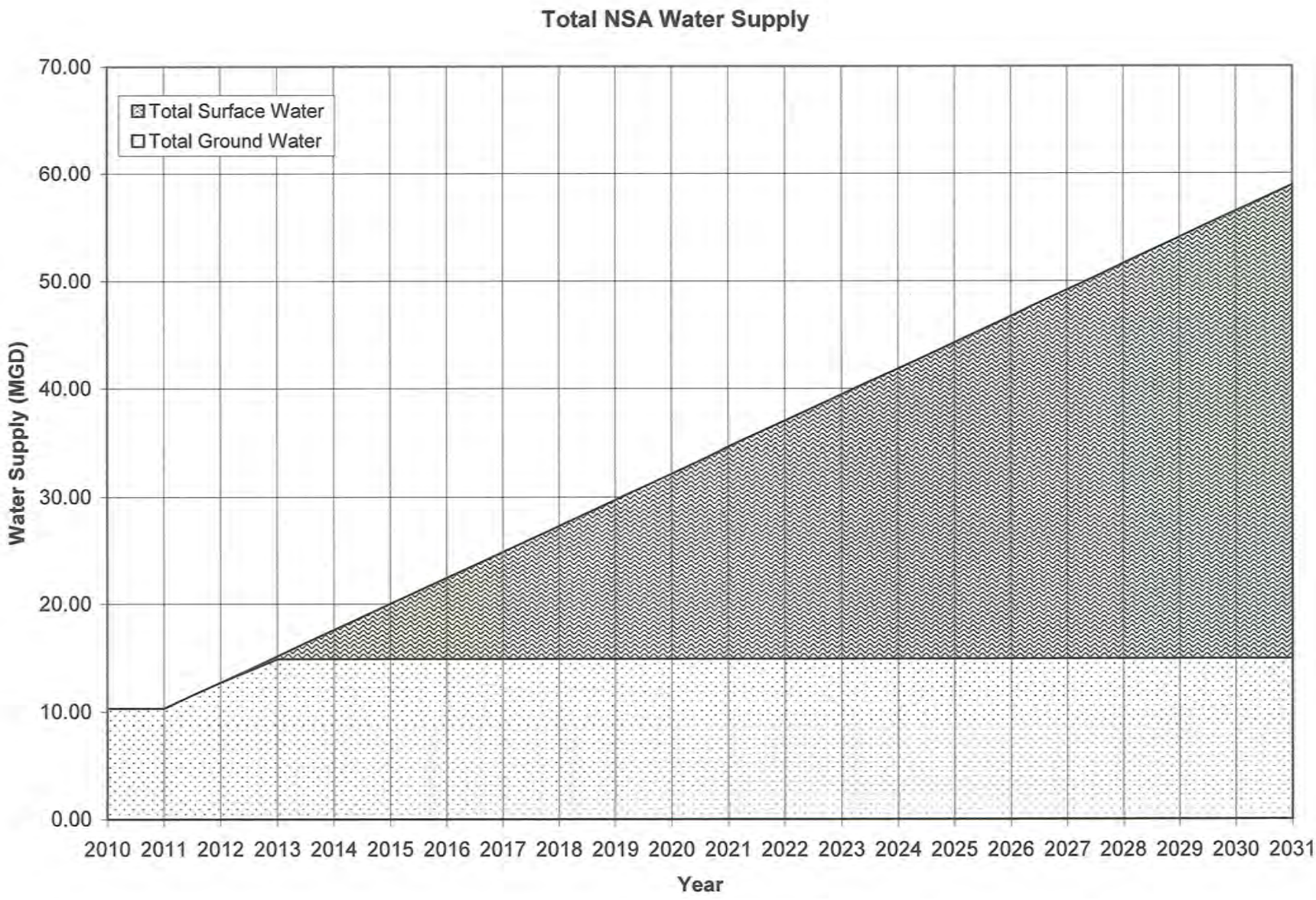
Delayed Construction of the NSA Pipeline With SunCreek Project

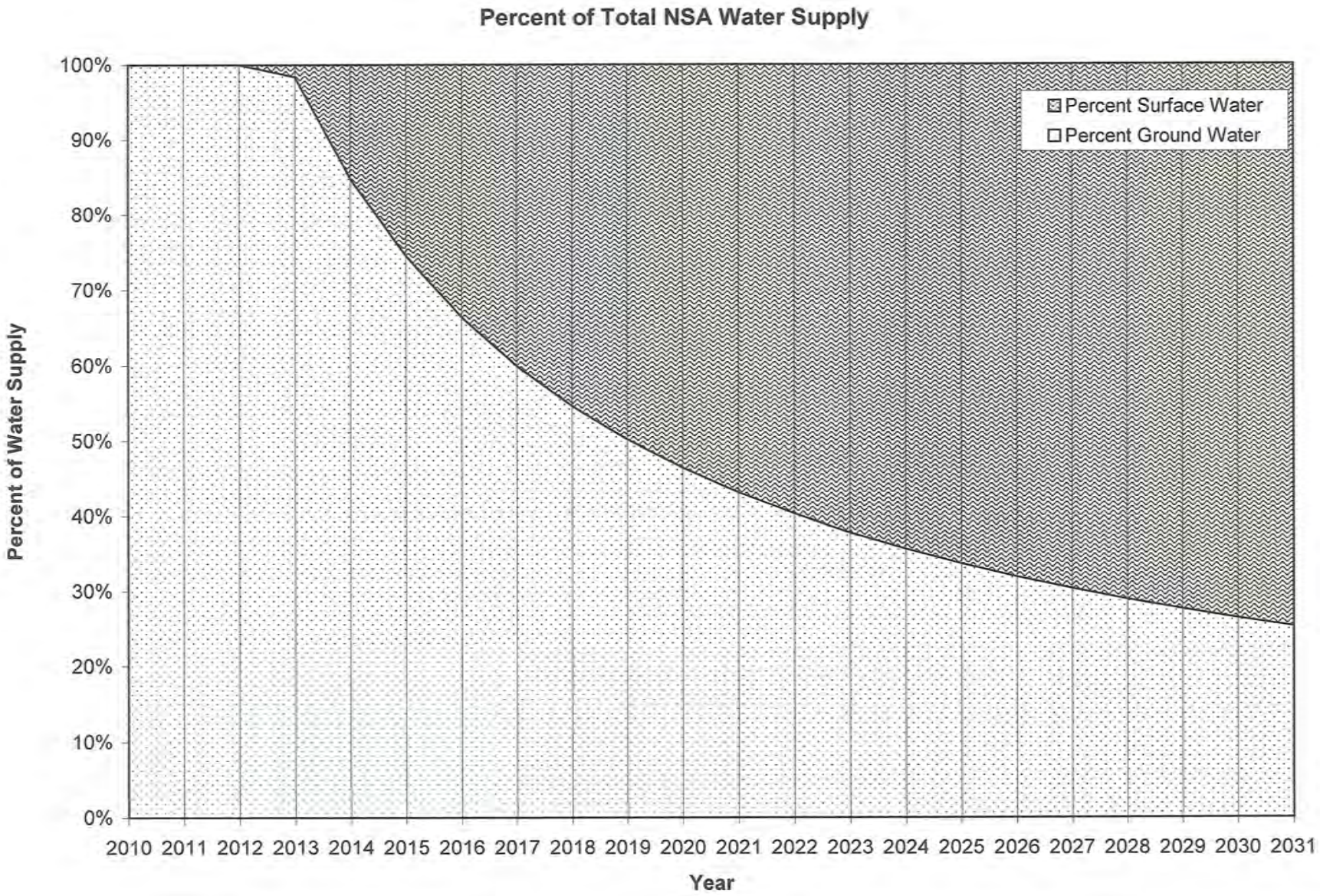
North Service Area (NSA)
Total Water Supply vs. Total Water Demand
Scenario No. 2 (Assuming Delayed Construction of NSA Pipeline With SunCreek Project)

Water Demand Area	Water Demand (MGD)																					
	2010 [2]	2011 [2]	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031 [3]
Total NSA Water Demand (Maximum Day Demands)	**8.70**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**

Water Supply Source [1]	Water Supply (MGD)																					
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Anatolia WTP	4.30	4.30	6.73	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92
Mather Housing WTP	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Suncreek WTP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ground Water	**10.30**	**10.30**	**12.73**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**
Convert Raw Groundwater Pipeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vineyard WTP (NSA Pipeline Deliveries)	0.00	0.00	0.00	0.24	2.67	5.10	7.53	9.96	12.39	14.82	17.25	19.68	22.11	24.54	26.97	29.40	31.83	34.26	36.69	39.12	41.55	43.98
Total Surface Water	**0.00**	**0.00**	**0.00**	**0.24**	**2.67**	**5.10**	**7.53**	**9.96**	**12.39**	**14.82**	**17.25**	**19.68**	**22.11**	**24.54**	**26.97**	**29.40**	**31.83**	**34.26**	**36.69**	**39.12**	**41.55**	**43.98**
Total Water Supply	**10.30**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**
Percentage of Total Water Supply																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%

Footnote:
1. Water Treatment Plant (WTP)
2. Source Sacramento County Water Agency Master Water Study for the Suncreek Specific Plan dated October 2008 prepared by MWH (Beginning Year of 2010 = MWS Year of 2009 + 1 year)
3. Source Sacramento County Water Agency Zone 40 Water System Infrastructure Plan (WSIP) dated April 2006 prepared by MWH (Year of 2031 = WSIP Year of 2030 + 1 year)


Total NSA Water Supply
Total Surface Water
Total Ground Water
Water Supply (MGD)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year


Percent of Total NSA Water Supply
Percent Surface Water
Percent Ground Water
Percent of Water Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year

Suncreek Annual Water Demand - Alt 1
Proposed Project

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	169.4	2.89	489.6
Medium Density Residential (MDR)	Multi-Family Low Density	322.7	3.70	1194.0
Compact Density Residential (CMDR)	Multi-Family Low Density	20.1	3.70	74.4
High Density Residential (HDR)	Multi-Family High Density	34.6	4.12	142.6
Commerial Mixed Use (CMU)	Mixed Use	31.9	2.51	80.1
Local Town Center (Commercial & Employment)	Local Town Center	59.4	2.51	149.1
Public/Quasi Public (PQP)	Public	13.0	1.04	13.5
School	Public Recreation	110.9	3.46	383.7
Community Park	Public Recreation	43.1	3.46	149.1
Neighborhood Park (PP)	Public Recreation	44.0	3.46	152.2
Neighborhood Green	Public Recreation	4.3	3.46	14.9
Parkway, Paseos and Trails (PC)	Right-of-Way	9.1	0.21	1.9
Wetland Buffer/Bike Path Corridor	Vacant	45.2	0.00	0.0
Wetland Perserve	Vacant	203.7	0.00	0.0
Storm Drain Channel	Vacant	5.0	0.00	0.0
Detention Basin (DB)	Vacant	46.9	0.00	0.0
Minor Roads	Vacant	23.2	0.00	0.0
Major Roads	Vacant	79.0	0.00	0.0
		1265.5		
Subtotal				2845.0
System Loss (7.5%)				213.4
Total (AF/Yr)				**3058.4**
Average Day Demand (MGD)				**2.73**
Max Day Demand (MGD)[2]				**5.46**
Peak Hour Demand (gpm)[3]				**7584.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 1

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	134.6	1.5
February	4.0%	122.3	1.3
March	4.8%	146.8	1.6
April	6.8%	208.0	2.3
May	9.5%	290.5	3.2
June	11.4%	348.7	3.8
July	13.7%	419.0	4.6
August	13.6%	415.9	4.5
September	11.5%	351.7	3.8
October	9.5%	290.5	3.2
November	6.0%	183.5	2.0
December	4.8%	146.8	1.6
Total	**100.0%**	**3058.4**	

Suncreek
Water Supply vs. Demand - Alt 1

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 1 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.05	0.11	0.19	0.41	0.54	0.65	0.89	1.10	1.27	1.41	1.54	1.65	1.65	1.65	1.66	1.66	1.58	1.51	1.44	1.38
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.03	0.14	0.27	0.44	0.74	1.09	1.46	1.86	2.28	2.72	2.99	3.26	3.53	3.80	3.88	3.95	4.02	4.08
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 2
Agency Conceptual Strategy Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	141.5	2.89	408.9
Medium Density Residential (MDR)	Multi-Family Low Density	410.9	3.70	1520.3
Compact Density Residential (CMDR)	Multi-Family Low Density	18.5	3.70	68.5
High Density Residential (HDR)	Multi-Family High Density	12.5	4.12	51.5
Commerial Mixed Use (CMU)	Mixed Use	10.9	2.51	27.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	7.2	1.04	7.5
School	Public Recreation	108.4	3.46	375.1
Community Park	Public Recreation	74.2	3.46	256.7
Neighborhood Park (PP)	Public Recreation	7.8	3.46	27.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	11.6	0.21	2.4
Wetland Buffer/Bike Path Corridor	Vacant	13.0	0.00	0.0
Wetland Perserve	Vacant	310.2	0.00	0.0
Storm Drain Channel	Vacant	6.4	0.00	0.0
Detention Basin (DB)	Vacant	14.9	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	117.5	0.00	0.0
		1265.5		
Subtotal				2745.3
System Loss (7.5%)				205.9
Total (AF/Yr)				**2951.2**
Average Day Demand (MGD)				**2.63**
Max Day Demand (MGD)[2]				**5.27**
Peak Hour Demand (gpm)[3]				**7318.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 2

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	129.9	1.4
February	4.0%	118.0	1.3
March	4.8%	141.7	1.5
April	6.8%	200.7	2.2
May	9.5%	280.4	3.0
June	11.4%	336.4	3.7
July	13.7%	404.3	4.4
August	13.6%	401.4	4.4
September	11.5%	339.4	3.7
October	9.5%	280.4	3.0
November	6.0%	177.1	1.9
December	4.8%	141.7	1.5
Total	**100.0%**	**2951.2**	

Suncreek
Water Supply vs. Demand - Alt 2

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 1 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.05	0.10	0.18	0.39	0.53	0.63	0.86	1.06	1.22	1.36	1.49	1.59	1.60	1.60	1.60	1.60	1.52	1.45	1.39	1.33
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.03	0.13	0.27	0.42	0.72	1.05	1.41	1.80	2.20	2.62	2.88	3.15	3.41	3.67	3.75	3.81	3.88	3.93
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Water Supply Shortfall (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 3
Biological Impact Minimization Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	166.7	2.89	481.8
Medium Density Residential (MDR)	Multi-Family Low Density	391.3	3.70	1447.8
Compact Density Residential (CMDR)	Multi-Family Low Density	11.6	3.70	42.9
High Density Residential (HDR)	Multi-Family High Density	6.2	4.12	25.5
Commerial Mixed Use (CMU)	Mixed Use	0.0	2.51	0.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.1	1.04	4.3
School	Public Recreation	52.0	3.46	179.9
Community Park	Public Recreation	78.3	3.46	270.9
Neighborhood Park (PP)	Public Recreation	8.3	3.46	28.7
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	6.7	0.21	1.4
Wetland Buffer/Bike Path Corridor	Vacant	14.6	0.00	0.0
Wetland Perserve	Vacant	411.1	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	15.8	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	98.8	0.00	0.0
		1265.5		
Subtotal				2483.3
System Loss (7.5%)				186.2
Total (AF/Yr)				**2669.5**
Average Day Demand (MGD)				**2.38**
Max Day Demand (MGD)[2]				**4.77**
Peak Hour Demand (gpm)[3]				**6619.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 3

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	117.5	1.3
February	4.0%	106.8	1.2
March	4.8%	128.1	1.4
April	6.8%	181.5	2.0
May	9.5%	253.6	2.8
June	11.4%	304.3	3.3
July	13.7%	365.7	4.0
August	13.6%	363.1	3.9
September	11.5%	307.0	3.3
October	9.5%	253.6	2.8
November	6.0%	160.2	1.7
December	4.8%	128.1	1.4
Total	**100.0%**	**2669.5**	

Suncreek
Water Supply vs. Demand - Alt 3

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 1 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.05	0.09	0.16	0.36	0.48	0.57	0.78	0.96	1.11	1.23	1.34	1.44	1.44	1.44	1.45	1.45	1.38	1.32	1.26	1.21
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.03	0.12	0.24	0.38	0.65	0.95	1.28	1.63	1.99	2.37	2.61	2.85	3.08	3.32	3.39	3.45	3.51	3.56
Total Water Supply (MGD)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 4
No USACE Permit Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	54.3	2.89	156.9
Medium Density Residential (MDR)	Multi-Family Low Density	287.1	3.70	1062.3
Compact Density Residential (CMDR)	Multi-Family Low Density	97.7	3.70	361.5
High Density Residential (HDR)	Multi-Family High Density	18.1	4.12	74.6
Commerial Mixed Use (CMU)	Mixed Use	6.7	2.51	16.8
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.8	1.04	5.0
School	Public Recreation	29.0	3.46	100.3
Community Park	Public Recreation	32.2	3.46	111.4
Neighborhood Park (PP)	Public Recreation	1.0	3.46	3.5
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.6	0.21	0.1
Wetland Buffer/Bike Path Corridor	Vacant	3.3	0.00	0.0
Wetland Perserve	Vacant	607.0	0.00	0.0
Storm Drain Channel	Vacant	0.8	0.00	0.0
Detention Basin (DB)	Vacant	14.3	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	108.6	0.00	0.0
		1265.5		
Subtotal				1892.4
System Loss (7.5%)				141.9
Total (AF/Yr)				**2034.3**
Average Day Demand (MGD)				**1.82**
Max Day Demand (MGD)[2]				**3.63**
Peak Hour Demand (gpm)[3]				**5044.8**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 4

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	89.5	1.0
February	4.0%	81.4	0.9
March	4.8%	97.6	1.1
April	6.8%	138.3	1.5
May	9.5%	193.3	2.1
June	11.4%	231.9	2.5
July	13.7%	278.7	3.0
August	13.6%	276.7	3.0
September	11.5%	233.9	2.5
October	9.5%	193.3	2.1
November	6.0%	122.1	1.3
December	4.8%	97.6	1.1
Total	**100.0%**	**2034.3**	

Suncreek
Water Supply vs. Demand - Alt 4

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 1 (MGD) (Maximum Day Demands)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.04	0.07	0.12	0.27	0.36	0.44	0.60	0.73	0.84	0.94	1.02	1.10	1.10	1.10	1.10	1.10	1.05	1.00	0.96	0.92
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.02	0.09	0.18	0.29	0.49	0.72	0.97	1.24	1.52	1.81	1.99	2.17	2.35	2.53	2.58	2.63	2.67	2.71
Total Water Supply (MGD)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 5
Increased Development Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	609.8	2.89	1762.3
Medium Density Residential (MDR)	Multi-Family Low Density	173.0	3.70	640.1
Compact Density Residential (CMDR)	Multi-Family Low Density	0.0	3.70	0.0
High Density Residential (HDR)	Multi-Family High Density	31.4	4.12	129.4
Commerial Mixed Use (CMU)	Mixed Use	17.7	2.51	44.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	0.0	1.04	0.0
School	Public Recreation	94.4	3.46	326.6
Community Park	Public Recreation	96.0	3.46	332.2
Neighborhood Park (PP)	Public Recreation	0.0	3.46	0.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.0	0.21	0.0
Wetland Buffer/Bike Path Corridor	Vacant	0.0	0.00	0.0
Wetland Perserve	Vacant	97.4	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	0.0	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	145.8	0.00	0.0
		1265.5		
Subtotal				3235.0
System Loss (7.5%)				242.6
Total (AF/Yr)				**3477.6**
Average Day Demand (MGD)				**3.10**
Max Day Demand (MGD)[2]				**6.21**
Peak Hour Demand (gpm)[3]				**8623.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 5

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	153.0	1.7
February	4.0%	139.1	1.5
March	4.8%	166.9	1.8
April	6.8%	236.5	2.6
May	9.5%	330.4	3.6
June	11.4%	396.4	4.3
July	13.7%	476.4	5.2
August	13.6%	473.0	5.1
September	11.5%	399.9	4.3
October	9.5%	330.4	3.6
November	6.0%	208.7	2.3
December	4.8%	166.9	1.8
Total	**100.0%**	**3477.6**	

Suncreek
Water Supply vs. Demand - Alt 5

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 1 (MGD) (Maximum Day Demands)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.06	0.12	0.21	0.46	0.62	0.74	1.02	1.25	1.44	1.61	1.75	1.88	1.88	1.88	1.88	1.88	1.80	1.71	1.64	1.57
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.04	0.16	0.31	0.50	0.85	1.24	1.66	2.12	2.60	3.09	3.40	3.71	4.02	4.33	4.41	4.49	4.57	4.64
Total Water Supply (MGD)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Scenario 3

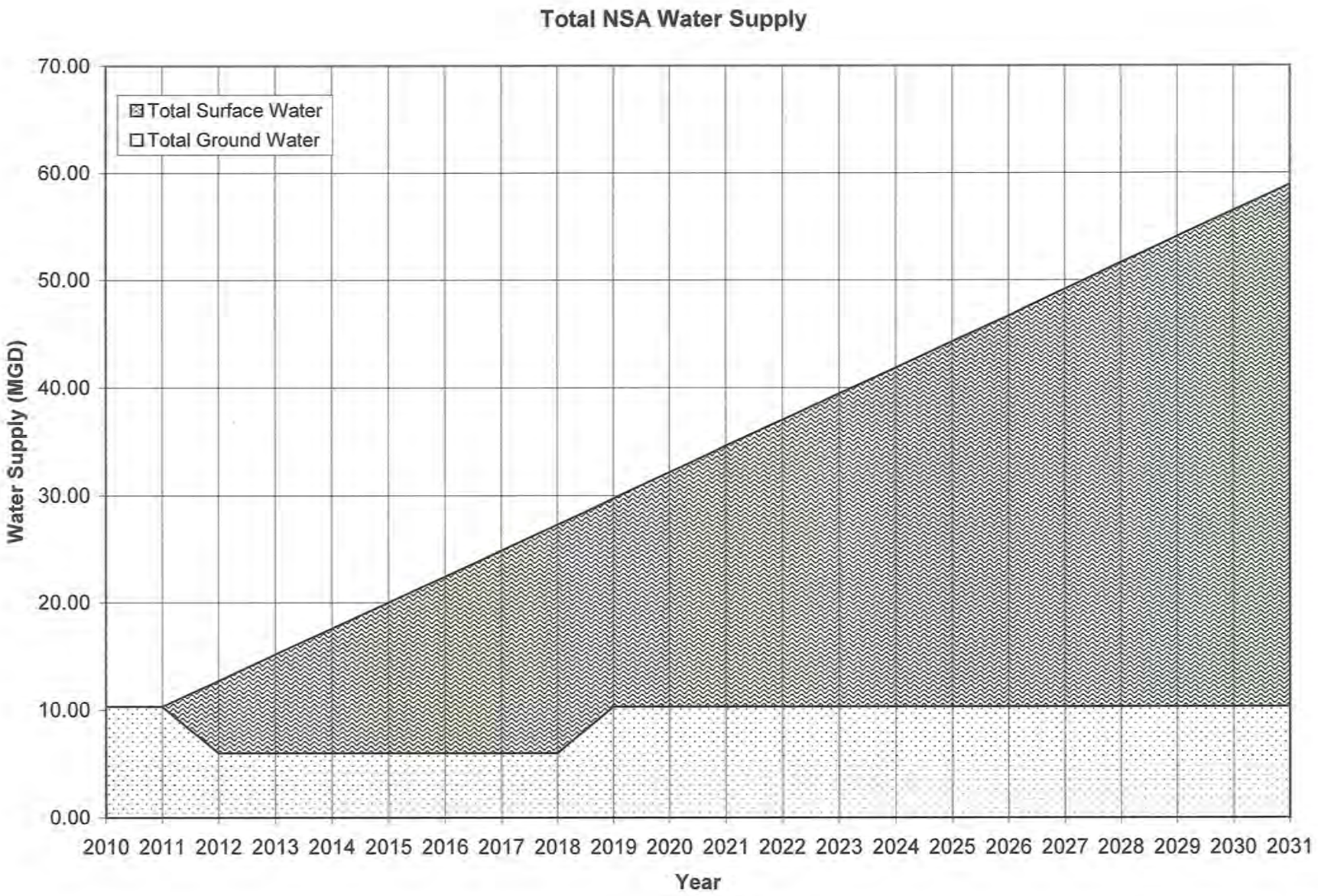
Conversion of the Raw Ground Water Transmission Pipeline with SunCreek Project

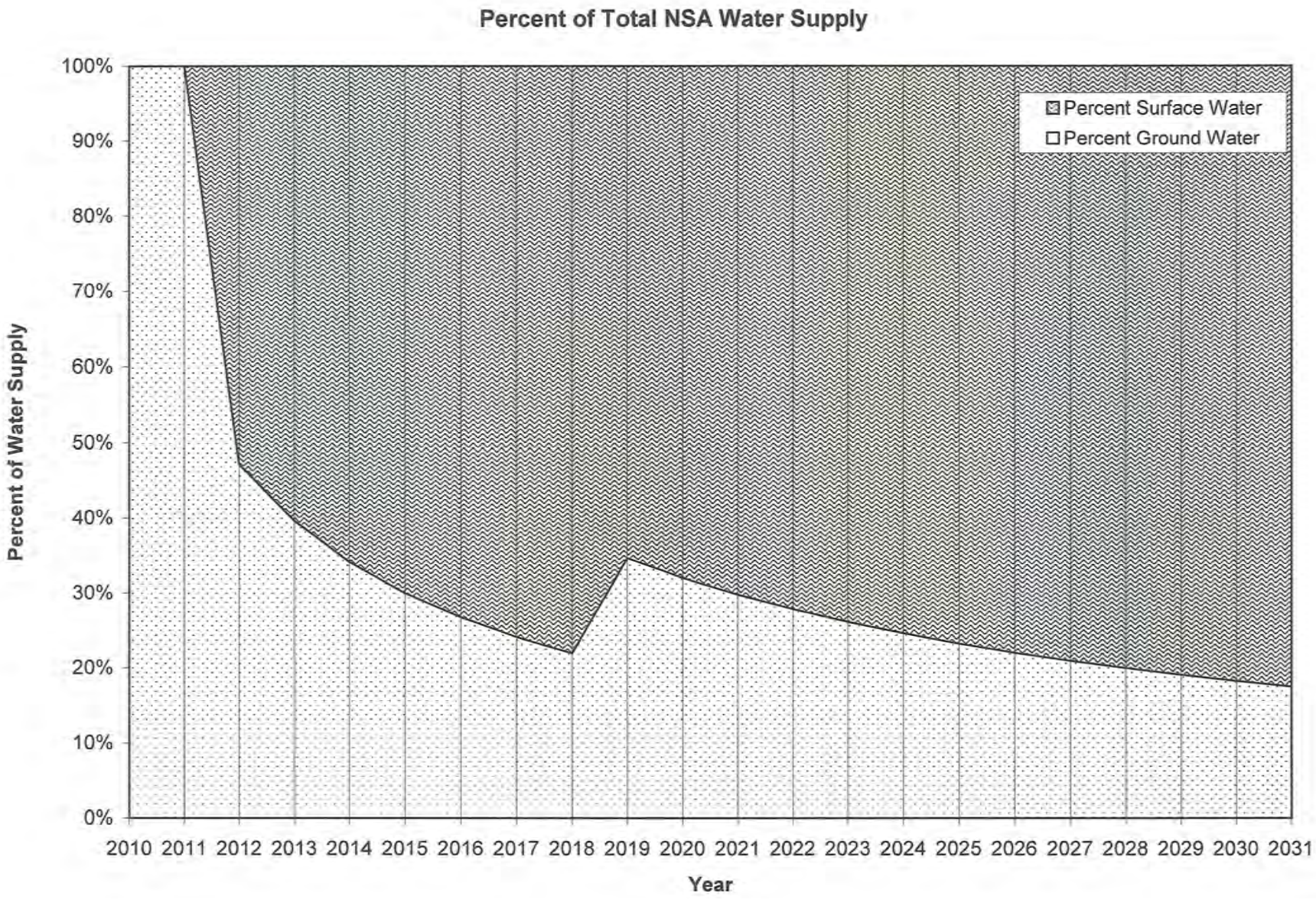
North Service Area (NSA)
Total Water Supply vs. Total Water Demand
Scenario No. 3 (Assuming Conversion of Groundwater Pipeline With SunCreek Project)

	Water Demand (MGD)																					
Water Demand Area	2010 [2]	2011 [2]	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031 [3]
Total NSA Water Demand (Maximum Day Demands)	**8.70**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**

	Water Supply (MGD)																					
Water Supply Source [1]	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Anatolia WTP	4.30	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Mather Housing WTP	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Suncreek WTP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ground Water	**10.30**	**10.30**	**6.00**	**6.00**	**6.00**	**6.00**	**6.00**	**6.00**	**6.00**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**	**10.30**
Convert Raw Groundwater Pipeline	0.00	0.00	6.73	9.16	11.59	14.02	16.45	18.88	21.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vineyard WTP (NSA Pipeline Deliveries)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.44	21.87	24.30	26.73	29.16	31.59	34.02	36.45	38.88	41.31	43.74	46.17	48.60
Total Surface Water	**0.00**	**0.00**	**6.73**	**9.16**	**11.59**	**14.02**	**16.45**	**18.88**	**21.31**	**19.44**	**21.87**	**24.30**	**26.73**	**29.16**	**31.59**	**34.02**	**36.45**	**38.88**	**41.31**	**43.74**	**46.17**	**48.60**
Total Water Supply	**10.30**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**
Percentage of Total Water Supply																						
Percent Ground Water	100%	100%	47%	40%	34%	30%	27%	24%	22%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	53%	60%	66%	70%	73%	76%	78%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%

Footnote:
1. Water Treatment Plant (WTP)
2. Source Sacramento County Water Agency Master Water Study for the Suncreek Specific Plan dated October 2008 prepared by MWH (Beginning Year of 2010 = MWS Year of 2009 + 1 year)
3. Source Sacramento County Water Agency Zone 40 Water System Infrastructure Plan dated April 2006 prepared by MWH (Beginning Year of 2010 = MWS Year of 2009 + 1 year)


Total NSA Water Supply
Total Surface Water
Total Ground Water
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Water Supply (MGD)
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year


Percent of Total NSA Water Supply
Percent Surface Water
Percent Ground Water
Percent of Water Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year

Suncreek Annual Water Demand - Alt 1
Proposed Project

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	169.4	2.89	489.6
Medium Density Residential (MDR)	Multi-Family Low Density	322.7	3.70	1194.0
Compact Density Residential (CMDR)	Multi-Family Low Density	20.1	3.70	74.4
High Density Residential (HDR)	Multi-Family High Density	34.6	4.12	142.6
Commerial Mixed Use (CMU)	Mixed Use	31.9	2.51	80.1
Local Town Center (Commercial & Employment)	Local Town Center	59.4	2.51	149.1
Public/Quasi Public (PQP)	Public	13.0	1.04	13.5
School	Public Recreation	110.9	3.46	383.7
Community Park	Public Recreation	43.1	3.46	149.1
Neighborhood Park (PP)	Public Recreation	44.0	3.46	152.2
Neighborhood Green	Public Recreation	4.3	3.46	14.9
Parkway, Paseos and Trails (PC)	Right-of-Way	9.1	0.21	1.9
Wetland Buffer/Bike Path Corridor	Vacant	45.2	0.00	0.0
Wetland Perserve	Vacant	203.7	0.00	0.0
Storm Drain Channel	Vacant	5.0	0.00	0.0
Detention Basin (DB)	Vacant	46.9	0.00	0.0
Minor Roads	Vacant	23.2	0.00	0.0
Major Roads	Vacant	79.0	0.00	0.0
		1265.5		
Subtotal				2845.0
System Loss (7.5%)				213.4
Total (AF/Yr)				**3058.4**
Average Day Demand (MGD)				**2.73**
Max Day Demand (MGD)[2]				**5.46**
Peak Hour Demand (gpm)[3]				**7584.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 1

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	134.6	1.5
February	4.0%	122.3	1.3
March	4.8%	146.8	1.6
April	6.8%	208.0	2.3
May	9.5%	290.5	3.2
June	11.4%	348.7	3.8
July	13.7%	419.0	4.6
August	13.6%	415.9	4.5
September	11.5%	351.7	3.8
October	9.5%	290.5	3.2
November	6.0%	183.5	2.0
December	4.8%	146.8	1.6
Total	**100.0%**	**3058.4**	

Suncreek
Water Supply vs. Demand - Alt 1

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 1 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	47%	40%	34%	30%	27%	24%	22%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	53%	60%	66%	70%	73%	76%	78%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.03	0.04	0.07	0.16	0.22	0.26	0.36	0.76	0.87	0.98	1.06	1.14	1.14	1.14	1.14	1.14	1.09	1.04	1.00	0.95
Total Surface Water (MGD)	0.00	0.00	0.03	0.07	0.14	0.38	0.60	0.83	1.28	1.43	1.86	2.30	2.76	3.23	3.50	3.77	4.04	4.32	4.37	4.42	4.46	4.51
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 2
Agency Conceptual Strategy Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	141.5	2.89	408.9
Medium Density Residential (MDR)	Multi-Family Low Density	410.9	3.70	1520.3
Compact Density Residential (CMDR)	Multi-Family Low Density	18.5	3.70	68.5
High Density Residential (HDR)	Multi-Family High Density	12.5	4.12	51.5
Commerial Mixed Use (CMU)	Mixed Use	10.9	2.51	27.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	7.2	1.04	7.5
School	Public Recreation	108.4	3.46	375.1
Community Park	Public Recreation	74.2	3.46	256.7
Neighborhood Park (PP)	Public Recreation	7.8	3.46	27.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	11.6	0.21	2.4
Wetland Buffer/Bike Path Corridor	Vacant	13.0	0.00	0.0
Wetland Perserve	Vacant	310.2	0.00	0.0
Storm Drain Channel	Vacant	6.4	0.00	0.0
Detention Basin (DB)	Vacant	14.9	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	117.5	0.00	0.0
		1265.5		
Subtotal				2745.3
System Loss (7.5%)				205.9
Total (AF/Yr)				**2951.2**
Average Day Demand (MGD)				**2.63**
Max Day Demand (MGD)[2]				**5.27**
Peak Hour Demand (gpm)[3]				**7318.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 2

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	129.9	1.4
February	4.0%	118.0	1.3
March	4.8%	141.7	1.5
April	6.8%	200.7	2.2
May	9.5%	280.4	3.0
June	11.4%	336.4	3.7
July	13.7%	404.3	4.4
August	13.6%	401.4	4.4
September	11.5%	339.4	3.7
October	9.5%	280.4	3.0
November	6.0%	177.1	1.9
December	4.8%	141.7	1.5
Total	**100.0%**	**2951.2**	

Suncreek
Water Supply vs. Demand - Alt 2

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 2 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	47%	40%	34%	30%	27%	24%	22%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	53%	60%	66%	70%	73%	76%	78%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.02	0.04	0.07	0.16	0.21	0.25	0.35	0.73	0.84	0.94	1.03	1.10	1.10	1.10	1.10	1.10	1.05	1.00	0.96	0.92
Total Surface Water (MGD)	0.00	0.00	0.03	0.06	0.14	0.37	0.58	0.80	1.23	1.38	1.79	2.22	2.66	3.12	3.38	3.64	3.90	4.17	4.22	4.26	4.31	4.35
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Water Supply Shortfall (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 3
Biological Impact Minimization Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	166.7	2.89	481.8
Medium Density Residential (MDR)	Multi-Family Low Density	391.3	3.70	1447.8
Compact Density Residential (CMDR)	Multi-Family Low Density	11.6	3.70	42.9
High Density Residential (HDR)	Multi-Family High Density	6.2	4.12	25.5
Commerial Mixed Use (CMU)	Mixed Use	0.0	2.51	0.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.1	1.04	4.3
School	Public Recreation	52.0	3.46	179.9
Community Park	Public Recreation	78.3	3.46	270.9
Neighborhood Park (PP)	Public Recreation	8.3	3.46	28.7
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	6.7	0.21	1.4
Wetland Buffer/Bike Path Corridor	Vacant	14.6	0.00	0.0
Wetland Perserve	Vacant	411.1	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	15.8	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	98.8	0.00	0.0
		1265.5		
Subtotal				2483.3
System Loss (7.5%)				186.2
Total (AF/Yr)				**2669.5**
Average Day Demand (MGD)				**2.38**
Max Day Demand (MGD)[2]				**4.77**
Peak Hour Demand (gpm)[3]				**6619.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 3

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	117.5	1.3
February	4.0%	106.8	1.2
March	4.8%	128.1	1.4
April	6.8%	181.5	2.0
May	9.5%	253.6	2.8
June	11.4%	304.3	3.3
July	13.7%	365.7	4.0
August	13.6%	363.1	3.9
September	11.5%	307.0	3.3
October	9.5%	253.6	2.8
November	6.0%	160.2	1.7
December	4.8%	128.1	1.4
Total	**100.0%**	**2669.5**	

Suncreek
Water Supply vs. Demand - Alt 3

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 3 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	47%	40%	34%	30%	27%	24%	22%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	53%	60%	66%	70%	73%	76%	78%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.02	0.04	0.07	0.14	0.19	0.23	0.31	0.66	0.76	0.85	0.93	1.00	1.00	1.00	1.00	1.00	0.95	0.91	0.87	0.83
Total Surface Water (MGD)	0.00	0.00	0.03	0.06	0.13	0.33	0.52	0.72	1.12	1.25	1.62	2.01	2.41	2.82	3.06	3.29	3.53	3.77	3.82	3.86	3.90	3.93
Total Water Supply (MGD)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 4
No USACE Permit Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	54.3	2.89	156.9
Medium Density Residential (MDR)	Multi-Family Low Density	287.1	3.70	1062.3
Compact Density Residential (CMDR)	Multi-Family Low Density	97.7	3.70	361.5
High Density Residential (HDR)	Multi-Family High Density	18.1	4.12	74.6
Commerial Mixed Use (CMU)	Mixed Use	6.7	2.51	16.8
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.8	1.04	5.0
School	Public Recreation	29.0	3.46	100.3
Community Park	Public Recreation	32.2	3.46	111.4
Neighborhood Park (PP)	Public Recreation	1.0	3.46	3.5
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.6	0.21	0.1
Wetland Buffer/Bike Path Corridor	Vacant	3.3	0.00	0.0
Wetland Perserve	Vacant	607.0	0.00	0.0
Storm Drain Channel	Vacant	0.8	0.00	0.0
Detention Basin (DB)	Vacant	14.3	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	108.6	0.00	0.0
		1265.5		
Subtotal				1892.4
System Loss (7.5%)				141.9
Total (AF/Yr)				**2034.3**
Average Day Demand (MGD)				**1.82**
Max Day Demand (MGD)[2]				**3.63**
Peak Hour Demand (gpm)[3]				**5044.8**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 4

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	89.5	1.0
February	4.0%	81.4	0.9
March	4.8%	97.6	1.1
April	6.8%	138.3	1.5
May	9.5%	193.3	2.1
June	11.4%	231.9	2.5
July	13.7%	278.7	3.0
August	13.6%	276.7	3.0
September	11.5%	233.9	2.5
October	9.5%	193.3	2.1
November	6.0%	122.1	1.3
December	4.8%	97.6	1.1
Total	**100.0%**	**2034.3**	

Suncreek
Water Supply vs. Demand - Alt 4

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 4 (MGD) (Maximum Day Demands)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	47%	40%	34%	30%	27%	24%	22%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	53%	60%	66%	70%	73%	76%	78%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.02	0.03	0.05	0.11	0.15	0.18	0.24	0.50	0.58	0.65	0.71	0.76	0.76	0.76	0.76	0.76	0.72	0.69	0.66	0.64
Total Surface Water (MGD)	0.00	0.00	0.02	0.04	0.10	0.25	0.40	0.55	0.85	0.95	1.23	1.53	1.84	2.15	2.33	2.51	2.69	2.87	2.91	2.94	2.97	3.00
Total Water Supply (MGD)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 5
Increased Development Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	609.8	2.89	1762.3
Medium Density Residential (MDR)	Multi-Family Low Density	173.0	3.70	640.1
Compact Density Residential (CMDR)	Multi-Family Low Density	0.0	3.70	0.0
High Density Residential (HDR)	Multi-Family High Density	31.4	4.12	129.4
Commerial Mixed Use (CMU)	Mixed Use	17.7	2.51	44.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	0.0	1.04	0.0
School	Public Recreation	94.4	3.46	326.6
Community Park	Public Recreation	96.0	3.46	332.2
Neighborhood Park (PP)	Public Recreation	0.0	3.46	0.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.0	0.21	0.0
Wetland Buffer/Bike Path Corridor	Vacant	0.0	0.00	0.0
Wetland Perserve	Vacant	97.4	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	0.0	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	145.8	0.00	0.0
		1265.5		
Subtotal				3235.0
System Loss (7.5%)				242.6
Total (AF/Yr)				**3477.6**
Average Day Demand (MGD)				**3.10**
Max Day Demand (MGD)[2]				**6.21**
Peak Hour Demand (gpm)[3]				**8623.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 5

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	153.0	1.7
February	4.0%	139.1	1.5
March	4.8%	166.9	1.8
April	6.8%	236.5	2.6
May	9.5%	330.4	3.6
June	11.4%	396.4	4.3
July	13.7%	476.4	5.2
August	13.6%	473.0	5.1
September	11.5%	399.9	4.3
October	9.5%	330.4	3.6
November	6.0%	208.7	2.3
December	4.8%	166.9	1.8
Total	**100.0%**	**3477.6**	

Suncreek
Water Supply vs. Demand - Alt 5

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 5 (MGD) (Maximum Day Demands)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	47%	40%	34%	30%	27%	24%	22%	35%	32%	30%	28%	26%	25%	23%	22%	21%	20%	19%	18%	17%
Percent Surface Water	0%	0%	53%	60%	66%	70%	73%	76%	78%	65%	68%	70%	72%	74%	75%	77%	78%	79%	80%	81%	82%	83%
Total Ground Water (MGD)	0.00	0.00	0.03	0.05	0.08	0.19	0.25	0.30	0.41	0.86	0.99	1.11	1.21	1.30	1.30	1.30	1.30	1.30	1.24	1.18	1.13	1.09
Total Surface Water (MGD)	0.00	0.00	0.03	0.08	0.16	0.43	0.68	0.94	1.45	1.62	2.11	2.62	3.14	3.67	3.98	4.29	4.60	4.91	4.97	5.03	5.08	5.12
Total Water Supply (MGD)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

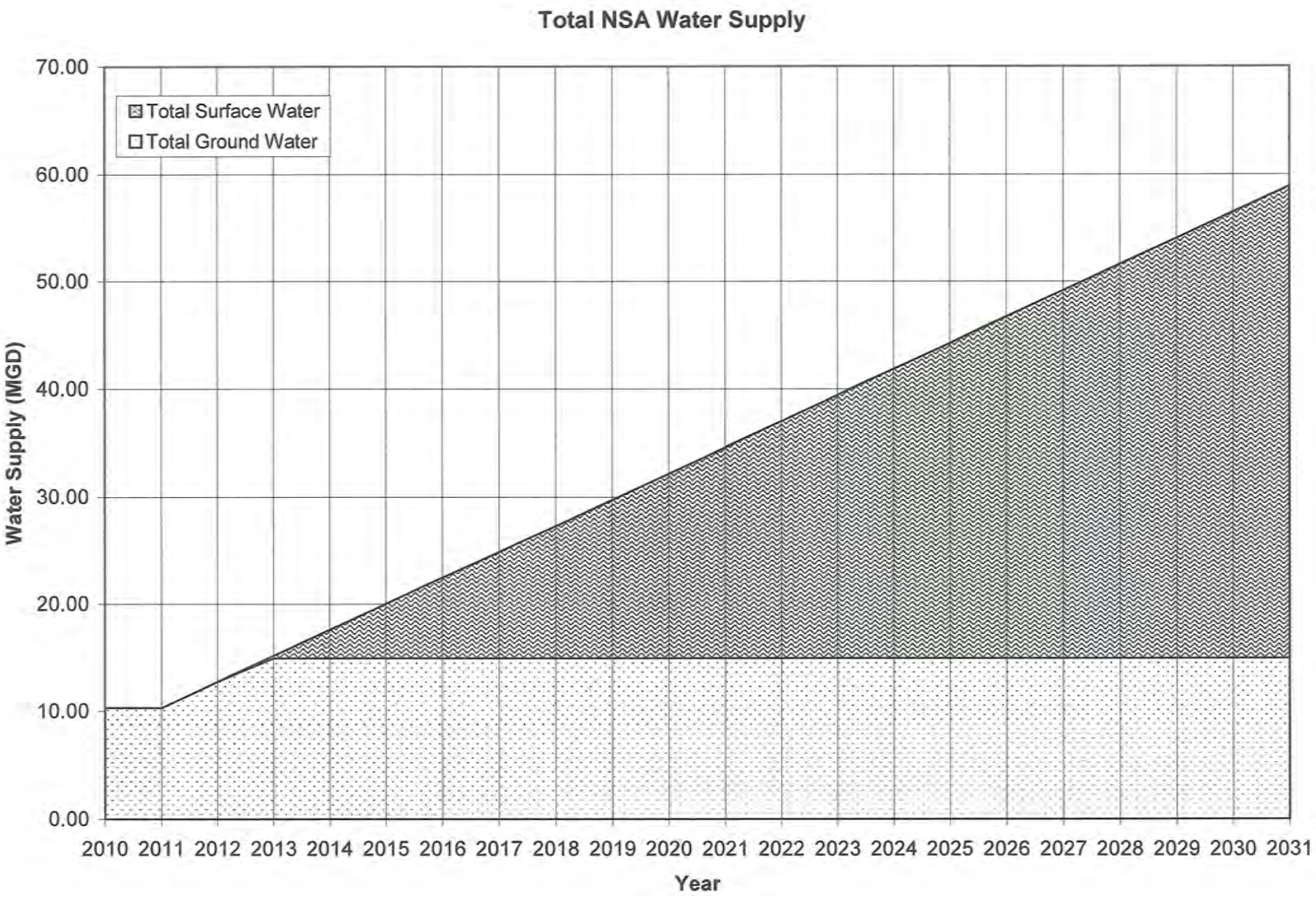
Scenario 4

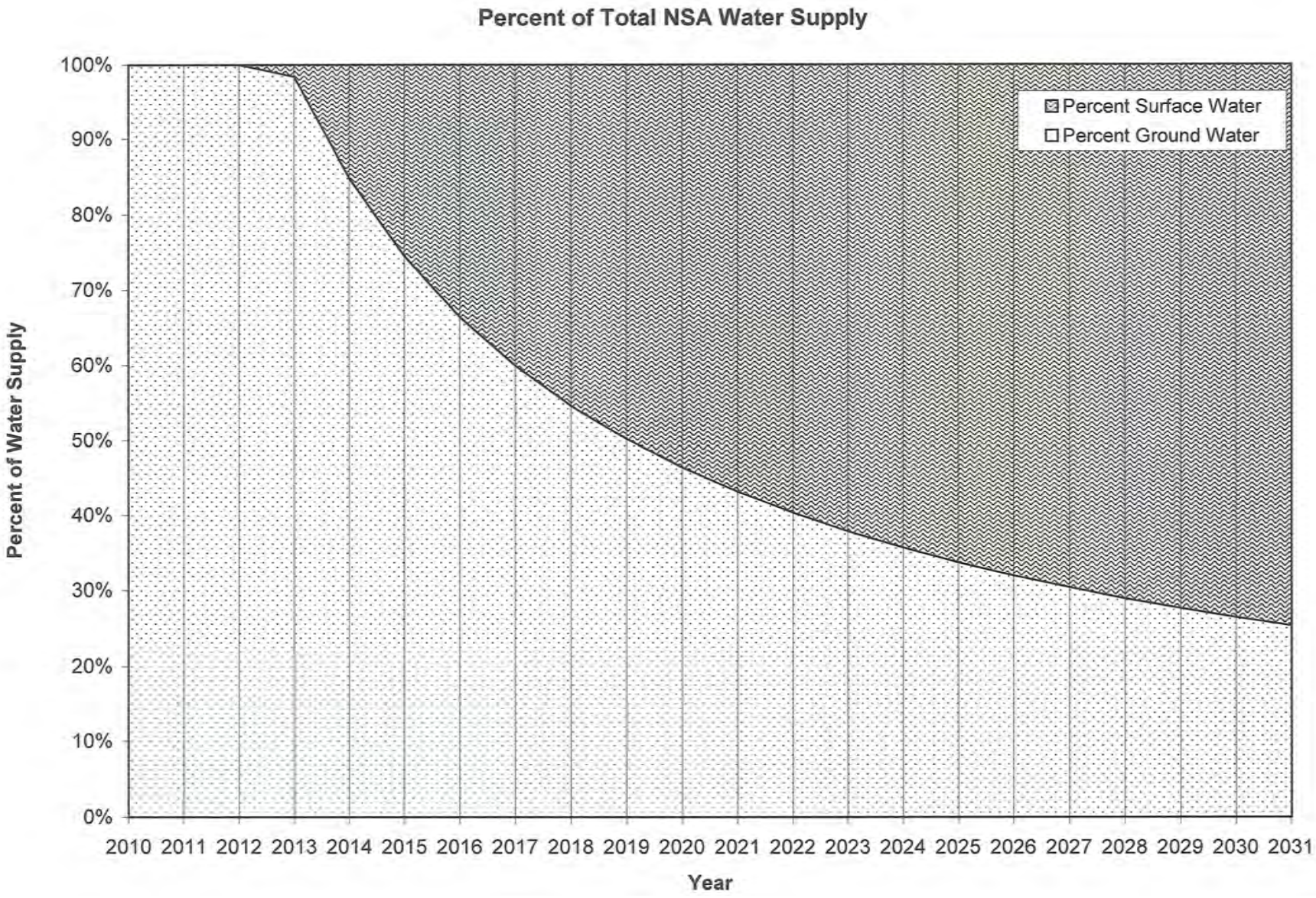
Groundwater Intensive Development Without Project

North Service Area (NSA)
Total Water Supply vs. Total Water Demand
Scenario No. 4 (Assuming Groundwater Intensive Development Without SunCreek Project)

	Water Demand (MGD)																					
Water Demand Area	2010 [2]	2011 [2]	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031 [3]
Total NSA Water Demand (Maximum Day Demands)	**8.70**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**
	Water Supply (MGD)																					
Water Supply Source [4]	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Anatolia WTP	4.30	4.30	6.73	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92
Mather Housing WTP	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Suncreek WTP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ground Water	**10.30**	**10.30**	**12.73**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**	**14.92**
Convert Raw Groundwater Pipeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vineyard WTP (NSA Pipeline Deliveries)	0.00	0.00	0.00	0.24	2.67	5.10	7.53	9.96	12.39	14.82	17.25	19.68	22.11	24.54	26.97	29.40	31.83	34.26	36.69	39.12	41.55	43.98
Total Surface Water	**0.00**	**0.00**	**0.00**	**0.24**	**2.67**	**5.10**	**7.53**	**9.96**	**12.39**	**14.82**	**17.25**	**19.68**	**22.11**	**24.54**	**26.97**	**29.40**	**31.83**	**34.26**	**36.69**	**39.12**	**41.55**	**43.98**
Total Water Supply	**10.30**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**
	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percentage of Total Water Supply																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%

Footnote:
1. Water Treatment Plant (WTP)
2. Source Sacramento County Water Agency Master Water Study for the Suncreek Specific Plan dated October 2008 prepared by MWH (Beginning Year of 2010 = MWS Year of 2009 + 1 year)
3. Source Sacramento County Water Agency Zone 40 Water System Infrastructure Plan dated April 2006 prepared by MWH (Beginning Year of 2010 = MWS Year of 2009 + 1 year)


Total NSA Water Supply
Total Surface Water
Total Ground Water
Water Supply (MGD)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year


Percent of Total NSA Water Supply
Percent Surface Water
Percent Ground Water
Percent of Water Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year

Suncreek Annual Water Demand - Alt 1
Proposed Project

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	169.4	2.89	489.6
Medium Density Residential (MDR)	Multi-Family Low Density	322.7	3.70	1194.0
Compact Density Residential (CMDR)	Multi-Family Low Density	20.1	3.70	74.4
High Density Residential (HDR)	Multi-Family High Density	34.6	4.12	142.6
Commerial Mixed Use (CMU)	Mixed Use	31.9	2.51	80.1
Local Town Center (Commercial & Employment)	Local Town Center	59.4	2.51	149.1
Public/Quasi Public (PQP)	Public	13.0	1.04	13.5
School	Public Recreation	110.9	3.46	383.7
Community Park	Public Recreation	43.1	3.46	149.1
Neighborhood Park (PP)	Public Recreation	44.0	3.46	152.2
Neighborhood Green	Public Recreation	4.3	3.46	14.9
Parkway, Paseos and Trails (PC)	Right-of-Way	9.1	0.21	1.9
Wetland Buffer/Bike Path Corridor	Vacant	45.2	0.00	0.0
Wetland Perserve	Vacant	203.7	0.00	0.0
Storm Drain Channel	Vacant	5.0	0.00	0.0
Detention Basin (DB)	Vacant	46.9	0.00	0.0
Minor Roads	Vacant	23.2	0.00	0.0
Major Roads	Vacant	79.0	0.00	0.0
		1265.5		
Subtotal				2845.0
System Loss (7.5%)				213.4
Total (AF/Yr)				**3058.4**
Average Day Demand (MGD)				**2.73**
Max Day Demand (MGD)[2]				**5.46**
Peak Hour Demand (gpm)[3]				**7584.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 1

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	134.6	1.5
February	4.0%	122.3	1.3
March	4.8%	146.8	1.6
April	6.8%	208.0	2.3
May	9.5%	290.5	3.2
June	11.4%	348.7	3.8
July	13.7%	419.0	4.6
August	13.6%	415.9	4.5
September	11.5%	351.7	3.8
October	9.5%	290.5	3.2
November	6.0%	183.5	2.0
December	4.8%	146.8	1.6
Total	**100.0%**	**3058.4**	

Suncreek
Water Supply vs. Demand - Alt 1

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 1 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.05	0.11	0.19	0.41	0.54	0.65	0.89	1.10	1.27	1.41	1.54	1.65	1.65	1.65	1.66	1.66	1.58	1.51	1.44	1.38
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.03	0.14	0.27	0.44	0.74	1.09	1.46	1.86	2.28	2.72	2.99	3.26	3.53	3.80	3.88	3.95	4.02	4.08
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 2
Agency Conceptual Strategy Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	141.5	2.89	408.9
Medium Density Residential (MDR)	Multi-Family Low Density	410.9	3.70	1520.3
Compact Density Residential (CMDR)	Multi-Family Low Density	18.5	3.70	68.5
High Density Residential (HDR)	Multi-Family High Density	12.5	4.12	51.5
Commerial Mixed Use (CMU)	Mixed Use	10.9	2.51	27.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	7.2	1.04	7.5
School	Public Recreation	108.4	3.46	375.1
Community Park	Public Recreation	74.2	3.46	256.7
Neighborhood Park (PP)	Public Recreation	7.8	3.46	27.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	11.6	0.21	2.4
Wetland Buffer/Bike Path Corridor	Vacant	13.0	0.00	0.0
Wetland Perserve	Vacant	310.2	0.00	0.0
Storm Drain Channel	Vacant	6.4	0.00	0.0
Detention Basin (DB)	Vacant	14.9	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	117.5	0.00	0.0
		1265.5		
Subtotal				2745.3
System Loss (7.5%)				205.9
Total (AF/Yr)				**2951.2**
Average Day Demand (MGD)				**2.63**
Max Day Demand (MGD)[2]				**5.27**
Peak Hour Demand (gpm)[3]				**7318.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 2

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	129.9	1.4
February	4.0%	118.0	1.3
March	4.8%	141.7	1.5
April	6.8%	200.7	2.2
May	9.5%	280.4	3.0
June	11.4%	336.4	3.7
July	13.7%	404.3	4.4
August	13.6%	401.4	4.4
September	11.5%	339.4	3.7
October	9.5%	280.4	3.0
November	6.0%	177.1	1.9
December	4.8%	141.7	1.5
Total	**100.0%**	**2951.2**	

Suncreek Monthly Water Demand - Alt 2

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 2 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.05	0.10	0.18	0.39	0.53	0.63	0.86	1.06	1.22	1.36	1.49	1.59	1.60	1.60	1.60	1.60	1.52	1.45	1.39	1.33
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.03	0.13	0.27	0.42	0.72	1.05	1.41	1.80	2.20	2.62	2.88	3.15	3.41	3.67	3.75	3.81	3.88	3.93
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Water Supply Shortfall (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 3
Biological Impact Minimization Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	166.7	2.89	481.8
Medium Density Residential (MDR)	Multi-Family Low Density	391.3	3.70	1447.8
Compact Density Residential (CMDR)	Multi-Family Low Density	11.6	3.70	42.9
High Density Residential (HDR)	Multi-Family High Density	6.2	4.12	25.5
Commerial Mixed Use (CMU)	Mixed Use	0.0	2.51	0.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.1	1.04	4.3
School	Public Recreation	52.0	3.46	179.9
Community Park	Public Recreation	78.3	3.46	270.9
Neighborhood Park (PP)	Public Recreation	8.3	3.46	28.7
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	6.7	0.21	1.4
Wetland Buffer/Bike Path Corridor	Vacant	14.6	0.00	0.0
Wetland Perserve	Vacant	411.1	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	15.8	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	98.8	0.00	0.0
		1265.5		
Subtotal				2483.3
System Loss (7.5%)				186.2
Total (AF/Yr)				**2669.5**
Average Day Demand (MGD)				**2.38**
Max Day Demand (MGD)[2]				**4.77**
Peak Hour Demand (gpm)[3]				**6619.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 3

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	117.5	1.3
February	4.0%	106.8	1.2
March	4.8%	128.1	1.4
April	6.8%	181.5	2.0
May	9.5%	253.6	2.8
June	11.4%	304.3	3.3
July	13.7%	365.7	4.0
August	13.6%	363.1	3.9
September	11.5%	307.0	3.3
October	9.5%	253.6	2.8
November	6.0%	160.2	1.7
December	4.8%	128.1	1.4
Total	**100.0%**	**2669.5**	

Suncreek
Water Supply vs. Demand - Alt 3

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 3 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.05	0.09	0.16	0.36	0.48	0.57	0.78	0.96	1.11	1.23	1.34	1.44	1.44	1.44	1.45	1.45	1.38	1.32	1.26	1.21
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.03	0.12	0.24	0.38	0.65	0.95	1.28	1.63	1.99	2.37	2.61	2.85	3.08	3.32	3.39	3.45	3.51	3.56
Total Water Supply (MGD)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 4
No USACE Permit Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	54.3	2.89	156.9
Medium Density Residential (MDR)	Multi-Family Low Density	287.1	3.70	1062.3
Compact Density Residential (CMDR)	Multi-Family Low Density	97.7	3.70	361.5
High Density Residential (HDR)	Multi-Family High Density	18.1	4.12	74.6
Commerial Mixed Use (CMU)	Mixed Use	6.7	2.51	16.8
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.8	1.04	5.0
School	Public Recreation	29.0	3.46	100.3
Community Park	Public Recreation	32.2	3.46	111.4
Neighborhood Park (PP)	Public Recreation	1.0	3.46	3.5
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.6	0.21	0.1
Wetland Buffer/Bike Path Corridor	Vacant	3.3	0.00	0.0
Wetland Perserve	Vacant	607.0	0.00	0.0
Storm Drain Channel	Vacant	0.8	0.00	0.0
Detention Basin (DB)	Vacant	14.3	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	108.6	0.00	0.0
		1265.5		
Subtotal				1892.4
System Loss (7.5%)				141.9
Total (AF/Yr)				**2034.3**
Average Day Demand (MGD)				**1.82**
Max Day Demand (MGD)[2]				**3.63**
Peak Hour Demand (gpm)[3]				**5044.8**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 4

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	89.5	1.0
February	4.0%	81.4	0.9
March	4.8%	97.6	1.1
April	6.8%	138.3	1.5
May	9.5%	193.3	2.1
June	11.4%	231.9	2.5
July	13.7%	278.7	3.0
August	13.6%	276.7	3.0
September	11.5%	233.9	2.5
October	9.5%	193.3	2.1
November	6.0%	122.1	1.3
December	4.8%	97.6	1.1
Total	**100.0%**	**2034.3**	

Suncreek
Water Supply vs. Demand - Alt 4

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 4 (MGD) (Maximum Day Demands)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.04	0.07	0.12	0.27	0.36	0.44	0.60	0.73	0.84	0.94	1.02	1.10	1.10	1.10	1.10	1.10	1.05	1.00	0.96	0.92
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.02	0.09	0.18	0.29	0.49	0.72	0.97	1.24	1.52	1.81	1.99	2.17	2.35	2.53	2.58	2.63	2.67	2.71
Total Water Supply (MGD)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 5
Increased Development Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	609.8	2.89	1762.3
Medium Density Residential (MDR)	Multi-Family Low Density	173.0	3.70	640.1
Compact Density Residential (CMDR)	Multi-Family Low Density	0.0	3.70	0.0
High Density Residential (HDR)	Multi-Family High Density	31.4	4.12	129.4
Commerial Mixed Use (CMU)	Mixed Use	17.7	2.51	44.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	0.0	1.04	0.0
School	Public Recreation	94.4	3.46	326.6
Community Park	Public Recreation	96.0	3.46	332.2
Neighborhood Park (PP)	Public Recreation	0.0	3.46	0.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.0	0.21	0.0
Wetland Buffer/Bike Path Corridor	Vacant	0.0	0.00	0.0
Wetland Perserve	Vacant	97.4	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	0.0	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	145.8	0.00	0.0
		1265.5		
Subtotal				3235.0
System Loss (7.5%)				242.6
Total (AF/Yr)				**3477.6**
Average Day Demand (MGD)				**3.10**
Max Day Demand (MGD)[2]				**6.21**
Peak Hour Demand (gpm)[3]				**8623.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 5

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	153.0	1.7
February	4.0%	139.1	1.5
March	4.8%	166.9	1.8
April	6.8%	236.5	2.6
May	9.5%	330.4	3.6
June	11.4%	396.4	4.3
July	13.7%	476.4	5.2
August	13.6%	473.0	5.1
September	11.5%	399.9	4.3
October	9.5%	330.4	3.6
November	6.0%	208.7	2.3
December	4.8%	166.9	1.8
Total	**100.0%**	**3477.6**	

Suncreek
Water Supply vs. Demand - Alt 5

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 5 (MGD) (Maximum Day Demands)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	98%	85%	75%	66%	60%	55%	50%	46%	43%	40%	38%	36%	34%	32%	30%	29%	28%	26%	25%
Percent Surface Water	0%	0%	0%	2%	15%	25%	34%	40%	45%	50%	54%	57%	60%	62%	64%	66%	68%	70%	71%	72%	74%	75%
Total Ground Water (MGD)	0.00	0.00	0.06	0.12	0.21	0.46	0.62	0.74	1.02	1.25	1.44	1.61	1.75	1.88	1.88	1.88	1.88	1.88	1.80	1.71	1.64	1.57
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.04	0.16	0.31	0.50	0.85	1.24	1.66	2.12	2.60	3.09	3.40	3.71	4.02	4.33	4.41	4.49	4.57	4.64
Total Water Supply (MGD)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Scenario 5

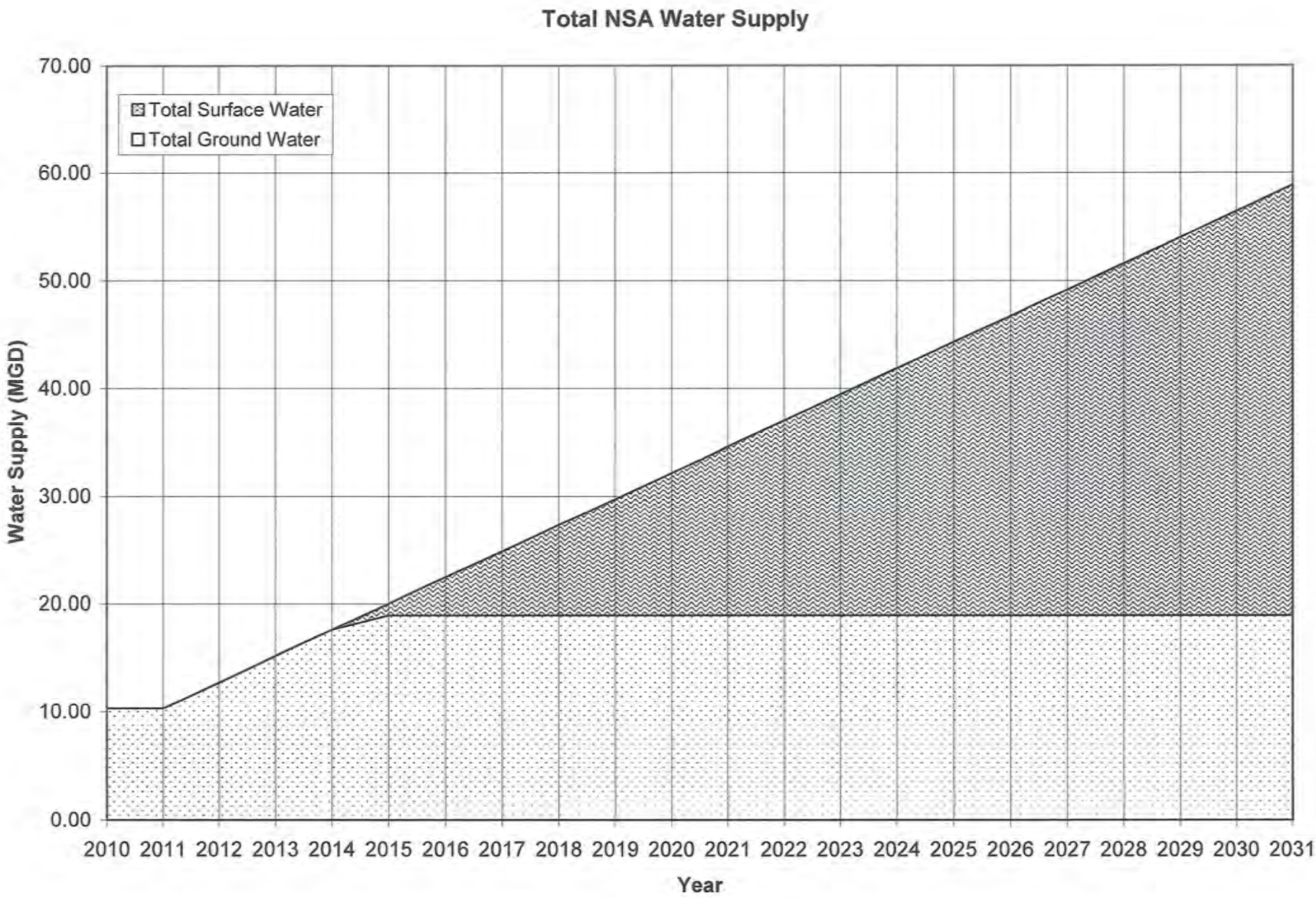
Groundwater Intensive Development With Project

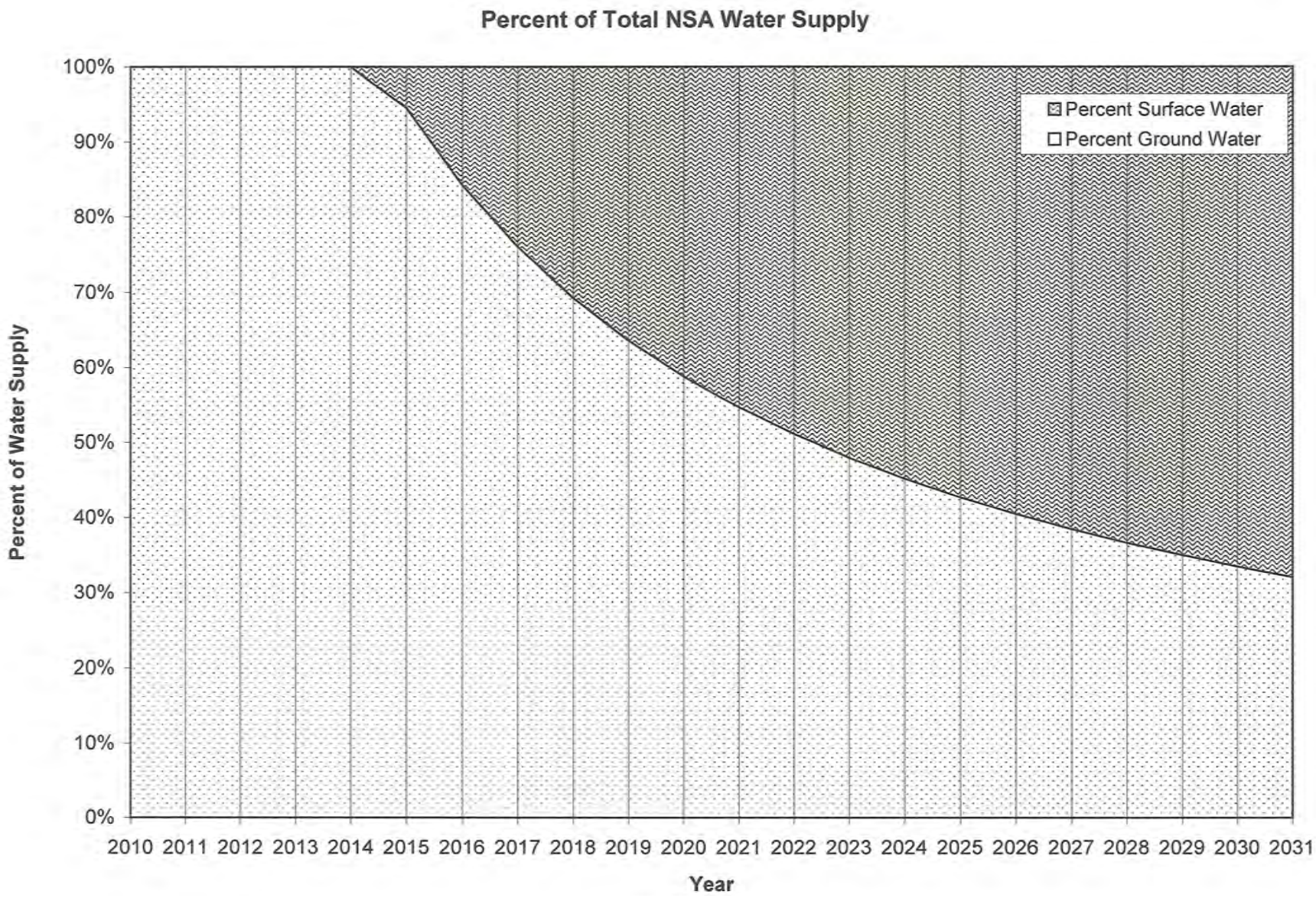
North Service Area (NSA)
Total Water Supply vs. Total Water Demand
Scenario No. 5 (Assuming Groundwater Intensive Development with SunCreek Project)

Water Demand Area	Water Demand (MGD) 2010 [2]	2011 [2]	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031 [3]
Total NSA Water Demand (Maximum Day Demands)	**8.70**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**
Water Supply Source [1]	**Water Supply (MGD)** 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Anatolia WTP	4.30	4.30	6.73	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92	8.92
Mather Housing WTP	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Suncreek WTP	0.00	0.00	0.00	0.24	2.67	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Total Ground Water	**10.30**	**10.30**	**12.73**	**15.16**	**17.59**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**	**18.92**
Convert Raw Groundwater Pipeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vineyard WTP (NSA Pipeline Deliveries)	0.00	0.00	0.00	0.00	0.00	1.10	3.53	5.96	8.39	10.82	13.25	15.68	18.11	20.54	22.97	25.40	27.83	30.26	32.69	35.12	37.55	39.98
Total Surface Water	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.10**	**3.53**	**5.96**	**8.39**	**10.82**	**13.25**	**15.68**	**18.11**	**20.54**	**22.97**	**25.40**	**27.83**	**30.26**	**32.69**	**35.12**	**37.55**	**39.98**
Total Water Supply	**10.30**	**10.30**	**12.73**	**15.16**	**17.59**	**20.02**	**22.45**	**24.88**	**27.31**	**29.74**	**32.17**	**34.60**	**37.03**	**39.46**	**41.89**	**44.32**	**46.75**	**49.18**	**51.61**	**54.04**	**56.47**	**58.90**
Percentage of Total Water Supply																						
Percent Ground Water	100%	100%	100%	100%	100%	95%	84%	76%	69%	64%	59%	55%	51%	48%	45%	43%	40%	38%	37%	35%	34%	32%
Percent Surface Water	0%	0%	0%	0%	0%	5%	16%	24%	31%	36%	41%	45%	49%	52%	55%	57%	60%	62%	63%	65%	66%	68%

Footnote:
1. Water Treatment Plant (WTP)
2. Source Sacramento County Water Agency Master Water Study for the Suncreek Specific Plan dated October 2008 prepared by MWH (Beginning Year of 2010 = MWS Year of 2009 + 1 year)
3. Source Sacramento County Water Agency Zone 40 Water System Infrastructure Plan dated April 2006 prepared by MWH (Beginning Year of 2010 = MWS Year of 2009 + 1 year)

22426.8082
11213.4041


Total NSA Water Supply
Total Surface Water
Total Ground Water
Water Supply (MGD)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year


Percent of Total NSA Water Supply
Percent Surface Water
Percent Ground Water
Percent of Water Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031
Year

Suncreek Annual Water Demand - Alt 1
Proposed Project

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	169.4	2.89	489.6
Medium Density Residential (MDR)	Multi-Family Low Density	322.7	3.70	1194.0
Compact Density Residential (CMDR)	Multi-Family Low Density	20.1	3.70	74.4
High Density Residential (HDR)	Multi-Family High Density	34.6	4.12	142.6
Commerial Mixed Use (CMU)	Mixed Use	31.9	2.51	80.1
Local Town Center (Commercial & Employment)	Local Town Center	59.4	2.51	149.1
Public/Quasi Public (PQP)	Public	13.0	1.04	13.5
School	Public Recreation	110.9	3.46	383.7
Community Park	Public Recreation	43.1	3.46	149.1
Neighborhood Park (PP)	Public Recreation	44.0	3.46	152.2
Neighborhood Green	Public Recreation	4.3	3.46	14.9
Parkway, Paseos and Trails (PC)	Right-of-Way	9.1	0.21	1.9
Wetland Buffer/Bike Path Corridor	Vacant	45.2	0.00	0.0
Wetland Perserve	Vacant	203.7	0.00	0.0
Storm Drain Channel	Vacant	5.0	0.00	0.0
Detention Basin (DB)	Vacant	46.9	0.00	0.0
Minor Roads	Vacant	23.2	0.00	0.0
Major Roads	Vacant	79.0	0.00	0.0
		1265.5		
Subtotal				2845.0
System Loss (7.5%)				213.4
Total (AF/Yr)				**3058.4**
Average Day Demand (MGD)				**2.73**
Max Day Demand (MGD)[2]				**5.46**
Peak Hour Demand (gpm)[3]				**7584.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 1

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	134.6	1.5
February	4.0%	122.3	1.3
March	4.8%	146.8	1.6
April	6.8%	208.0	2.3
May	9.5%	290.5	3.2
June	11.4%	348.7	3.8
July	13.7%	419.0	4.6
August	13.6%	415.9	4.5
September	11.5%	351.7	3.8
October	9.5%	290.5	3.2
November	6.0%	183.5	2.0
December	4.8%	146.8	1.6
Total	**100.0%**	**3058.4**	

Suncreek
Water Supply vs. Demand - Alt 1

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 1 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	100%	100%	95%	84%	76%	69%	64%	59%	55%	51%	48%	45%	43%	40%	38%	37%	35%	34%	32%
Percent Surface Water	0%	0%	0%	0%	0%	5%	16%	24%	31%	36%	41%	45%	49%	52%	55%	57%	60%	62%	63%	65%	66%	68%
Total Ground Water (MGD)	0.00	0.00	0.05	0.11	0.22	0.52	0.69	0.83	1.13	1.39	1.61	1.79	1.95	2.09	2.10	2.10	2.10	2.10	2.00	1.91	1.83	1.75
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.00	0.03	0.13	0.26	0.50	0.79	1.12	1.48	1.87	2.27	2.55	2.82	3.09	3.36	3.46	3.55	3.63	3.71
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.22	0.55	0.82	1.09	1.64	2.18	2.73	3.28	3.82	4.37	4.64	4.91	5.19	5.46	5.46	5.46	5.46	5.46
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 2
Agency Conceptual Strategy Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	141.5	2.89	408.9
Medium Density Residential (MDR)	Multi-Family Low Density	410.9	3.70	1520.3
Compact Density Residential (CMDR)	Multi-Family Low Density	18.5	3.70	68.5
High Density Residential (HDR)	Multi-Family High Density	12.5	4.12	51.5
Commerial Mixed Use (CMU)	Mixed Use	10.9	2.51	27.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	7.2	1.04	7.5
School	Public Recreation	108.4	3.46	375.1
Community Park	Public Recreation	74.2	3.46	256.7
Neighborhood Park (PP)	Public Recreation	7.8	3.46	27.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	11.6	0.21	2.4
Wetland Buffer/Bike Path Corridor	Vacant	13.0	0.00	0.0
Wetland Perserve	Vacant	310.2	0.00	0.0
Storm Drain Channel	Vacant	6.4	0.00	0.0
Detention Basin (DB)	Vacant	14.9	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	117.5	0.00	0.0
		1265.5		
Subtotal				2745.3
System Loss (7.5%)				205.9
Total (AF/Yr)				**2951.2**
Average Day Demand (MGD)				**2.63**
Max Day Demand (MGD)[2]				**5.27**
Peak Hour Demand (gpm)[3]				**7318.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 2

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	129.9	1.4
February	4.0%	118.0	1.3
March	4.8%	141.7	1.5
April	6.8%	200.7	2.2
May	9.5%	280.4	3.0
June	11.4%	336.4	3.7
July	13.7%	404.3	4.4
August	13.6%	401.4	4.4
September	11.5%	339.4	3.7
October	9.5%	280.4	3.0
November	6.0%	177.1	1.9
December	4.8%	141.7	1.5
Total	**100.0%**	**2951.2**	

Suncreek
Water Supply vs. Demand - Alt 2

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 2 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	100%	100%	95%	84%	76%	69%	64%	59%	55%	51%	48%	45%	43%	40%	38%	37%	35%	34%	32%
Percent Surface Water	0%	0%	0%	0%	0%	5%	16%	24%	31%	36%	41%	45%	49%	52%	55%	57%	60%	62%	63%	65%	66%	68%
Total Ground Water (MGD)	0.00	0.00	0.05	0.11	0.21	0.50	0.67	0.80	1.10	1.34	1.55	1.73	1.88	2.02	2.02	2.02	2.03	2.03	1.93	1.84	1.77	1.69
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.00	0.03	0.12	0.25	0.49	0.77	1.09	1.43	1.80	2.19	2.46	2.72	2.98	3.24	3.34	3.42	3.50	3.58
Total Water Supply (MGD)	0.00	0.00	0.05	0.11	0.21	0.53	0.79	1.05	1.58	2.11	2.63	3.16	3.69	4.22	4.48	4.74	5.01	5.27	5.27	5.27	5.27	5.27
Water Supply Shortfall (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 3
Biological Impact Minimization Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	166.7	2.89	481.8
Medium Density Residential (MDR)	Multi-Family Low Density	391.3	3.70	1447.8
Compact Density Residential (CMDR)	Multi-Family Low Density	11.6	3.70	42.9
High Density Residential (HDR)	Multi-Family High Density	6.2	4.12	25.5
Commerial Mixed Use (CMU)	Mixed Use	0.0	2.51	0.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.1	1.04	4.3
School	Public Recreation	52.0	3.46	179.9
Community Park	Public Recreation	78.3	3.46	270.9
Neighborhood Park (PP)	Public Recreation	8.3	3.46	28.7
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	6.7	0.21	1.4
Wetland Buffer/Bike Path Corridor	Vacant	14.6	0.00	0.0
Wetland Perserve	Vacant	411.1	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	15.8	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	98.8	0.00	0.0
		1265.5		
Subtotal				2483.3
System Loss (7.5%)				186.2
Total (AF/Yr)				**2669.5**
Average Day Demand (MGD)				**2.38**
Max Day Demand (MGD)[2]				**4.77**
Peak Hour Demand (gpm)[3]				**6619.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 3

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	117.5	1.3
February	4.0%	106.8	1.2
March	4.8%	128.1	1.4
April	6.8%	181.5	2.0
May	9.5%	253.6	2.8
June	11.4%	304.3	3.3
July	13.7%	365.7	4.0
August	13.6%	363.1	3.9
September	11.5%	307.0	3.3
October	9.5%	253.6	2.8
November	6.0%	160.2	1.7
December	4.8%	128.1	1.4
Total	**100.0%**	**2669.5**	

Suncreek
Water Supply vs. Demand - Alt 3

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 3 (MGD) (Maximum Day Demands)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	100%	100%	95%	84%	76%	69%	64%	59%	55%	51%	48%	45%	43%	40%	38%	37%	35%	34%	32%
Percent Surface Water	0%	0%	0%	0%	0%	5%	16%	24%	31%	36%	41%	45%	49%	52%	55%	57%	60%	62%	63%	65%	66%	68%
Total Ground Water (MGD)	0.00	0.00	0.05	0.10	0.19	0.45	0.60	0.72	0.99	1.21	1.40	1.56	1.70	1.83	1.83	1.83	1.83	1.83	1.75	1.67	1.60	1.53
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.00	0.03	0.11	0.23	0.44	0.69	0.98	1.30	1.63	1.98	2.22	2.46	2.70	2.93	3.02	3.10	3.17	3.24
Total Water Supply (MGD)	0.00	0.00	0.05	0.10	0.19	0.48	0.71	0.95	1.43	1.91	2.38	2.86	3.34	3.81	4.05	4.29	4.53	4.77	4.77	4.77	4.77	4.77
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 4
No USACE Permit Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	54.3	2.89	156.9
Medium Density Residential (MDR)	Multi-Family Low Density	287.1	3.70	1062.3
Compact Density Residential (CMDR)	Multi-Family Low Density	97.7	3.70	361.5
High Density Residential (HDR)	Multi-Family High Density	18.1	4.12	74.6
Commerial Mixed Use (CMU)	Mixed Use	6.7	2.51	16.8
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	4.8	1.04	5.0
School	Public Recreation	29.0	3.46	100.3
Community Park	Public Recreation	32.2	3.46	111.4
Neighborhood Park (PP)	Public Recreation	1.0	3.46	3.5
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.6	0.21	0.1
Wetland Buffer/Bike Path Corridor	Vacant	3.3	0.00	0.0
Wetland Perserve	Vacant	607.0	0.00	0.0
Storm Drain Channel	Vacant	0.8	0.00	0.0
Detention Basin (DB)	Vacant	14.3	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	108.6	0.00	0.0
		1265.5		
Subtotal				1892.4
System Loss (7.5%)				141.9
Total (AF/Yr)				**2034.3**
Average Day Demand (MGD)				**1.82**
Max Day Demand (MGD)[2]				**3.63**
Peak Hour Demand (gpm)[3]				**5044.8**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 4

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	89.5	1.0
February	4.0%	81.4	0.9
March	4.8%	97.6	1.1
April	6.8%	138.3	1.5
May	9.5%	193.3	2.1
June	11.4%	231.9	2.5
July	13.7%	278.7	3.0
August	13.6%	276.7	3.0
September	11.5%	233.9	2.5
October	9.5%	193.3	2.1
November	6.0%	122.1	1.3
December	4.8%	97.6	1.1
Total	**100.0%**	**2034.3**	

Suncreek
Water Supply vs. Demand - Alt 4

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 4 (MGD) (Maximum Day Demands)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	100%	100%	95%	84%	76%	69%	64%	59%	55%	51%	48%	45%	43%	40%	38%	37%	35%	34%	32%
Percent Surface Water	0%	0%	0%	0%	0%	5%	16%	24%	31%	36%	41%	45%	49%	52%	55%	57%	60%	62%	63%	65%	66%	68%
Total Ground Water (MGD)	0.00	0.00	0.04	0.07	0.15	0.34	0.46	0.55	0.75	0.92	1.07	1.19	1.30	1.39	1.39	1.40	1.40	1.40	1.33	1.27	1.22	1.17
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.17	0.33	0.53	0.75	0.99	1.24	1.51	1.69	1.87	2.05	2.23	2.30	2.36	2.42	2.47
Total Water Supply (MGD)	0.00	0.00	0.04	0.07	0.15	0.36	0.54	0.73	1.09	1.45	1.82	2.18	2.54	2.91	3.09	3.27	3.45	3.63	3.63	3.63	3.63	3.63
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Suncreek Annual Water Demand - Alt 5
Increased Development Alternative

Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	609.8	2.89	1762.3
Medium Density Residential (MDR)	Multi-Family Low Density	173.0	3.70	640.1
Compact Density Residential (CMDR)	Multi-Family Low Density	0.0	3.70	0.0
High Density Residential (HDR)	Multi-Family High Density	31.4	4.12	129.4
Commerial Mixed Use (CMU)	Mixed Use	17.7	2.51	44.4
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0
Public/Quasi Public (PQP)	Public	0.0	1.04	0.0
School	Public Recreation	94.4	3.46	326.6
Community Park	Public Recreation	96.0	3.46	332.2
Neighborhood Park (PP)	Public Recreation	0.0	3.46	0.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.0	0.21	0.0
Wetland Buffer/Bike Path Corridor	Vacant	0.0	0.00	0.0
Wetland Perserve	Vacant	97.4	0.00	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0
Detention Basin (DB)	Vacant	0.0	0.00	0.0
Minor Roads	Vacant	0.0	0.00	0.0
Major Roads	Vacant	145.8	0.00	0.0
		1265.5		
Subtotal				3235.0
System Loss (7.5%)				242.6
Total (AF/Yr)				**3477.6**
Average Day Demand (MGD)				**3.10**
Max Day Demand (MGD)[2]				**6.21**
Peak Hour Demand (gpm)[3]				**8623.9**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Monthly Water Demand - Alt 5

7991-00

Month	Monthly Percent	Monthly Water Demand (AF/mo)	Average Daily Flow (mgd)
January	4.4%	153.0	1.7
February	4.0%	139.1	1.5
March	4.8%	166.9	1.8
April	6.8%	236.5	2.6
May	9.5%	330.4	3.6
June	11.4%	396.4	4.3
July	13.7%	476.4	5.2
August	13.6%	473.0	5.1
September	11.5%	399.9	4.3
October	9.5%	330.4	3.6
November	6.0%	208.7	2.3
December	4.8%	166.9	1.8
Total	**100.0%**	**3477.6**	

Suncreek
Water Supply vs. Demand - Alt 5

7991-00

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Buildout Percentage	0%	0%	1%	2%	4%	10%	15%	20%	30%	40%	50%	60%	70%	80%	85%	90%	95%	100%	100%	100%	100%	100%
Total Water Demand - Alt 5 (MGD) (Maximum Day Demands)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Percentage of Total Water Supply[1]																						
Percent Ground Water	100%	100%	100%	100%	100%	95%	84%	76%	69%	64%	59%	55%	51%	48%	45%	43%	40%	38%	37%	35%	34%	32%
Percent Surface Water	0%	0%	0%	0%	0%	5%	16%	24%	31%	36%	41%	45%	49%	52%	55%	57%	60%	62%	63%	65%	66%	68%
Total Ground Water (MGD)	0.00	0.00	0.06	0.12	0.25	0.59	0.78	0.94	1.29	1.58	1.83	2.04	2.22	2.38	2.38	2.39	2.39	2.39	2.28	2.17	2.08	1.99
Total Surface Water (MGD)	0.00	0.00	0.00	0.00	0.00	0.03	0.15	0.30	0.57	0.90	1.28	1.69	2.13	2.59	2.89	3.20	3.51	3.82	3.93	4.04	4.13	4.21
Total Water Supply (MGD)	0.00	0.00	0.06	0.12	0.25	0.62	0.93	1.24	1.86	2.48	3.10	3.73	4.35	4.97	5.28	5.59	5.90	6.21	6.21	6.21	6.21	6.21
Water Demand vs Supply (MGD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Footnote:
1. Water percentages based on total NSA water supply totals.

Appendix B

Groundwater Demands by Phase

Suncreek Annual Water Demand by Phase
Alt 1 - Proposed Project

		Project Water Demands			Phase Water Demands					
Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)	Phase 1 Land Use (Acres)	Phase 1 Annual Avg, Demand (AF/Yr)	Phase 2 Land Use (Acres)	Phase 2 Annual Avg, Demand (AF/Yr)	Phase 3 Land Use (Acres)	Phase 3 Annual Avg, Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	169.4	2.89	489.6	57.4	165.9	75.9	219.4	36.1	104.3
Medium Density Residential (MDR)	Multi-Family Low Density	322.7	3.70	1194.0	110.1	407.4	150.5	556.9	62.1	229.8
Compact Density Residential (CMDR)	Multi-Family Low Density	20.1	3.70	74.4	0.0	0.0	20.1	74.4	0.0	0.0
High Density Residential (HDR)	Multi-Family High Density	34.6	4.12	142.6	11.8	48.6	9.9	40.8	12.9	53.1
Commerial Mixed Use (CMU)	Mixed Use	31.9	2.51	80.1	25.5	64.0	6.4	16.1	0.0	0.0
Local Town Center (Commercial & Employment)	Local Town Center	59.4	2.51	149.1	0.0	0.0	0.0	0.0	59.4	149.1
Public/Quasi Public (PQP)	Public	13.0	1.04	13.5	8.8	9.2	2.2	2.3	2.0	2.1
School	Public Recreation	110.9	3.46	383.7	10.2	35.3	91.1	315.2	9.6	33.2
Community Park	Public Recreation	43.1	3.46	149.1	0.0	0.0	43.1	149.1	0.0	0.0
Neighborhood Park (PP)	Public Recreation	44.0	3.46	152.2	19.2	66.4	17.7	61.2	7.1	24.6
Neighborhood Green	Public Recreation	4.3	3.46	14.9	0.0	0.0	4.3	14.9	0.0	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	9.1	0.21	1.9	5.3	1.1	3.1	0.7	0.7	0.1
Wetland Buffer/Bike Path Corridor	Vacant	45.2	0.00	0.0	15.5	0.0	29.7	0.0	0.0	0.0
Wetland Perserve	Vacant	203.7	0.00	0.0	104.1	0.0	99.6	0.0	0.0	0.0
Storm Drain Channel	Vacant	5.0	0.00	0.0	0.0	0.0	0.0	0.0	5.0	0.0
Detention Basin (DB)	Vacant	46.9	0.00	0.0	15.5	0.0	19.7	0.0	11.7	0.0
Minor Roads	Vacant	23.2	0.00	0.0	16.9	0.0	6.3	0.0	0.0	0.0
Major Roads	Vacant	79.0	0.00	0.0	35.7	0.0	28.9	0.0	14.4	0.0
Subtotal		1265.5		2845.0	436.0	797.9	608.5	1450.8	221.0	596.4
System Loss (7.5%)				213.4		59.8		108.8		44.7
Total (AF/Yr)				**3058.4**		**857.7**		**1559.6**		**641.1**
Average Day Demand (MGD)				**2.73**		**0.77**		**1.39**		**0.57**
Max Day Demand (MGD)[2]				**5.46**		**1.53**		**2.78**		**1.14**
Peak Hour Demand (gpm)[3]				**7584.4**		**2127.0**		**3867.6**		**1589.8**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Annual Water Demand by Phase
Alt 2 - Agency Conceptual Impact Plan

		Project Water Demands			Phase Water Demands					
Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)	Phase 1 Land Use (Acres)	Phase 1 Annual Avg, Demand (AF/Yr)	Phase 2 Land Use (Acres)	Phase 2 Annual Avg, Demand (AF/Yr)	Phase 3 Land Use (Acres)	Phase 3 Annual Avg, Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	141.5	2.89	408.9	52.7	152.3	62.9	181.8	25.9	74.9
Medium Density Residential (MDR)	Multi-Family Low Density	410.9	3.70	1520.3	113.0	418.1	163.1	603.5	134.8	498.8
Compact Density Residential (CMDR)	Multi-Family Low Density	18.5	3.70	68.5	0.0	0.0	18.5	68.5	0.0	0.0
High Density Residential (HDR)	Multi-Family High Density	12.5	4.12	51.5	5.9	24.3	6.6	27.2	0.0	0.0
Commerial Mixed Use (CMU)	Mixed Use	10.9	2.51	27.4	0.0	0.0	6.1	15.3	4.8	12.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public/Quasi Public (PQP)	Public	7.2	1.04	7.5	3.0	3.1	2.2	2.3	2.0	2.1
School	Public Recreation	108.4	3.46	375.1	10.8	37.4	86.7	300.0	10.9	37.7
Community Park	Public Recreation	74.2	3.46	256.7	23.9	82.7	38.2	132.2	12.1	41.9
Neighborhood Park (PP)	Public Recreation	7.8	3.46	27.0	1.6	5.5	6.2	21.5	0.0	0.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	11.6	0.21	2.4	2.2	0.5	3.0	0.6	6.4	1.3
Wetland Buffer/Bike Path Corridor	Vacant	13.0	0.00	0.0	3.9	0.0	9.1	0.0	0.0	0.0
Wetland Perserve	Vacant	310.2	0.00	0.0	151.2	0.0	159.0	0.0	0.0	0.0
Storm Drain Channel	Vacant	6.4	0.00	0.0	0.0	0.0	0.0	0.0	6.4	0.0
Detention Basin (DB)	Vacant	14.9	0.00	0.0	8.4	0.0	1.7	0.0	4.8	0.0
Minor Roads	Vacant	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Major Roads	Vacant	117.5	0.00	0.0	59.8	0.0	44.9	0.0	12.8	0.0
Subtotal		1265.5		2745.3	436.4	723.9	608.2	1352.7	220.9	668.7
System Loss (7.5%)				205.9		54.3		101.5		50.1
Total (AF/Yr)				**2951.2**		**778.2**		**1454.2**		**718.8**
Average Day Demand (MGD)				**2.63**		**0.69**		**1.30**		**0.64**
Max Day Demand (MGD)[2]				**5.27**		**1.39**		**2.60**		**1.28**
Peak Hour Demand (gpm)[3]				**7318.4**		**1929.8**		**3606.1**		**1782.5**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Annual Water Demand by Phase
Alt 3 - Bio Minimization Impact Plan

		Project Water Demands			Phase Water Demands						
Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)	Phase 1 Land Use (Acres)	Phase 1 Annual Avg, Demand (AF/Yr)	Phase 2 Land Use (Acres)	Phase 2 Annual Avg, Demand (AF/Yr)	Phase 3 Land Use (Acres)	Phase 3 Annual Avg, Demand (AF/Yr)	
Low Density Residential (LDR)	Single Family	166.7	2.89	481.8	53.1	153.5	89.9	259.8	23.7	68.5	0.0
Medium Density Residential (MDR)	Multi-Family Low Density	391.3	3.70	1447.8	127.2	470.6	165.3	611.6	98.8	365.6	0.0
Compact Density Residential (CMDR)	Multi-Family Low Density	11.6	3.70	42.9	0.0	0.0	11.6	42.9	0.0	0.0	0.0
High Density Residential (HDR)	Multi-Family High Density	6.2	4.12	25.5	4.4	18.1	1.8	7.4	0.0	0.0	0.0
Commerial Mixed Use (CMU)	Mixed Use	0.0	2.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public/Quasi Public (PQP)	Public	4.1	1.04	4.3	3.0	3.1	1.1	1.1	0.0	0.0	0.0
School	Public Recreation	52.0	3.46	179.9	11.8	40.8	34.3	118.7	5.9	20.4	0.0
Community Park	Public Recreation	78.3	3.46	270.9	24.1	83.4	45.8	158.5	8.4	29.1	0.0
Neighborhood Park (PP)	Public Recreation	8.3	3.46	28.7	1.9	6.6	6.4	22.1	0.0	0.0	0.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	6.7	0.21	1.4	1.7	0.4	2.7	0.6	2.3	0.5	0.0
Wetland Buffer/Bike Path Corridor	Vacant	14.6	0.00	0.0	7.9	0.0	6.7	0.0	0.0	0.0	0.0
Wetland Perserve	Vacant	411.1	0.00	0.0	145.4	0.0	207.2	0.0	58.5	0.0	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detention Basin (DB)	Vacant	15.8	0.00	0.0	8.6	0.0	4.6	0.0	2.6	0.0	0.0
Minor Roads	Vacant	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Major Roads	Vacant	98.8	0.00	0.0	47.3	0.0	30.8	0.0	20.7	0.0	0.0
Subtotal		1265.5		2483.3	436.4	776.5	608.2	1222.8	220.9	484.0	
System Loss (7.5%)				186.2		58.2		91.7		36.3	
Total (AF/Yr)				**2669.5**		**834.7**		**1314.5**		**520.3**	
Average Day Demand (MGD)				**2.38**		**0.75**		**1.17**		**0.46**	
Max Day Demand (MGD)[2]				**4.77**		**1.49**		**2.35**		**0.93**	
Peak Hour Demand (gpm)[3]				**6619.9**		**2070.0**		**3259.7**		**1290.3**	

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Annual Water Demand by Phase
Alt 4 - No USACE Permit Plan

		Project Water Demands			Phase Water Demands					
Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)	Phase 1 Land Use (Acres)	Phase 1 Annual Avg, Demand (AF/Yr)	Phase 2 Land Use (Acres)	Phase 2 Annual Avg, Demand (AF/Yr)	Phase 3 Land Use (Acres)	Phase 3 Annual Avg, Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	54.3	2.89	156.9	34.2	98.8	20.1	58.1	0.0	0.0
Medium Density Residential (MDR)	Multi-Family Low Density	287.1	3.70	1062.3	49.1	181.7	149.2	552.0	88.8	328.6
Compact Density Residential (CMDR)	Multi-Family Low Density	97.7	3.70	361.5	59.5	220.2	38.2	141.3	0.0	0.0
High Density Residential (HDR)	Multi-Family High Density	18.1	4.12	74.6	8.7	35.8	9.4	38.7	0.0	0.0
Commerial Mixed Use (CMU)	Mixed Use	6.7	2.51	16.8	3.7	9.3	3.0	7.5	0.0	0.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public/Quasi Public (PQP)	Public	4.8	1.04	5.0	2.7	2.8	2.1	2.2	0.0	0.0
School	Public Recreation	29.0	3.46	100.3	8.0	27.7	10.5	36.3	10.5	36.3
Community Park	Public Recreation	32.2	3.46	111.4	19.0	65.7	5.2	18.0	8.0	27.7
Neighborhood Park (PP)	Public Recreation	1.0	3.46	3.5	0.0	0.0	1.0	3.5	0.0	0.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.6	0.21	0.1	0.6	0.1	0.0	0.0	0.0	0.0
Wetland Buffer/Bike Path Corridor	Vacant	3.3	0.00	0.0	0.0	0.0	3.3	0.0	0.0	0.0
Wetland Perserve	Vacant	607.0	0.00	0.0	190.9	0.0	320.7	0.0	95.4	0.0
Storm Drain Channel	Vacant	0.8	0.00	0.0	0.8	0.0	0.0	0.0	0.0	0.0
Detention Basin (DB)	Vacant	14.3	0.00	0.0	7.9	0.0	3.8	0.0	2.6	0.0
Minor Roads	Vacant	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Major Roads	Vacant	108.6	0.00	0.0	51.4	0.0	41.6	0.0	15.6	0.0
Subtotal		1265.5		1892.4	436.5	642.1	608.1	857.7	220.9	392.6
System Loss (7.5%)				141.9		48.2		64.3		29.4
Total (AF/Yr)				**2034.3**		**690.3**		**922.0**		**422.0**
Average Day Demand (MGD)				**1.82**		**0.62**		**0.82**		**0.38**
Max Day Demand (MGD)[2]				**3.63**		**1.23**		**1.65**		**0.75**
Peak Hour Demand (gpm)[3]				**5044.8**		**1711.8**		**2286.5**		**1046.5**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0

Suncreek Annual Water Demand by Phase
Alt 5 -Increased Development Impact Plan

		Project Water Demands			Phase Water Demands					
Land Use Description	Land Use Classification	Total Acres	Unit Water Demand Factor[1] (AF/Ac/Yr)	Annual Average Water Demand (AF/Yr)	Phase 1 Land Use (Acres)	Phase 1 Annual Avg, Demand (AF/Yr)	Phase 2 Land Use (Acres)	Phase 2 Annual Avg, Demand (AF/Yr)	Phase 3 Land Use (Acres)	Phase 3 Annual Avg, Demand (AF/Yr)
Low Density Residential (LDR)	Single Family	609.8	2.89	1762.3	188.0	543.3	287.8	831.7	134.0	387.3
Medium Density Residential (MDR)	Multi-Family Low Density	173.0	3.70	640.1	78.7	291.2	64.5	238.7	29.8	110.3
Compact Density Residential (CMDR)	Multi-Family Low Density	0.0	3.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0
High Density Residential (HDR)	Multi-Family High Density	31.4	4.12	129.4	22.6	93.1	8.8	36.3	0.0	0.0
Commerial Mixed Use (CMU)	Mixed Use	17.7	2.51	44.4	5.5	13.8	12.2	30.6	0.0	0.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	2.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public/Quasi Public (PQP)	Public	0.0	1.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0
School	Public Recreation	94.4	3.46	326.6	9.3	32.2	76.7	265.4	8.4	29.1
Community Park	Public Recreation	96.0	3.46	332.2	32.7	113.1	48.7	168.5	14.6	50.5
Neighborhood Park (PP)	Public Recreation	0.0	3.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Neighborhood Green	Public Recreation	0.0	3.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	0.0	0.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetland Buffer/Bike Path Corridor	Vacant	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetland Perserve	Vacant	97.4	0.00	0.0	38.1	0.0	48.1	0.0	11.2	0.0
Storm Drain Channel	Vacant	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detention Basin (DB)	Vacant	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minor Roads	Vacant	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Major Roads	Vacant	145.8	0.00	0.0	61.5	0.0	61.4	0.0	22.9	0.0
Subtotal		1265.5		3235.0	436.4	1086.7	608.2	1571.2	220.9	577.1
System Loss (7.5%)				242.6		81.5		117.8		43.3
Total (AF/Yr)				**3477.6**		**1168.3**		**1689.0**		**620.4**
Average Day Demand (MGD)				**3.10**		**1.04**		**1.51**		**0.55**
Max Day Demand (MGD)[2]				**6.21**		**2.09**		**3.02**		**1.11**
Peak Hour Demand (gpm)[3]				**8623.9**		**2897.1**		**4188.4**		**1538.4**

Footnote:

1. Zone 40 Water Supply Master Plan
2. Max Day Demand equals ADD times 2.0
3. Peak Hour Demand equals MDD times 2.0