NOTICE OF INTENT TO ADOPT A NEGATIVE DECLARATION
Pursuant to the California Environmental Quality Act (CEQA)

Who: County of San Luis Obispo Flood Control and Water Conservation District

What: A Negative Declaration (ND) has been prepared and issued for the County of San Luis Obispo Flood Control and Water Conservation District (District) Lopez Water Project Contract Changes. The District is proposing to restate and amend the existing water supply contracts for the Lopez Water Project to allow the Contractors to store their unused annual water entitlement in Lopez Reservoir for future use. The purpose of the proposed change is to provide the Contractors greater flexibility to better manage their water supply portfolios, which may also include groundwater and allocations from the State Water Project. The project is expected to improve water supply resiliency for the region.

Where: Copies of the proposed ND and all the associated documents referenced in the ND are available for review at the County of San Luis Obispo Department of Public Works, 976 Osos Street, County Government Center Room 206, San Luis Obispo, CA 93408. The ND is also accessible on the Public Works website at https://slocounty.ca.gov/PW/Lopez-Water-Project-MND.

Comments: The 30-day review and comment period for the proposed ND begins on January 28, 2022, and ends on February 28, 2022. Written comments must be received by 5:00 p.m. on the last day of the review period and should be addressed to: Monica Stillman, Environmental Specialist, mjstillman@co.slo.ca.us, County Government Center, Room 206, San Luis Obispo, CA 93408.

Public Hearing: The County of San Luis Obispo Board of Supervisors will hold a public hearing to consider the adoption of the Negative Declaration. The hearing is anticipated to be held in Spring, 2022. Interested persons can access the Board of Supervisor's agenda at http://www.slocounty.ca.gov/bos/BOSagenda.htm to locate the date of the public hearing for this project.

Initial Study – Environmental Checklist

Project Title & No. Lopez Water Project Contract Changes (ED20-210, 552R235020)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: The proposed project could have a "Potentially Significant Impact" for environmental factors checked below. Please refer to the attached pages for discussion on mitigation measures or project revisions to either reduce these impacts to less than significant levels or require further study.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture & Forestry Resources	☐ Hazards & Hazardous Materials	☐ Recreation
☐ Air Quality	☐ Hydrology & Water Quality	☐ Transportation
☐ Biological Resources	☐ Land Use & Planning	☐ Tribal Cultural Resources
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities & Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☐ Geology & Soils	☐ Population & Housing	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation, the Environmental Division Manager finds that:

☒ The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ The proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ Although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Monica Stillman	Monica Stillman	1-24-2022
Prepared by (Print)	Signature	Date
Keith Miller		1/24/22
Reviewed by (Print)	Signature	Date

Initial Study – Environmental Checklist

Project Environmental Analysis

The County's environmental review process incorporates all of the requirements for completing the Initial Study as required by the California Environmental Quality Act (CEQA) and the CEQA Guidelines. The Initial Study includes staff's on-site inspection of the project site and surroundings and a detailed review of the information in the file for the project. In addition, available background information is reviewed for each project. Relevant information regarding soil types and characteristics, geologic information, significant vegetation and/or wildlife resources, water availability, wastewater disposal services, existing land uses and surrounding land use categories and other information relevant to the environmental review process are evaluated for each project. Exhibit A includes the references used, as well as the agencies or groups that were contacted as a part of the Initial Study. The County Public Works Department uses the checklist to summarize the results of the research accomplished during the initial environmental review of the project.

Persons, agencies or organizations interested in obtaining more information regarding the environmental review process for a project should contact the County of San Luis Obispo Public Works Department, 976 Osos Street, Rm. 206, San Luis Obispo, CA, 93408-2040 or call (805) 781-5252.

A. Project

DESCRIPTION: The San Luis Obispo County Flood Control and Water Conservation District (District) proposes to restate and amend its existing water supply contracts with the Zone 3 Lopez Dam water supply Contractors (project). The Contractors include the Cities of Arroyo Grande, Grover Beach and Pismo Beach, the Oceano Community Services District, and the County Service Area 12 (Avila Beach). This Initial Study provides a description of the project and expected outcomes. Hydrologic modeling was conducted to evaluate the expected outcomes of the project. Modeling results are summarized below and are described in more detail in Attachment A.

The District's current water supply contracts with the Contractors provide an annual entitlement of water from the Lopez Reservoir (entitlement) and the option to purchase surplus water (if available), which consists of unused annual entitlements and unreleased downstream releases from the previous water year. Contractors have one year to use the surplus water and can only use it after they use their full entitlements. Any unused surplus water then reverts back to being water available to the District for annual entitlements and downstream releases in the subsequent year. This contractual structure creates a "use it or lose it" scenario and does not provide any direct incentive for the Contractors to limit their use of Lopez Water and preserve local water supplies.

The District, on behalf of the Contractors, is proposing to restate and amend its existing water supply contracts to allow the Contractors to store their unused annual water entitlement and any surplus water they receive in Lopez Reservoir, as well as allow for in-lieu storage of State Water Project (SWP) water. In other words, each Contractor would have a stored water account. The purpose of the proposed changes is to provide the five Contractors greater flexibility to better manage their water supply portfolios and incentivize conservation of water during emergencies and droughts. The project would provide the Contractors greater flexibility to use their water supplies conjunctively (i.e., to implement a balanced use of surface and groundwater supplies based on hydrologic conditions) and additionally allow Contractors to transfer stored Lopez and SWP water amongst themselves to improve water supply availability during drought conditions and water supply resiliency for the region.

The project would increase the likelihood that Zone 3 Contractors with existing SWP water allocations will use their allocations more fully by either delivering to their customers or offsetting Lopez Water delivery requests from other Zone 3 Contractors. In this scenario, because there is no direct physical connection between Lopez Reservoir and the SWP, no actual SWP water would physically be in the reservoir. Rather, the exchange would be an in-lieu exchange that occurs on paper through the water accounting process.

Background: The Lopez Dam and water supply facilities (Lopez Project) are owned and operated by the District and located on Lopez Drive in unincorporated County land approximately seven miles east of Arroyo Grande, in the South County planning area (Huasna-Lopez sub area), in Supervisorial District 4 (Figure 1, Vicinity Map). The Contractors have service areas in the San Luis Obispo Planning Area (San Luis Bay Inland Sub Area North and Sub Area South), San Luis Bay Coastal Planning Area, and the South County Coastal Planning Area, and Supervisorial Districts 3 and 4. The Zone 3 boundaries are shown in Figure 1.

The proposed project would not affect the following existing (i.e. "baseline") characteristics of the reservoir and District operations:

- The safe yield of the reservoir is recognized as 8,730 acre-feet per year (AFY)
- The reservoir maximum capacity would remain 49,388 acre-feet (AF)
- Entitlements for the Contractors total 4,530 AFY
- The District would maintain downstream releases of up to 4,200 AFY (3,800 AFY average)
- The water level of the reservoir can fluctuate from year to year and/or within a given year, due to hydrologic cycles, Contractor demand, and downstream releases.
- The reservoir is generally highest in late winter and lowest in late summer.
- If the reservoir falls to 20,000 AF or less, and a drought emergency declared, the District would consider modifying operations as previously done through use of a Low Reservoir Response Plan (LRRP), or similar.

Additionally, the District relies on the Interim Downstream Release Schedule (IDRS), adopted by the District's Board of Supervisors in 2007 (District 2007), to manage its downstream releases until such time as a more permanent operations plan and associated Habitat Conservation Plan (HCP) are completed. In the short term, the proposed contract changes would not affect the downstream releases or implementation of the IDRS, which is used to maintain baseline habitat conditions for environmental resources and provide water for downstream agricultural uses.

Modeling Methodology: The County developed a model to simulate operation of the Lopez Water Project. This model was used to evaluate Contractor water availability and Lopez Reservoir conditions under two scenarios: 1) the existing (baseline) conditions, and 2) with the proposed contract changes (Project) in effect (Attachment A). The modeling used the previous 51 years of hydrology (i.e. daily rainfall and inflow from 1969 – 2020) as a baseline for the next fifty-one years. It should be noted that 1969 was a "wet year", with 40.25 inches of rain falling – enough to fill the newly constructed reservoir.

The potential effects of climate change were included in both scenarios. The climate change adjustments were taken from the California Water Commission's recommended approach for evaluating effects of climate change for Water Storage Investment Program applications (CWC 2021). It should also be noted that the climate change adjustments and all modeling results become increasingly speculative over the 51-year modeling period.

The modeling scenarios assumed that the District's adopted IDRS would continue unchanged, that there would be no change in each Contractors' entitlement, and no change in Contractors' groundwater extraction targets. To be conservative, the modeling assumed that downstream releases would be 4,100 AFY, slightly

above recent average.

The model inputs for the *baseline* scenarios used year 2035 demands and assumed that water sources would be used in the following order to meet demands:

1) Lopez Entitlement Water
2) Imported State Water Project Water
3) Groundwater allocations in accordance with current limitations

Under the proposed project, the County would not dictate how each Contractor should manage its water supplies. However, it is anticipated that the Contractors would manage water use to fulfill their service needs while maximizing conservation of supplies for later use and minimizing water losses. Therefore, for the project scenarios, two water management scenarios were modeled to compare project impacts. Those two scenarios as described in Attachment A are:

- Scenario E: Contractors maximize their Lopez water supply storage account.
- Scenario F: Contractors who have an allocation of SWP water maximize their SWP storage account.

Differences between these two scenarios were minor (Table 12 in Attachment A, comparison of Scenarios E and F to baseline conditions with effects of climate change included). For simplicity, and to capture the worst-case low water scenario in the reservoir, this Initial Study presents potential impacts associated with Scenario F, which maximizes SWP storage. Under Scenario F Contractors would use the following order of water supply use to meet demands:

1) Lopez Entitlement Water
2) Groundwater allocations in accordance with current limitations
3) Imported State Water Project Water
4) Stored Lopez water
5) Stored SWP Water

Model Results: Attachment A provides scenario results related to:

- Annual Lopez Lake Levels
- Annual Downstream Releases
- Annual Evaporation
- Spill Events
- Spill Event Daily Peak Rates
- Contractor Storage, including amount stored, amount used, and lost during a spill

These results are summarized in the text and tables that follow, with the exception of individual Contractor storage amounts. Attachment A provides modeled annual water deliveries for each Contractor in Tables 8 - 10. In general, it is expected that as a result of the project, modeled annual average water delivered and stored from existing sources would remain unchanged for CSA 12, would include increased use of the existing SWP water allocations by Pismo Beach and Oceano, and increased use of Lopez water by Arroyo Grande. The project would not change Contractor's maximum entitlements to Lopez water or allocations of SWP water, or where the water is used in their service areas. This means that the physical effects of the project are fully addressed by evaluating the net Project effects. Therefore, the individual Contractor storage model results in Attachment A are not addressed in this CEQA document.

Due to the effects of climate change, even without the project, average annual inflows to Lopez Reservoir would potentially increase by 9.5% compared to the last 51 years (Table 7 in Attachment A), resulting in generally higher water levels in Lopez Reservoir during the modeling period (i.e., increase in Lopez Lake

Storage shown by comparing Attachment A Table 11 without climate change to Table 12 with climate change).

Project-related changes in how the Contractors use and store water are estimated to result in the following conditions in Lopez Reservoir:

1. The volume stored behind the dam would be incrementally greater on average than the baseline condition, meaning the reservoir would have, on average, higher water levels (Figure 2).
2. There would be an increase in spilled water. Over a 51-year period baseline total spill volume would be 290,711 AF. With the project, the total spill volume would be 317,520 AF, an increase of 26,809 AF.
3. Spills would occur in 20 out of 51 years without the project, and 21 out of the next 51 years with the project.
4. There would be an increase in evaporative loss due to slightly higher reservoir levels. The model predicts that baseline evaporation loss would be 137,545 AF. With the project, the estimated loss would be 140,792 AF, an increase of 3,247 AF.
5. Expected occurrence of low water limitations would decrease. The IDRS includes a Low Reservoir Response Plan, which is potentially placed into effect when the reservoir is at or below 20,000 AF. The model predicts that over a 51-year period without the project, the reservoir would drop below 20,000 AF in approximately 7 out of 51 years. With the project, this condition is predicted to occur in 5 out of 51 years.

Relative effects of the project on reservoir spills, evaporation and low water years are shown in Table 3.

Table 3. Predicted Project-Related Effects over 51 Years

	Baseline (Scenario D)	Project (Scenario F)	Difference
Spill Events	20	21	+1
Spilled Water (AF)	290,711	317,520	+26,809 (9%)
Average Evaporation Loss (AF)	137,545	140,507	+2,962 (2%)
# of Low Water Years	7	5	-2

Spills: Spilled water is that which exceeds the capacity of the reservoir and flows over the spillway. This water is no longer available for Contractor use but would periodically increase flows downstream in Arroyo Grande Creek.

The project-related increase of spill shown in Table 3 likely overstates actual spill amounts because the Contractors would have a financial incentive to prevent spill (i.e., preserve their stored water) through active management of their water portfolios. For example, given the high cost of State Water, Contractors will want to store it at Lopez reservoir when there is little risk of a spill and use it before that water is lost in a spill to avoid a financial loss. The modeling assumed that Contractors would store as much State Water as possible, which provides a reasonable worst-case scenario when it comes to spilled water.

The total predicted *increased* spill amount is 26,809 AF, which could occur during 21 spill events in the 51-year modeling period. This corresponds to an average of approximately 1,276 AFY increase in spill volume during each spill. Through analysis of historic SWP operations, it was determined that approximately 7,000 AFY of District water has been lost due to spill at the SWP's San Luis Reservoir on average over the last 26 years.

Because the project would encourage in-lieu exchanges of SWP water and Lopez water, the increased spill volume at Lopez should be balanced by a decrease in spill volume at San Luis Reservoir.

In terms of spill effects on Arroyo Grande Creek downstream of the dam, the majority of the predicted project-related spill events would result in incremental increases in volume that would be within the range of baseline spill magnitudes. This is discussed further in Section X – Hydrology and Water Quality. The effects of these incremental increases on peak flow rates in Arroyo Grande Creek are depicted graphically for three different locations along Arroyo Grande Creek shown in Figure 3: just below Lopez Dam (modeling results in Figure 4), the AG Stream Gage near Stanley Avenue in the City of Arroyo Grande (Figure 5), and the 22nd Street bridge in Oceano (Figure 6). These locations were selected because there are flow monitoring devices that have been in use at these sites for many years. Additionally, the 22nd Street location is in the District's Zone 1/1A managed flood control channel, which consists of levees along the lower three miles of Arroyo Grande Creek.

Evaporation: The estimated project-related effects on evaporation constitute a 140,507 AF loss over the 51-year modeling period, or an average of 2,702 AFY more than baseline conditions (Table 16 in Attachment A).

Other Considerations: Physical conditions within the Contractors' service areas in Zone 3 vary widely. The project would potentially alter how much of each Contractors' Lopez supply is used each year, but the project would not alter how much water each Contractor provides to their customers or where/how that water is used. Further, the proposed project would not require any physical improvements to the Lopez Project, which includes the reservoir, water treatment and delivery infrastructure.

The Existing Setting section below focuses on the Lopez Reservoir and the downstream Arroyo Grande Creek channel, where direct physical impacts would be more likely to occur, rather than the entirety of the Zone 3 boundary.

ASSESSOR PARCEL NUMBER(S): multiple

Latitude: 35 ° 11' 20.58" N **Longitude:** -120° 29' 21.63" W **SUPERVISORIAL DISTRICT #** 4

B. Existing Setting

Plan Area: South County **Sub:** Huasna-Lopez **Comm:** Rural

Land Use Category: Recreation Rural Lands Agriculture Residential, Urban

Combining Designation: Sensitive Resource Area Flood Hazard Geologic Study

Parcel Size: Varies

Topography: Nearly level to Very steeply sloping

Vegetation: Grasses Scattered Oaks Chaparral, Agriculture

Existing Uses: Undeveloped recreation, agriculture, rural and suburban residential, urban

Surrounding Land Use Categories and Uses – Lopez Reservoir:

North: Open Space; rural lands recreation ***East:*** Agriculture; recreation rural lands

South: Agriculture; rural lands ***West:*** Agriculture;

Surrounding Land Use Categories and Uses – Arroyo Grande Creek:

Upstream: Agriculture, rural, rural residential

Downstream: Urban, rural and suburban residential, agriculture, recreation

C. Environmental Analysis

The Initital Study Checklist provides detailed information about the environmental impacts of the proposed project and mitigation measures, if applicable, to lessen the impacts.

Figure 1. Lopez Project Vicinity Map

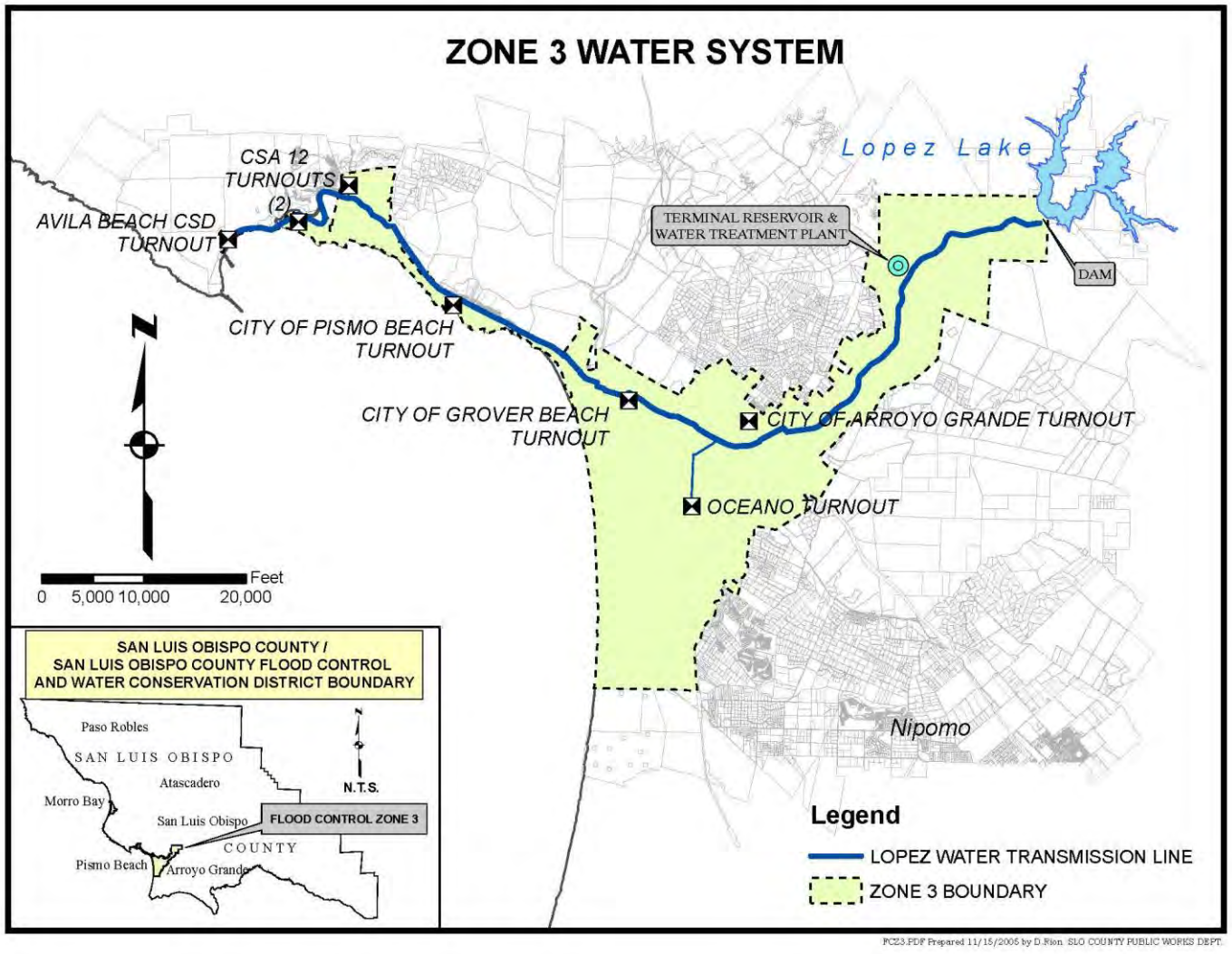


Figure 2. Predicted project-related increase in Lopez Reservoir water levels.

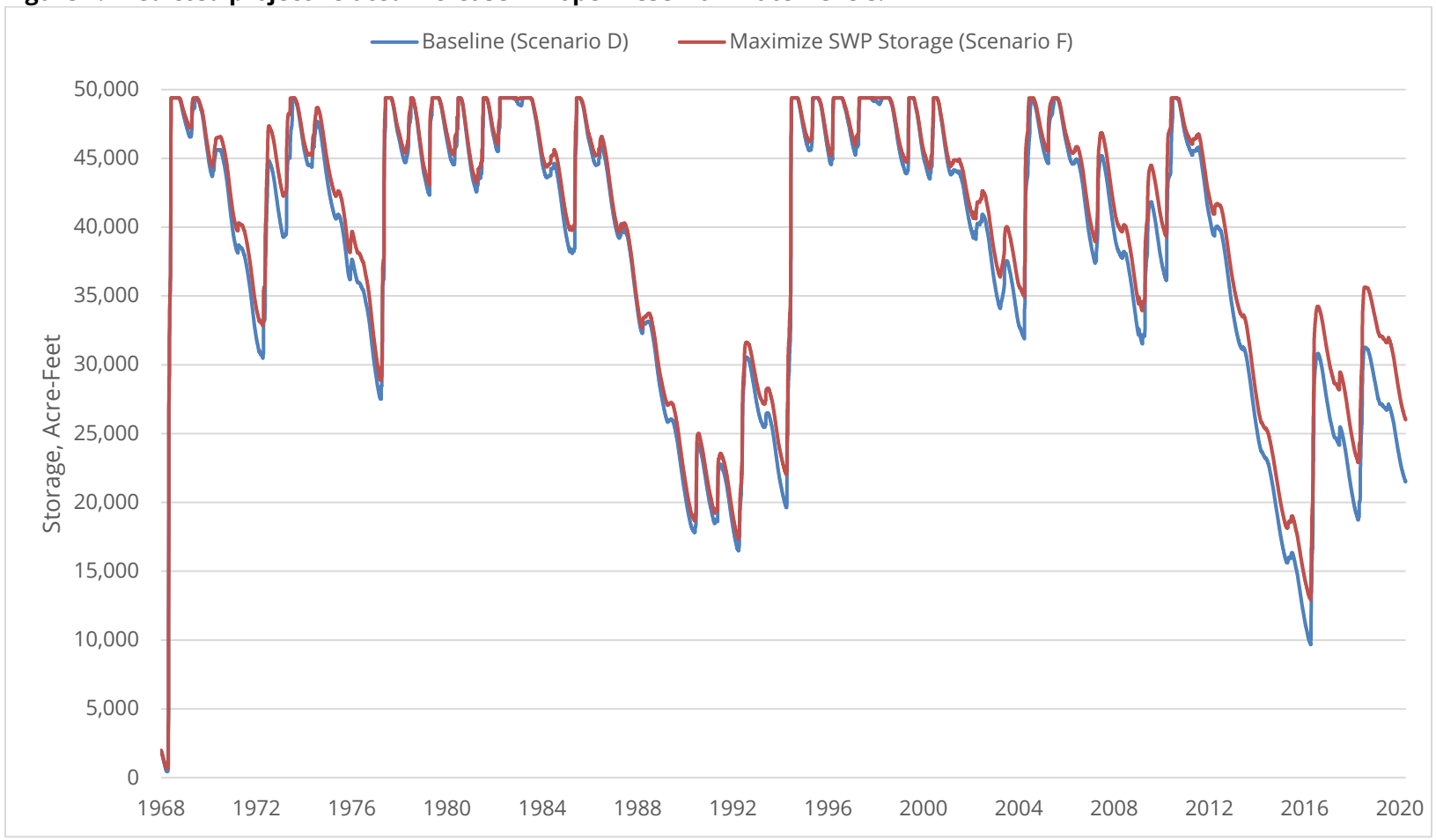


Figure 3. Locations analyzed for project-related increases in channel flow due to spill.

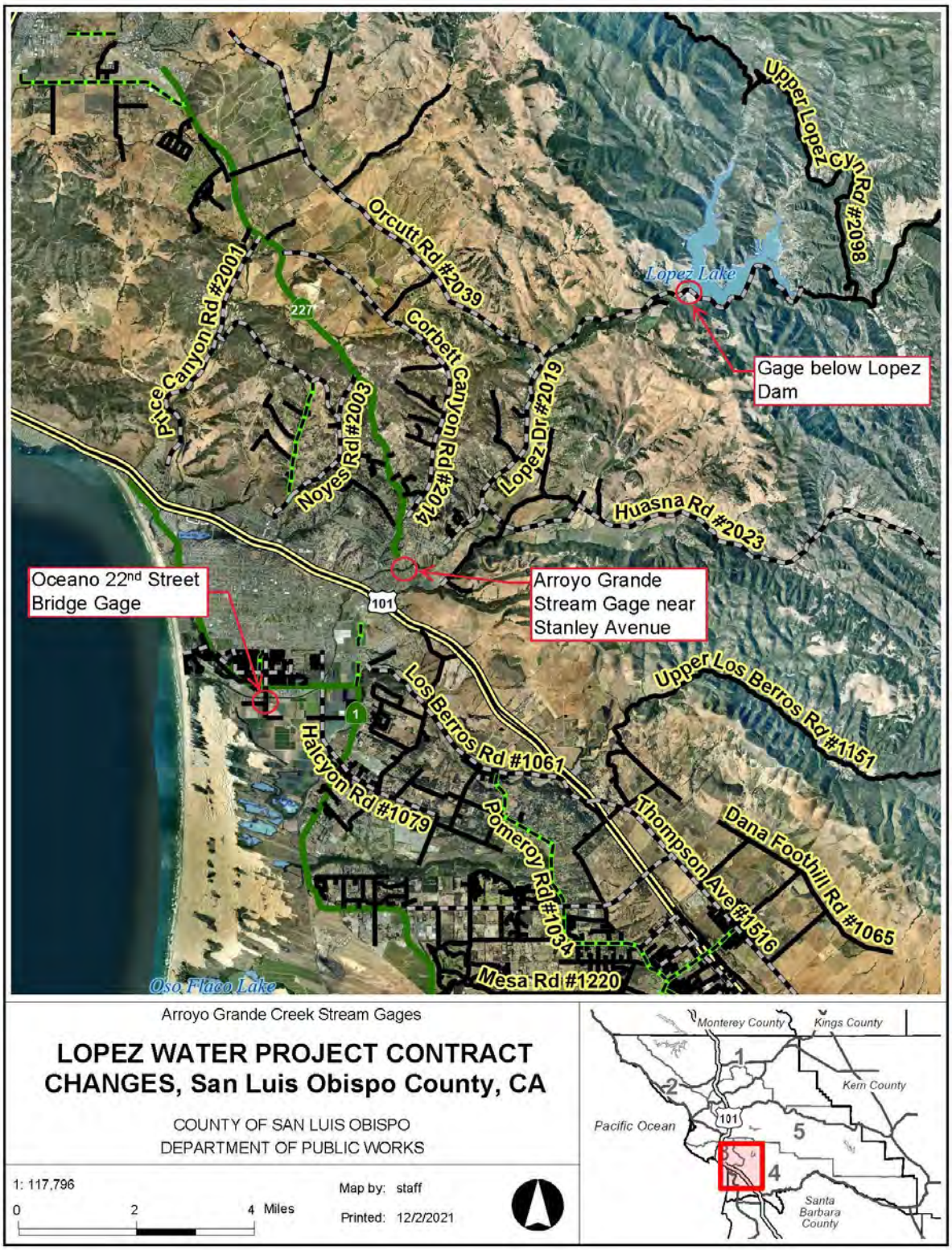


Figure 4. Annual peak spill rates downstream from Lopez Dam.

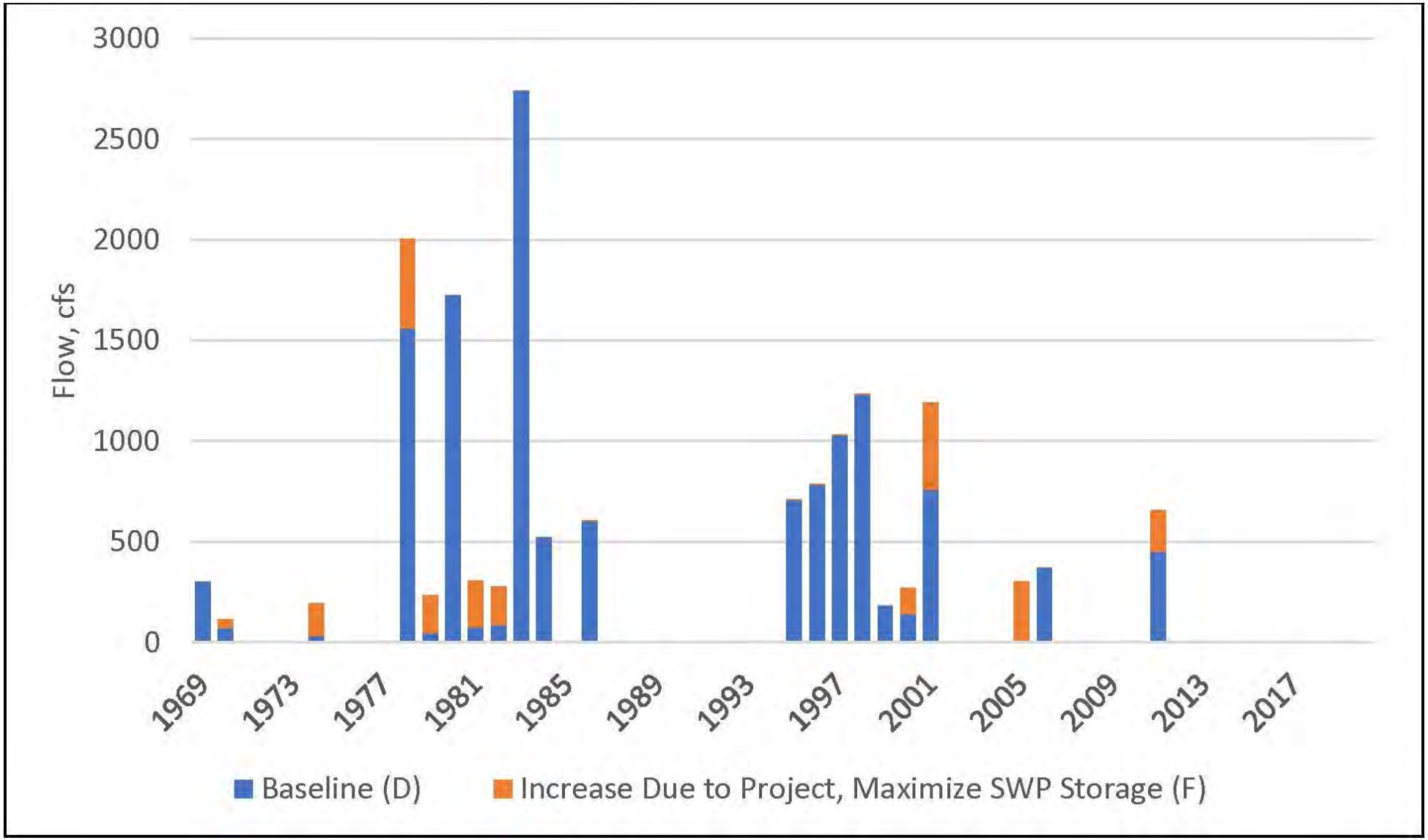


Figure 5. Annual peak flow rates at the Arroyo Grande stream gage near Stanley Avenue.

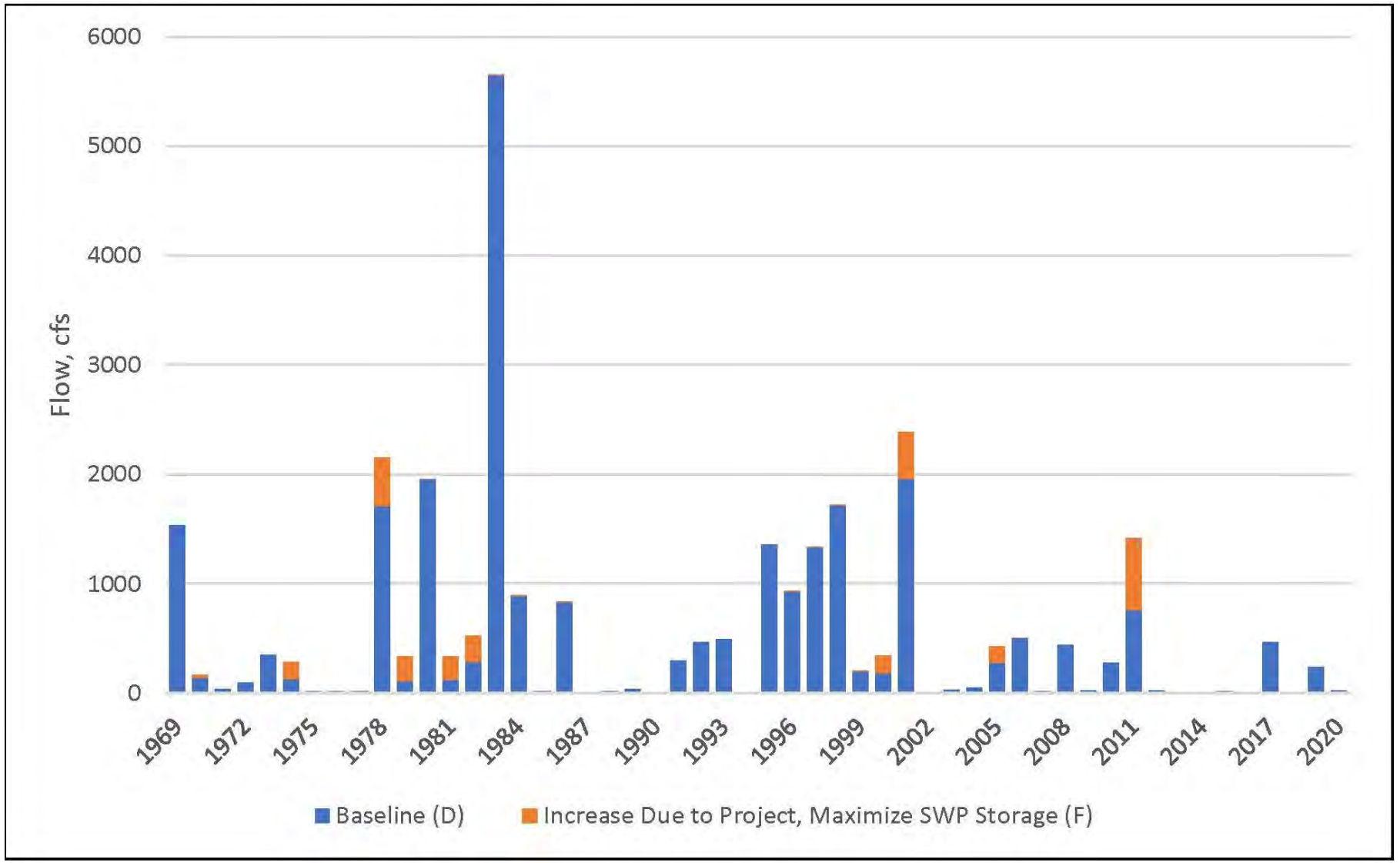
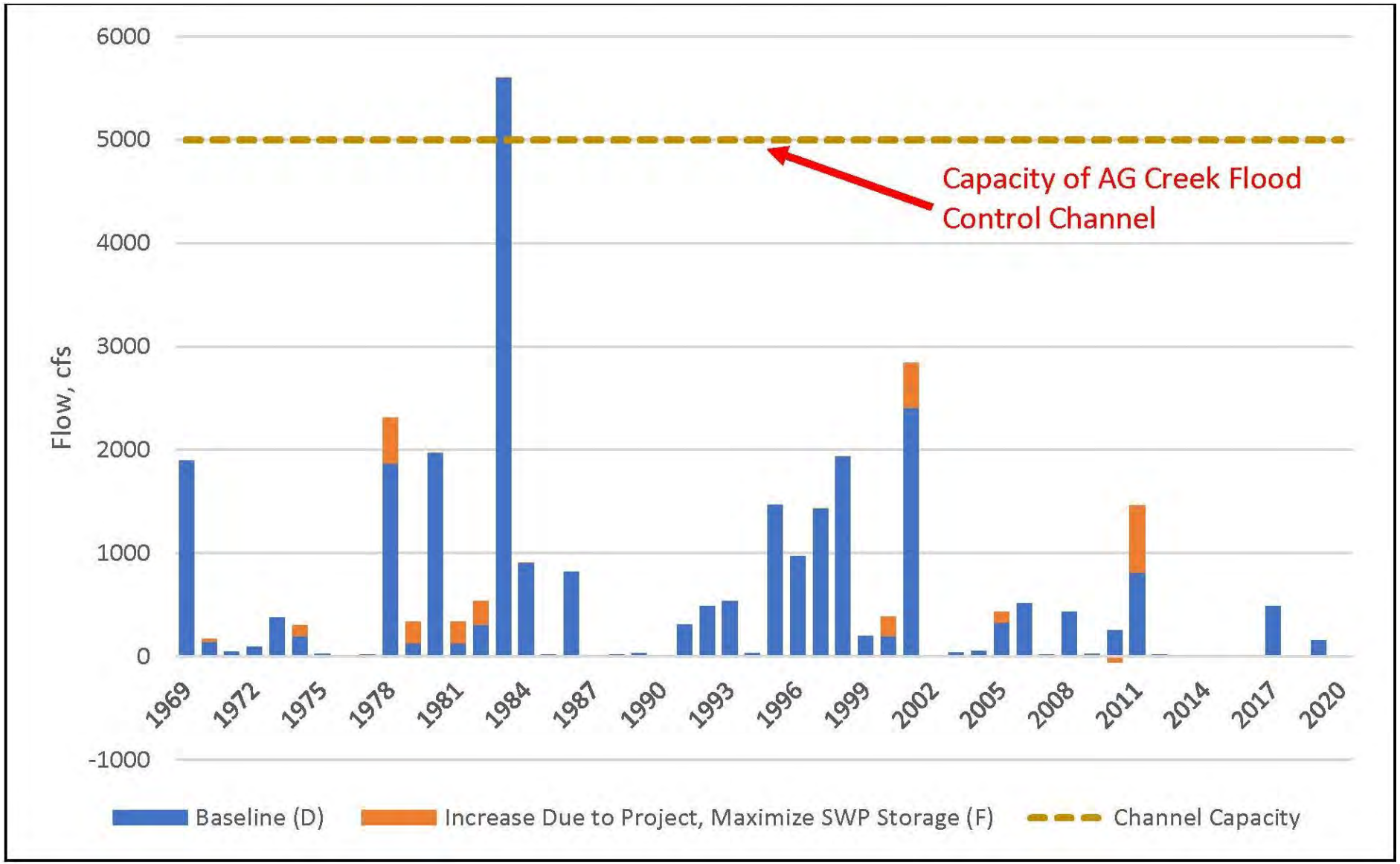


Figure 6. Annual Peak flow rates at the 22nd Street Bridge in Oceano.



Initial Study – Environmental Checklist

I. AESTHETICS

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:					
(a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
(b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
(c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
(d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Setting

The Lopez Reservoir and surrounding hills have high scenic value. The setting is in undeveloped hills with scattered coastal oak woodland. Lopez Drive is the primary publicly accessible road in the vicinity and it follows the meandering south and southeastern shoreline of the reservoir with expansive views of the reservoir and surrounding hills. The Lopez Recreation Area at the north side of the reservoir supports recreational uses on land and on the water, for which the aesthetics of the reservoir and surrounding open space is an important component of the character of the park.

Arroyo Grande Creek downstream from the dam is bordered by a variety of land uses and settings, including open space, agricultural fields, vegetated riparian corridors, and residential and urban development.

Discussion

(a) Have a substantial adverse effect on a scenic vista?

The project could result in changes in the water level in the reservoir, but these changes would be within the range of current water level fluctuations that result from changes in hydrology (e.g., rain, runoff), climate trends, and Contractor demand. The project would not result in a significant lowering of the reservoir levels, for example, which could impact the aesthetics of the reservoir when viewed from trails and the campground. The small-scale changes in water levels (up or down) over time that could result from the project changes

would not impact scenic vistas at the reservoir. Similarly, project-related changes in flow in Arroyo Grande Creek would not affect the scenic character of the creek downstream from the dam.

(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The project is not located on or near a designated state scenic highway and would not require construction or other activities that could damage scenic resources. The upper limit on reservoir water level is controlled by the spillway, so the project would not result in shoreline flooding in new areas. Project-related effects on flow in Arroyo Grande Creek are not expected to change existing channel or bank conditions. Therefore, the project is not expected to damage existing scenic resources such as trees.

(c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Direct project effects in Lopez Reservoir are in a non-urbanized area. Potential indirect effects on flow conditions in Arroyo Grande Creek could affect a variety of land uses downstream from the dam, including non-urbanized and urbanized areas. The project would maintain the existing character and quality of public views from surrounding public roads and the Lopez Lake Recreation Area. The project may result in changes in the water level in the reservoir, but those changes would fall within the normal range of current reservoir conditions and operations. Project-related water levels in the creek would not be substantial enough to change the character of existing views or conflict with any regulations governing scenic quality.

(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The project would not introduce any new lighting or other sources of glare.

Conclusion/Mitigation

Aesthetic impacts of the project would be limited to potential changes in reservoir water level and Arroyo Grande Creek flow that are within the historic and current range of water levels resulting from existing reservoir conditions and operations. As such, the project would have no significant adverse aesthetic impacts and no mitigation measures are required.

II. AGRICULTURE AND FORESTRY RESOURCES

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
(a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
(b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
(d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
(e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Setting

The reservoir is surrounded by agricultural land uses to the east and west of the recreational lands bordering the reservoir, the outlet to the dam, and Arroyo Grande Creek downstream to the coast. These include vineyards, ranches, and row crops.

The reservoir is in the Arroyo Grande Valley Arroyo Grande Preserve Area. Surrounding agricultural lands downstream along the Arroyo Grande Creek corridor to Oceano include numerous parcels that are under Williamson Act contract and/or have prime farmland soils. These agricultural operations have generally been active for decades, are commonly developed with high value row crops and related infrastructure, and are highly productive.

There are no managed forest lands or timberland at or near the reservoir or along Arroyo Grande Creek downstream of the dam. The reservoir is predominantly surrounded by central coast scrub and scattered oak woodlands.

Discussion

(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The project would not have any direct physical effects on any farmland in the vicinity. The project would not change the baseline dam releases that provide water for downstream agricultural use. Project-related increases in spill have the potential to incrementally increase downstream flow conditions, which could have minor beneficial effects for irrigation. Any such increases are predicted to be within the existing range of channel flow volumes and are not expected to increase the frequency or severity of flooding of agricultural lands (refer to discussion in Hydrology and Water Quality Section). As such, the project is not expected to result in any conversion of farmland to non-agricultural use.

(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project would not affect access to or use of nearby agricultural lands including Williamson Act contract properties.

(c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

There are lands meeting the definition of 12220(g) (i.e., land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits) around Lopez Reservoir and bordering portions of Arroyo Grande Creek. However, the project would not affect the maximum water level in the reservoir, which is controlled by the spillway. Therefore, there would be no direct or indirect effects on forest lands around the reservoir. Project-related changes in flows in Arroyo Grande Creek downstream of the dam would be within the current range of flows and are not expected to increase the frequency or duration of flood conditions to an extent that could adversely affect forest lands.

There are no known timberland production zones meeting the definition of 51104(g) in the project vicinity (i.e., an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses).

(d) Result in the loss of forest land or conversion of forest land to non-forest use?

See above. The project would not directly or indirectly affect forest land or require conversion of any forest land to non-forest use.

(e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

As stated in (a), the project would not adversely affect existing downstream releases that support agricultural irrigation, and is not expected to have a material effect on downstream flooding. Therefore, the project would not result in changes that have the potential to convert farmland or forest land from existing uses.

Conclusion/Mitigation

The project would have no direct effects on agriculture operations, agricultural land, or forest land. Potential indirect effects on agricultural land due to project-related changes in Arroyo Grande Creek flows during high flow events are not expected to be of a magnitude that would result in adverse effects to forest land, farmland, or agricultural operations. No mitigation measures are required.

III. AIR QUALITY

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:					
(a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
(b)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☐	☒
(c)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
(d)	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

Setting

San Luis Obispo County is in non-attainment status for ozone and particulate matter 10 micrometers in size and smaller (PM_{10}) under the California standards. This means that the state air quality standards for ozone and PM_{10} are not being met. The County's Clean Air Plan describes strategies to reduce emissions of these pollutants with the goal of improving air quality to meet the state standards by the earliest possible date. For project-specific emissions analyses, the current guidance is the County APCD CEQA Air Quality Handbook (2012) and permits may be required from APCD for certain activities that affect emissions.

Typical sources of emissions of particulate matter include excavation and soil grading activities. Typical sources of emissions that contribute to ozone levels include fossil fuel burning, such as by vehicle and equipment engines and generators.

Additional air quality concerns include lead and asbestos either occurring in soil or in structures to be demolished. The Lopez dam and portions of the reservoir and downstream environment are within the APCD's mapped naturally occurring asbestos buffer, meaning there may be natural sources of asbestos in the soil that could be exposed through grading activities.

The APCD responded to early consultation on the project by email dated November 3, 2020. Because there is no proposed construction, the APCD has no concerns with the project.

Discussion

(a) Conflict with or obstruct implementation of the applicable air quality plan?

The source control measures in the Clean Air Plan are not directly applicable to the project. The project will not require or affect vehicle, equipment, or generator use such as by construction activities or generating new traffic. Accordingly, the project does not conflict with the Clean Air Plan.

(b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The project will not result in any temporary or permanent emissions that would affect ozone or PM_{10} (dust) levels.

(c) Expose sensitive receptors to substantial pollutant concentrations?

In accordance with the APCD Handbook, sensitive receptors are people that have an increased sensitivity to air pollution or environmental contaminants. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling units.

Sensitive receptors in the vicinity of the project include recreational users at Lopez Lake Recreation Area, and agricultural workers and residents in close proximity to any of the Lopez Project Facilities. The project would not require any construction or operational air emissions or any demolition, so there is no potential for adverse effects to sensitive receptors from diesel emissions, naturally occurring asbestos, or asbestos, lead, or other contaminants in soil or in structures to be demolished.

(d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The project would not require construction or operational changes that would produce any other emissions.

Conclusion/Mitigation

The project would have no effect on air emissions or air quality and no mitigation measures are required.

IV. BIOLOGICAL RESOURCES

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
(b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐
(c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
(d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
(e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
(f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

Setting

Lopez Reservoir

The description of biological resources in and around Lopez Reservoir is based on the Lopez Drive Bridge Seismic Retrofit Project Natural Environment Study (SWCA, 2019).

Habitat types present around the Lopez Reservoir shoreline include primarily live oak woodland and Central Coast scrub. These habitat types extend from the reservoir shoreline up to the Los Padres National Forest lands to the north and east. Ruderal habitats are present along the roadsides and in disturbed lakeshore locations. Ruderal habitats may have invasive plant species, including non-native grasses such as red brome and pampas grass.

The lake shoreline experiences water level fluctuations in response to seasonal climatic conditions and Contractor demand. Central Coast scrub or wetland communities (e.g., mulefat) may develop during periods of low water and subsequently become inundated when the reservoir level rises.

Jurisdictional waters present include the open water area of Lopez Reservoir. Vegetated wetlands are only present as ephemeral features in response to water level fluctuations.

During preparation of the Natural Environment Study for the bridge project (2019), search of a five-mile radius around the reservoir resulted in 19 special-status plant species, 16 special-status wildlife species, and no Natural Communities of Concern. Special-status wildlife species with potential to occur at Lopez Reservoir include bald eagle, western pond turtle, California red-legged frog, nesting migratory birds, and roosting bats.

Sport fish in the lake include red-ear sunfish, crappie, largemouth bass, smallmouth bass, and catfish. Non-native wildlife species that may be present in the lake include bullfrogs and crayfish.

Arroyo Grande Creek Corridor

The Arroyo Grande Creek corridor environment downstream from Lopez Reservoir is approximately 13 miles long and highly variable. Habitat types include, for example, central coast scrub, non-native annual grassland, chaparral, coast live oak forest, willow riparian, riparian woodland, open water, and agricultural and urban land. In many locations, these habitats intergrade due to local topographic changes as well as the intensity and type of historic development. Wetlands, beach and dune habitats, including the Meadow Creek and Arroyo Grande Creek Lagoons, are present at the creek outlet at the Oceano Dunes State Vehicular Recreation Area.

The entire creek corridor is designated critical habitat by the National Marine Fisheries Service (NMFS) for the South-Central California Coast Steelhead (steelhead). The most downstream extent of the creek corridor is partially within critical habitat for the La Gracisoa thistle by the United States Fish and Wildlife Service (USFWS).

As part of its long-term planning for the Lopez Dam, the District is in the process of developing a Habitat Conservation Plan (HCP) for the purpose of protecting and enhancing habitat conditions in Arroyo Grande Creek for steelhead and California red-legged frog (CRLF) pursuant to the federal Endangered Species Act. The HCP will address the operation of Lopez Dam (for example, storage and downstream release scenarios) along with potential habitat restoration activities downstream of the dam. HCP goals include maintaining sufficient attractant flows for migrating adult steelhead, and maintaining sufficient wetted pools for juvenile steelhead and CRLF during low flow conditions. The HCP may result in modifications to dam releases and/or downstream flow conditions. Implications of the HCP for the Lopez water supply contracts would be evaluated through development of the draft and final HCP. The contracts would be amended, if necessary, after completion of the HCP process. The proposed contract provisions include clarifying that an HCP downstream release plan is a legally required water release and has priority over other Lopez water distributions.

Other special-status species that are known to occur or could be present at times within the creek corridor include coast range newt, coast horned lizard, western pond turtle, California legless lizard, numerous bird species, bats, and plant species including Pismo clarkia and Santa Margarita manzanita, among others.

California Department of Parks and Recreation (State Parks) is currently preparing an HCP for multiple species that exist in the Oceano Dunes State Vehicular Recreation Area (California State Parks 2020). Species covered in the HCP include California least tern, tidewater goby, western snowy plover, CRLF, and six plant species. Approximately the lower half mile of Arroyo Grande Creek is in the draft HCP coverage area. This area is monitored quarterly by State Parks for tidewater goby, steelhead, and CRLF.

Discussion

(a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

While not protected as special-status species, CDFW manages the sport fish populations in the reservoir. Project-related changes in Lopez Reservoir water levels would not adversely affect sport fish in the reservoir and may provide incremental benefits for fisheries habitat through increased water levels and surface area of Lopez Reservoir.

The project would not change the volume or timing of the downstream release schedules described in the adopted IDRS for protection of low-flow habitat conditions in Arroyo Grande Creek.

The project could result in periodic increases in flow in Arroyo Grande Creek due to a nominal increase in occurrence and magnitude of downstream spill events (Figures 4, 5, and 6). The majority of the project-related increases in spill volume would occur in the winter and spring months when reservoir levels are higher and flows downstream are already high. The incremental increases in spill volumes would potentially improve downstream flows for adult and juvenile steelhead, which rely on sufficient creek flow for migration and deep-water refugia.

At the downstream locations analyzed for spill effects, project-related increases in spill would not increase the magnitude of flow in the creek during the maximum spill event. For all smaller spill events, the project-related increases would be infrequent and would not approach the magnitude of the highest expected spill- or non-spill related flows in the creek. As such, the project is not expected to have adverse effects on existing habitat conditions in the creek or riparian zones that support special-status species of wildlife and plants.

The project would not require any physical improvements and is not expected to have indirect effects that would affect special-status species.

(b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?*

The Project could result in higher water levels in the Lopez Reservoir, but high-water conditions would be limited to the existing reservoir area which is limited by the existing height of the dam spillway. An increased frequency or duration of higher water levels in the reservoir would affect shoreline habitat areas that are already subjected to wide fluctuations in water level resulting from seasonal and long-term climatic conditions. As such, no adverse effects to riparian areas or other habitats are anticipated.

Riparian habitat is widespread downstream of the Lopez Reservoir. Under existing conditions, the creek generally flows higher in the winter due to rainfall and reduced agricultural demand, and lower during the

summer months. Portions of the creek routinely go dry in the drier months. The proposed project would not result in changes to the current IDRS or quantity of downstream releases. The frequency and magnitude of project-related increases in spill, if realized, are not substantial enough that riparian habitats would be adversely affected (e.g., through increased scour or sediment deposits).

(c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Lopez Reservoir has relatively steep shorelines. Wetlands may be present as temporary features that develop during low water conditions and that are submerged during high water conditions. The proposed project would not change that condition.

The Arroyo Grande Creek corridor downstream from the dam generally consists of unvegetated channel and vegetated riparian banks constrained by flood control levees, providing limited space for development of wetlands. The downstream portion of Arroyo Grande Creek includes a wetland and lagoon complex known as Arroyo Grande Lagoon. Due to (1) the distance from the reservoir to this area, (2) that average downstream releases would not change under the proposed project, and (3) that project-related increases in spill would be relatively infrequent and within the range of existing, typical flow conditions, the proposed project is not expected to result in impacts to state or federal wetlands.

(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Project-related increases in reservoir water levels would not interfere with aquatic species movements, wildlife corridors, or nursery sites compared to existing conditions. Project-related effects on downstream conditions would be limited to relatively infrequent, incremental increases in flow due to spill. The project would not decrease downstream releases/flows during low flow conditions that would otherwise have the potential for adverse effects to aquatic species movement and nursery sites in Arroyo Grande Creek. The project-related short-term increases in downstream flows due to additional spill events would be well within the existing range of flow conditions in Arroyo Grande Creek; are expected to incrementally improve fish passage conditions; and are not expected to have material adverse effects on habitat conditions through increased channel scour, bank erosion, or related sediment deposits.

(e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The project would not have any upstream watershed effects beyond the reservoir shoreline and downstream effects would be limited to infrequent, incremental increases in streamflow due to spill events. No construction, ground disturbance, or tree removal is proposed.

(f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

There are two HCPs currently in development – the Oceano Dunes State Vehicular Recreation Area HCP and the Arroyo Grande Creek HCP. A draft Oceano Dunes HCP is currently available for public review. The Arroyo Grande Creek HCP is in earlier development stages, with modeling and in-stream habitat surveys conducted throughout 2021. Neither has been adopted at this point. The District anticipates the Arroyo Grande Creek HCP could result in the need for revisions in operation of the dam, particularly in regard to the timing and

volume of the downstream releases. The operations identified in the HCP would replace those currently implemented in the IDRS.

The Oceano Dunes HCP includes coverage of the lower portion of Arroyo Grande Creek at the coast. The project-related effects on flow in Arroyo Grande Creek are expected to be infrequent and within the existing range of flow conditions. As such, they are not expected to conflict with the management objectives in the Oceano Dunes HCP.

Conclusion/Mitigation

The project would not result in adverse effects to biological resources. The HCP may result in future modifications to dam releases and/or downstream flow conditions. The environmental impact of those changes would be evaluated during subsequent environmental review. No mitigation measures are necessary.

V. CULTURAL RESOURCES

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☒	☐
(b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	☒
(c)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒

Setting

No historical buildings, structures or sites listed in the California Register of Historical Resources are located in or near the reservoir (California Office of Historic Preservation 2021). One historical landmark on the State Register occurs in close proximity to Arroyo Grande Creek downstream of the dam: the Independent Order of Odd Fellows (IOOF) Lodge 258 building at 127 Bridge Street, Arroyo Grande. The building housed the lodge and the South Historic Society, but is now closed. It is separated from the creek riparian zone by a paved parking lot.

With respect to archaeological resources, the project site lies within a region historically occupied by the Chumash. The Chumash occupied the coast between San Luis Obispo and northwestern Los Angeles County, inland to the San Joaquin Valley. They were divided into two broad groups, of which the Obispeño were the northern group. The Salinan were northern neighbors of the Chumash, and although the presence of a firm boundary between the Chumash and the Salinan is uncertain, ethnographic accounts have placed Salinan territories in the northern portion of the County. Neither tribal group has recognized tribal lands in the project area. For purposes of CEQA compliance, the County solicits and considers input from all interested tribal members through the Assembly Bill (AB) 52 Tribal Consultation process.

Both tribes have a rich and complex history dating back as much as 10,000 years before present. The material culture and lifeways of the Northern Chumash appear to have been similar in many ways to their northern neighbors, the Salinan. The Northern Chumash had a complex system of social organization. They were hunter-gatherer-fishers and resided in numerous permanent villages and temporary camps, following annual cycles of hunting and gathering. Acorns provided a main staple of the diet.

The Arroyo Grande Creek corridor and other creeks in the region are considered archaeologically sensitive because they provided access to water, fish, and a diversity of plants and animals associated with the riparian zones.

A number of archaeological reports have been completed for past projects at or in the vicinity of Lopez Reservoir, including archival research of the entire Lopez Reservoir area (SWCA, 2018). Many of the archaeological investigations in the region resulted in significant archaeological finds. Consultation with Native American tribes for previous projects confirm the archaeological sensitivity of the area and the potential to encounter archaeological resources during ground disturbance activities.

Discussion

(a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

(c) The project would not result in new inundation areas or other physical impacts that could affect cultural resources.

(d) Disturb any human remains, including those interred outside of dedicated cemeteries?

In regard to (a) through (d), project effects would be limited to changes in the frequency and duration of water levels in currently managed surface waters, namely Lopez Reservoir and Arroyo Grande Creek. The project is not expected to result in new inundation areas, exposed areas, or physical improvements that could affect cultural resources. Periodic, incremental increases in flow in Arroyo Grande Creek due to project-related spill increases are expected to be well within the range of existing spill and storm flows in the Creek and are therefore not expected to adversely affect the building at 127 Bridge Street in Arroyo Grande.

Conclusion/Mitigation

The project would have no adverse effect on cultural resources and no mitigation measures are required.

VI. ENERGY

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒
(b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Setting

Energy considerations under CEQA are intended to evaluate projects with respect to the goals of decreasing energy consumption and reliance on fossil fuels, and increasing reliance on renewable energy sources (CEQA Guidelines Appendix F). Relevant factors for consideration can include energy consumption required for the project, compliance with energy standards, and effects of the project on local and regional energy supplies, electricity demand, and transportation energy requirements.

Discussion

(a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The project would not change operation of the Lopez Project in a way that would materially affect energy consumption for project operation, including water filtration and conveyance to the Contractors. The project would not require new construction.

(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

County energy efficiency programs are focused on building codes, construction workforce training, and residential energy efficiency assistance programs. These County efforts are not directly relevant to the project. Additionally, the project would not conflict with or obstruct any plans to develop renewable energy resources or increase energy efficiency.

Conclusion/Mitigation

The project would have no effect on energy resources and no mitigation measures are required.

VII. GEOLOGY AND SOILS

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☒
	(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
	(ii) Strong seismic ground shaking?	☐	☐	☐	☒
	(iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
	(iv) Landslides?	☐	☐	☐	☒
(b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
(c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
(d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
(e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Setting

The project area has very steeply sloping terrain around the shoreline of Lopez Reservoir, with gently sloping and level land bordering Arroyo Grande Creek downstream from the dam. The reservoir is not in the County's geologic study area and is not in a mapped zone for landslide risk. There are potentially active faults trending northwest to southeast immediately downstream from the dam.

Bedrock geology in the vicinity of the reservoir includes the Monterey Formation and the Santa Margarita Sandstone, which have high sensitivity for paleontological resources. There are Quaternary sedimentary formations in alluvial channels such as Arroyo Grande Creek. The soils map for the region indicates many different soil units, with variable characteristics.

The entire county is mapped as a seismically active area. The bulk of the reservoir and the downstream area is mapped as a D2 hazard zone based on the USGS Seismic Design Standards. A seismic retrofit of the dam was completed in 2006.

Discussion

(a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

(a-i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

(a-ii) Strong seismic ground shaking?

(a-iii) Seismic-related ground failure, including liquefaction?

(a-iv) Landslides?

In regard to seismic hazards, including (a-i) through (a-iv), the project would not alter operation of the Lopez Project, including the dam, spillway, and downstream channel, in a manner that would alter the seismic susceptibility of these project features. The project would not require construction of new infrastructure that would be subject to seismic design codes.

(b) Result in substantial soil erosion or the loss of topsoil?

The project would not result in Lopez Reservoir water level fluctuations or Arroyo Grande Creek flows that exceed existing conditions. The frequency and duration of high-water conditions in the reservoir may increase. This is not expected to result in an increase in shoreline instability or erosion.

The quantity of water lost over the dam due to spill events may increase slightly (an estimated additional 26,809 AF or 9.2% increase over 51 years) from existing conditions. Based on modeling, spill events are estimated to occur 21 times over the next 51 years compared to 20 times if the project is not implemented. Project-related increases in spill quantities would be within the range of the existing flow conditions in the creek downstream of the dam, including the gage downstream from the dam, the Arroyo Grande stream gage near Stanley Avenue, and at the 22nd Street Bridge (Figures 4, 5, and 6). As such, they are not expected to significantly increase channel scour or bank erosion or otherwise alter existing sediment transport processes in the creek.

(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

In regard to (c) through (e), these conditions are not applicable because the project does not include new construction, installation of new septic tanks, or alternative wastewater disposal systems.

(f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

While extensive areas around Lopez Reservoir are underlain by geologic units with high sensitivity for paleontological resources, the project would not require any ground disturbance or rock removal. Therefore, the project would not affect paleontological resources.

Conclusion/Mitigation

The project would not involve new construction or alteration of existing facilities that would trigger concerns related to seismic risk or disturbance of paleontological resources. The changes in water operations proposed for the project could result in changes in water levels in Lopez Reservoir and periodic, incremental increases in flow in Arroyo Grande Creek channel during spill events. Such changes are expected to be within the range of existing conditions and are not expected to result in an increase in sedimentation or erosion. No mitigation measures are necessary.

VIII. GREENHOUSE GAS EMISSIONS

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☒

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Setting

Greenhouse Gas (GHG) Emissions are broadly recognized as contributing to an increase in the earth's average surface temperature and long-term changes in climate. From the perspective of Public Works' typical projects, the most common GHG emissions occur from burning fossil fuels, such as from vehicle exhaust. Additional sources include methane and nitrous oxide from agricultural activities, ozone that forms from precursors in vehicle emissions, and CFCs and hydrofluorocarbons in aerosols, building insulation, and fire suppression and, refrigeration materials.

Discussion

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The project would not change Lopez Project operations in a material way that would affect energy use or associated emissions. The project would not change the extent to which water from Lopez Reservoir is used for agricultural irrigation and would not result in a change in existing agricultural uses. The project would not require construction, so would not generate construction emissions.

(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The project would not increase transportation-related emissions and would not affect other sources of greenhouse gas emissions. Accordingly, the project would not conflict with any applicable plans, policies, or regulations intended to reduce greenhouse gas emissions.

Conclusion/Mitigation

The project would not alter existing GHG emissions or generate new sources of emissions. No mitigation measures are necessary.

IX. HAZARDS AND HAZARDOUS MATERIALS

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
(b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
(c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
(d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
(e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
(f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
(g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Setting

Based on a 2021 review of the Envirostor database, there are no documented hazardous storage or release sites in the vicinity of Lopez Reservoir.

The site is not in close proximity to serpentinite or ultramafic rock outcrops known to contain naturally occurring asbestos. The closest such rock formations are approximately 10 miles west of the project location.

The project is within a 'very high' Fire Hazard Severity Zone and is in a State (California Department of Forestry and Fire Protection, CalFire) fire responsibility area. CalFire's Airport Station is located approximately 11 miles from the project site and response time is in the range of 10 to 20 minutes.

The Arroyo Grande Creek corridor downstream from Lopez Dam is a mapped dam inundation zone. Property within the inundation zone include for example, agricultural land, residential areas as well as portions of the community of Oceano and the City of Arroyo Grande.

Discussion

(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

(d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

In regard to (a) through (d), the project would not require any construction, demolition, ground disturbance, or any other activity requiring the transport, use, or disposal of any hazardous materials.

(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Lopez Reservoir is not located in an airport review area. The San Luis Obispo airport review area is over five miles to the west, and the Oceano Airport review area is roughly 8 miles to the southwest of Lopez Reservoir. The downstream portions of Arroyo Grande Creek are in the Oceano airport review area. The project-related increases in flow in Arroyo Grande Creek would be within the range of existing flows, are separated from the Oceano Airport by the existing levees, and are not expected to result in a safety hazard for the airport.

(f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The project would not require any transportation-related actions, road closures, or changes in land use and would not alter or interfere with emergency response or emergency evacuation plans.

(g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The project would not require any physical actions that would increase the risk of wildland fires, increase exposure of people or structures to wildland fires, or interfere with wildland fire response.

Conclusion/Mitigation

The project would not have any effects related to hazards or hazardous materials and no mitigation measures are necessary.

X. HYDROLOGY AND WATER QUALITY

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☐	☒
(b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
(c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
	(i) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
	(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
	(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
	(iv) Impede or redirect flood flows?	☐	☐	☒	☐

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
(e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Setting

Water Quality

Lopez Reservoir supplies freshwater to the Lopez Water Treatment Plant. The watershed is surveyed and assessed on a regular basis for potential water quality impacts. Lopez Lake is vulnerable to contamination from wastewater generation at the Lopez Lake Recreation Area and livestock near the reservoir. The Lopez Water Treatment Plant water quality is also rigorously tested before being supplied to Contractors. The treated drinking water is monitored for a wide range of naturally occurring and anthropogenic contaminants. Water monitoring results are available for review at https://www.slocounty.ca.gov/Departments/Public-Works/Forms-Documents/Water-Resources/Water-Quality-Reports.aspx.

The Arroyo Grande Creek below Lopez Reservoir is on the state's federal Clean Water Act Section 303(d) list (SWRCB 2021) of impaired water bodies for *Escherichia coli* and fecal coliform (bacterial contaminants indicative of human and animal fecal waste). Proposed water quality impairment additions for the same reach include nickel, nitrate, toxicity, and benthic community effects.

Reservoir and Surface Hydrology

Lopez Reservoir has a capacity of 49,388 AF and when near capacity, a surface area of nearly 1,000 acres. Water levels can fluctuate in response to seasonal precipitation, long-term climatic conditions, and Contractor demand.

Based on decades of supply and demand, the District has determined that the safe yield of the reservoir is 8,730 AFY. The "safe yield" is the maximum amount of water that can be consistently extracted from the reservoir on an annual basis without the reservoir reaching minimum pool or other limiting constraints. Currently, the safe yield represents 4,530 AFY of Contractor entitlements and 4,200 AFY of downstream releases. Downstream releases have averaged approximately 3,640 AFY for the past 10+ years from 2007 to the present. The District generally relies on post-2007 volumes as that is representative of the Lopez Project operations since a seismic retrofit of the dam was completed (2002) and the adoption of an Interim Downstream Release Schedule (IDRS) in 2007.

In 2015 due to intense drought conditions, the reservoir volume dropped below 20,000 AF. The District's Board of Supervisors, following the State's drought declaration, declared a water emergency related to Zone 3. In response, the District implemented a Low Reservoir Response Plan (LRRP). In August 2021 the District declared a local drought emergency and enacted the LRRP. The purpose of the plan is to limit municipal and downstream releases to preserve and extend water supplies in the reservoir for a 3- to 4-year period during intense drought conditions.

Groundwater

The reservoir is not located in an identified groundwater basin. However, Arroyo Grande Creek from the dam to where the creek flows under Highway 101 overlies the Santa Maria River Valley Groundwater Basin (SMRVGB), Arroyo Grande Subbasin. Arroyo Grande Creek from Highway 101 to the coast overlies the SMRVGB Santa Maria Subbasin. The service areas of the Lopez Contractors, with the exception of portions of Pismo Beach and all of CSA-12 (Avila), overlay the SMRVGB. Arroyo Grande, Grover Beach, Oceano Community Services District and Pismo Beach are the Contractors currently relying on groundwater from the SMRVGB.

The California Department of Water Resources 2019 groundwater basin categorization identified the Santa Maria and Arroyo Grande Subbasins as very low priority. Prioritization is based on, among other factors, the degree to which the groundwater serves as a primary source of water, and identified impacts such as saline intrusion or overdraft. The County is nonetheless preparing a Groundwater Sustainability Plan for the Arroyo Grande Subbasin to better understand the system and to support the HCP under development.

Additionally, the communities that rely on the Santa Maria subbasin (Pismo Beach, Grover Beach, Arroyo Grande, and Oceano, referred to as the North Cities Management Area) have been monitoring conditions in order to manage their water supply. A series of five coastal area monitoring well clusters showed evidence of seawater intrusion of the basin in 2009 (Central Coast Blue 2018). In response, the local water users entered into an agreement to limit municipal groundwater pumping to reduce the threat of intrusion. Target withdrawal amounts for each user were set to limit groundwater use to roughly a quarter of the total entitlements (GSI Water Solutions, Inc. 2021). On-going monitoring is used to track the condition of the aquifer, using the five "sentry wells" along the coast as indicators of potential intrusion. The goal is to maintain groundwater gradients (i.e., flow) from east (where municipal withdrawal wells are located) to west (the coastline) to minimize the potential for seawater intrusion. Groundwater quality monitoring is focused on indicators of seawater intrusion.

Based on the State Water Quality Control Board's GeoTracker, the project is not in or near any sites that require groundwater remediation or permitted facilities that could impact groundwater.

Discussion

(a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Project-related changes in water levels in Lopez Reservoir are not expected to result in adverse effects to surface water or groundwater quality. No construction activities, new land uses, or other changes are proposed that could introduce new sources of contaminants in the project area. Project-related changes to Lopez Reservoir water levels and downstream flows would constitute relatively minor changes compared to existing conditions and would not change existing circulation or flushing conditions to an extent that would have the potential to affect water quality. As such, the project is not expected to result in changes to the existing water quality conditions in the reservoir or downstream water, including groundwater conditions that are managed with downstream releases.

(b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The project would not change existing downstream releases or the Contractors' maximum annual groundwater withdrawal amounts. As such, the project would not decrease groundwater supplies or interfere with any existing groundwater management programs. The project-related increases in spill have the potential to incrementally increase groundwater recharge.

(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

(c-i) Result in substantial erosion or siltation on- or off-site?

(c-ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

(c-iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

(c-iv) Impede or redirect flood flows?

In regard to (c-i) through (c-iv), the project would not require construction of new facilities that could alter existing drainage patterns or increase impervious surfaces or stormwater runoff. Project-related hydrologic changes in reservoir levels and downstream flows would be within the range of existing conditions; as such, the project would not alter existing conditions regarding reservoir storage and downstream passage of flood flows.

As described in the introduction section (pages 5 - 6), the effects of project-related increases on peak flow rates in Arroyo Grande Creek resulting from spill over the dam are depicted graphically for three different locations along Arroyo Grande Creek shown in Figure 3: just below Lopez Dam (modeling results in Figure 4), the AG Stream Gage near Stanley Avenue in the City of Arroyo Grande (Figure 5), and the 22nd Street bridge in Oceano (Figure 6). These locations were selected because there are flow monitoring devices that have been in use at these sites for many years. Additionally, the 22nd Street location is in the District's Zone 1/1A managed flood control channel, which consists of levees along the lower three miles of Arroyo Grande Creek.

At all three locations, project-related increases in spill are not predicted to increase the magnitude of flow in the creek during the maximum spill event. For smaller spill events, the project-related increases would be infrequent and would not approach the magnitude of the highest expected spill- or non-spill related flows in the creek.

For example, at the 22nd Street location the channel capacity is 5,000 cfs, which is indicated with the dashed line in Figure 6. The figure shows that one existing spill event during the 51-year modeling period is predicted to exceed the channel capacity (i.e., has the potential to overtop the levees). All other predicted channel flows resulting from spill events, including the project-related increases (orange section of bars labeled "difference") would be well below that magnitude and would be expected to be contained within the flood control channel.

For reference, the 100-year discharge event in Arroyo Grande Creek is 19,500 cfs (SLO Watershed Project, undated). Additionally, because reservoir water levels are generally higher in winter and spring when rainfall is highest and demand is lowest, most spill events are expected to occur during this timeframe.

(d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

The project would not alter existing flood hazard zones or increase the areas of inundation associated with the reservoir or the Arroyo Grande Creek corridor. As discussed in (c), the project-related increases in spill are not expected to result in a material increase in the frequency or magnitude of flood conditions. Therefore, the project is not expected to increase the risk of flood damage or pollutant release due to flooding.

(e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The project would not change existing programs related to water quality and sustainable groundwater management, as discussed in (a) and (b).

Conclusion/Mitigation

The project would not affect water quality conditions in Lopez Reservoir or surface water and groundwater downstream. The project would result in periodic increases in Lopez Reservoir water levels that would be within the range of existing conditions. Because water levels and downstream releases are closely managed, the project would not result in any significant change in flood hazard conditions in the reservoir or upstream areas. The project would result in incremental increases in spill and spill volume that would be within the range of existing flow conditions in Arroyo Grande Creek downstream from the dam. Project-related effects would be minor and are not expected to result in material changes in flood conditions in the Arroyo Grande Creek corridor. No mitigation is required.

XI. LAND USE AND PLANNING

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Physically divide an established community?	☐	☐	☐	☒
(b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Setting

Surrounding land uses for Lopez Reservoir and Arroyo Grande Creek consist of rural lands sparsely developed for recreation and residential use, and urban development in the lower portions of Arroyo Grande Creek. The project was reviewed for consistency with policy and regulatory documents relating to the environment and appropriate land use. Early consultation notice and opportunity to comment was provided either directly by the District or through the State Clearinghouse to interested agencies to review for policy consistencies (e.g., CalFire for Fire Code, APCD for Clean Air Plan; full list in Exhibit A). The project is not within or adjacent to an approved Habitat Conservation Plan area. As described in the Biological Resources section, HCPs are being developed for Arroyo Grande Creek and the State Park Oceano Dunes District

Discussion

(a) Physically divide an established community?

The project will not physically divide an established community and will not alter existing transportation routes between communities.

(b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The project is compatible with the surrounding uses and would not change or interfere with any existing land uses. The South County Inland Area Plan designates private lands within the viewshed and immediate watershed of Lopez Lake as a Sensitive Resource Area for aesthetics, water quality, primitive values, and wildlife habitat. Project-related effects on these issues are as described under Aesthetics, Biological Resources, and Hydrology and Water Quality. While not applicable to work proposed by the County within existing County rights-of-way, the project does not conflict with the designation of the Lopez Lake Sensitive Resource Area in the South County Inland Area Plan. The project was found to be consistent with other applicable plans (listed in Exhibit A), and does not conflict with the plans or policies of any of the referral agencies.

Habitat conditions for federally listed species and designated critical habitat in Arroyo Grande Creek downstream of the dam are being addressed in the draft Arroyo Grande HCP. Arroyo Grande Creek crosses into the State Parks Oceano Dunes Draft HCP area at the coast. Project-related effects on flow conditions in Arroyo Grande Creek would be relatively infrequent and within the existing range of flow conditions (Figures 4, 5, and 6). As such, the project is not expected to conflict with any of the management objectives of the HCPs, which pertain to federally listed species and designated critical habitat.

Conclusion/Mitigation

The project will have no effect on land use and planning. As described in the Biological resources section, the project would not conflict with the Arroyo Grande Creek HCP provided the contract provisions are reviewed at such time as the HCP is finalized. No mitigation measures are necessary.

XII. MINERAL RESOURCES

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
(b)	Result in the loss of availability of a locally- important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Setting

The project site is not located near any surface mines or energy/extractive areas.

Discussion

(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The project would not require any construction, ground disturbance, or transportation components that would have the potential to impact mineral resources or interfere with access to mineral resources.

(b) Result in the loss of availability of a locally- important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The project is not located within or near any delineated mineral resource recovery sites.

Conclusion/Mitigation

The project would not impact mineral resources and no mitigation measures are necessary.

XIII. NOISE

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:					
(a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
(b)	Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
(c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Setting

Sensitive receptors in the vicinity of the project area include residences and recreational users at Lopez Reservoir, and residences and schools in urban developed areas bordering Arroyo Grande Creek downstream of the dam. Arroyo Grande Creek and the flood control levees border the south side of the Oceano County Airport parcel.

Discussion

(a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The project would not require construction or transportation activities and would not alter the type of activities conducted to manage water levels at Lopez Dam. As such the project would not affect ambient noise levels.

(b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

The project would not require construction or any other activity that would generate excessive groundborne vibration or noise.

(c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project is not located in the vicinity of a private airstrip. The project would not include construction activities or any operational changes that would generate noise.

Conclusion/Mitigation

The project would not result in any change in ambient noise levels and no mitigation measures are necessary.

XIV. POPULATION AND HOUSING

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
(b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Setting

The Lopez Reservoir is located in a rural area of unincorporated San Luis Obispo County. There are only widely scattered residences located in the vicinity, and surrounding land uses are primarily recreational lands and open space.

Arroyo Grande Creek downstream of the dam passes through rural agricultural and residential land and the urban center of the City of Arroyo Grande.

Water from the Lopez project is used throughout the South County in the cities of Pismo Beach, Arroyo Grande, and Grover Beach, as well as the communities of Oceano and Avila Beach.

Discussion

(a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Lopez Project entitlements range from 245 to 2,290 AFY for the five Contractors; the project would not change these entitlements. The project would also not change any Contractor's allocation of SWP water. Instead, the project would provide greater flexibility for the Contractors, specifically during years when water availability from Lopez and/or the SWP is below average. The project would not increase the volume of water in each Contractor's portfolio; therefore, the project would not represent a "new" source of water with the potential for inducing growth.

The project would not include any new infrastructure that would support increased service areas for any of the Contractors and therefore would not induce population growth.

(b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project would not require any new construction and would not displace any housing.

Conclusion/Mitigation

The project would have no impacts on population and housing and no mitigation measures are necessary.

XV. PUBLIC SERVICES

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
	Fire protection?	☐	☐	☐	☒
	Police protection?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Setting

Police protection in the project area is provided by the County Sheriff Department. The project is located in a "very high" Fire Hazard Severity Zone (SLO County 2007); however, Cal Fire's Airport Fire Station is located approximately 11 miles from the project site and response time is approximately 20 minutes. The closest schools are in Arroyo Grande. The project area is an integral component of the Lopez Recreation Area.

Discussion

(a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities?*

The proposed project would have no effect on police, fire, schools, or other public services and would not result in the need for new services or facilities. Impacts to Lopez Recreation Area, a County Park, are discussed under Recreation. No new structures would be built, and there would be no increase in population or traffic as a result of the project. Therefore, there would be no effects on fire, police, or emergency response.

The public benefits of the Lopez Project, including providing a source of drinking water, and managing downstream releases for public benefits (habitat, agriculture, and groundwater recharge) would not be adversely affected by the project.

Conclusion/Mitigation

The project is not expected to adversely affect public services and no mitigation is required.

XVI. RECREATION

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
(b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Setting

The Lopez Lake Recreation Area is 200 acres of parkland and an associated 4,076 acres of Natural Area publicly owned and operated by the San Luis Obispo County Department of Parks and Recreation (County Parks). The park lands include Lopez Reservoir and the surround parcels. Lopez Lake Recreation Area provides active and passive recreational opportunities associated with the Lopez Lake Reservoir. Recreational amenities include camping, boating, water skiing, water slide, fishing, swimming, trails, and nature appreciation.

Discussion

(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The project would have no effect on the amount or type of use of the Lopez Lake Recreation Area.

(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The project would not require construction or expansion of recreational facilities. Modeling results indicate the project would potentially result in incrementally higher water levels in Lopez Reservoir. Any such change would not adversely affect recreational use of the lake.

Conclusion/Mitigation

The project would not have adverse effects on recreation and no mitigation measures are necessary.

XVII. TRANSPORTATION

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
(b)	Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
(c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
(d)	Result in inadequate emergency access?	☐	☐	☐	☒

Setting

As described in the December 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA, vehicle miles traveled (VMT) is considered the most appropriate metric to evaluate a project's transportation impacts under CEQA, replacing level of service and other similar metrics for consideration of significant environmental effects. The main road in the project area is Lopez Drive, which is a two-lane County road providing access to the Lopez Lake Recreation Area and rural residential roads.

Discussion

(a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The project would not require construction of any kind and would not alter or affect existing transportation networks or conditions. Therefore, the project would not conflict with any transit plans, ordinances, or policies.

(b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Section 15064.3(b)(2) of the CEQA Guidelines states that transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant impact on transportation. The project would not involve any activities that would alter existing transportation conditions and would have no effect on vehicle miles traveled. Therefore, the project will be consistent with Section 15064.3.

(c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The project would not change the existing road configuration or introduce new traffic uses.

(d) Result in inadequate emergency access?

The project would not change the existing road configuration or introduce new traffic uses and so would not have any effect on existing emergency access conditions.

Conclusion/Mitigation

Implementation of the project would not result in any impacts on transportation, and no mitigation measures are necessary.

XVIII. TRIBAL CULTURAL RESOURCES

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
	(i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
	(ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

Setting

In accordance with AB 52 consultation requirements, outreach to seven Native American tribe groups was conducted on February 22, 2021 (Northern Chumash Tribal Council, Salinan Tribe of San Luis Obispo, Monterey and San Benito Counties, yak titÿu titÿu yak tiłhini – Northern Chumash Tribe, Xolon Salinan Tribe, Barbareno/Ventureno Band of Mission Indians (three tribal members), Santa Ynez Band of Chumash Indians, and the Coastal Band of the Chumash Nation. Responses were received from three tribal representatives (yak titÿu titÿu yak tiłhini – Northern Chumash Tribe; the Salinan Tribe of San Luis Obispo, Monterey, and San Benito Counties; and the Santa Ynez Band of Chumash Indians) stating that there is potential for archaeological sensitivity in the region, but that they have no concerns with the project based on the fact that no physical disturbance, ground disturbance, or construction activities would occur.

Discussion

(a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

(a-i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

(a-ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

As described in the Cultural Resources section, no archaeological resources have been identified in the project area. The project would not require any ground disturbance. Any changes in hydrology that result from the project would be within the existing ranges of water level in Lopez Reservoir and flow conditions in Arroyo Grande Creek. This means that the project would not introduce the potential for inundation or flooding of areas that are not already subject to inundation.

Conclusion/Mitigation

The project would not affect cultural resources and no mitigation measures are necessary.

XIX. UTILITIES AND SERVICE SYSTEMS

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
(a)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
(b)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
(c)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
(d)	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
(e)	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Setting

The District established Zone 3 (Zone 3) on July 26, 1965, for the purpose of financing, construction and maintenance of the Lopez Dam and facilities (Lopez Project) to provide potable water to the lands within the Zone 3 boundaries. The District entered into water supply contracts with the Zone 3 Contractors to fund a portion of the Lopez Project and to establish entitlements for Lopez Water. The Lopez Project includes the reservoir, dam, terminal reservoir, water treatment plant, and the Lopez Pipeline that transmits the treated water to the Contractors. The terminal reservoir serves as a holding basin prior to intake at the water treatment plant.

Each Contractor owns and operates their own distribution facilities, as well as infrastructure for other water supply sources in their portfolio.

Wastewater and solid waste are not a component of the Lopez Project and are managed by each Contractor with their own infrastructure.

Discussion

(a) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The project would not require the construction of new water or wastewater facilities or expansion of existing facilities.

(b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

The project is being proposed to increase the resiliency of Lopez Project water, including management options to help alleviate water supply shortages during dry years. The project would allow Contractors to manage their use of Lopez Water in the most beneficial way given conditions with other water supplies in their portfolio. The project is expected to increase potential use of SWP water by the Contractors, and to take the pressure off any one source they use to fulfill customer demand. This should allow the Contractors to better plan and prepare for unanticipated water supply emergencies or drought conditions.

The project is expected to result in higher water levels in Lopez Reservoir on average, and to reduce the occurrence of low-water conditions that have the potential to trigger water use restrictions. The modeling predicts incremental increases in the occurrence of spill and in evaporation loss from Lopez Reservoir as a result of higher water levels. However, the project-related increase in evaporative loss is not substantial (approximately 2%), and it is anticipated that the Contractors would manage use of their water supplies to reduce loss due to spill.

In any given year, Contractors of SWP water are subject to frequent spills (almost yearly at times) at San Luis Reservoir, often regardless of climatological conditions because of the inability to move and store that water elsewhere in the system. Through analysis of historic SWP operations, it was determined that approximately 7,000 AFY of District water has spilled or been lost at San Luis Reservoir on average over the last 26 years. The project will provide additional opportunities for District and SWP subcontractors to store more SWP in Lopez Reservoir through in-lieu exchanges with Lopez water that would reduce the amount of SWP spills/losses that occur at San Luis Reservoir. While not specifically modeled, this should offset some of the anticipated project-related increase in spill at Lopez Reservoir. The proposed project would not preclude the District from revisiting any aspect of the Lopez Project water management and contracts with the Contractors to respond to changing conditions. For example, the proposed contract changes would be revisited when the Arroyo Grande Creek HCP is finalized to determine if any changes are required to ensure compliance with the HCP.

(c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The project would not require wastewater treatment or affect existing wastewater treatment facilities.

(d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

The project would not generate solid waste or affect existing solid waste disposal facilities.

(e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

See response to (d).

Conclusion/Mitigation

The project would have beneficial effects for the Lopez Contractors by enabling flexible management of available water supplies. This would benefit the District in regard to managing County-wide water supply resources (e.g., groundwater), and has the potential to reduce drought-related limitations on water use, which would benefit all Contractor customers. The project would not decrease available water supply or increase demand.

Project-related increases in spill and evaporation from Lopez Reservoir have the potential to decrease water available for water supply. However, based on the estimated quantities of those water losses, and anticipated Contractor incentives expected to reduce the losses compared to the modeled levels over a 51-year period, no significant effects on water supply would result. The project will have no significant adverse effects on water or wastewater and no mitigation measures are necessary.

XX. WILDFIRE

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:					
(a)	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
(b)	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
(c)	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
(d)	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Setting

As described under Hazards and Hazardous Materials, the Lopez Reservoir is located in a "very high" fire severity zone and the response time for the area is approximately 20 minutes.

Discussion

(a) *Substantially impair an adopted emergency response plan or emergency evacuation plan?*

(b) *Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*

(c) *Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

(d) *Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

In regard to (a) through (d), impacts of the project on emergency response are discussed under Hazards and Hazardous Materials, Public Services, and Transportation.

The project would have no impacts on existing roads or land uses and would have no material affect on any factor related to the occurrence of, or risks posed by, wildfires.

Conclusion/Mitigation

The project would have no effects on wildfire risk and no mitigation measures are necessary.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
(c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Setting

The project setting is described in terms of surrounding land uses on pages one through five of the Initial Study and from the perspective of environmental resources in each resource section of this document, including, for example, aesthetics, biological resources, and cultural resources.

Discussion

(a) *Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

No project-related effects have been identified that have the potential to substantially degrade the quality of the environment, reduce wildlife habitat, or threaten natural communities. As described under Biological Resources, the District is in the process of developing a Habitat Conservation Plan (HCP) for the purpose of protecting and enhancing habitat conditions in Arroyo Grande Creek for federally listed species. The HCP will address the operation of Lopez Dam (for example, storage and downstream release scenarios) and may have direct bearing on Lopez Water Project contracts, including the proposed contract changes. Pursuant to stipulations in the contracts, the proposed contract changes would be revisited at such time as the HCP is finalized to determine if modifications are necessary to ensure compliance with the HCP and potential for significant adverse effects on biological resources.

The project is not expected to adversely affect cultural resources or to eliminate important examples of the major periods of California history or pre-history.

No mitigation measures are required.

(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

The project does not propose new or different uses than the existing uses of Lopez Reservoir for water supply. The project would use the existing water supply management, treatment, and distribution infrastructure and no construction or new facilities would be required. Operational impacts would be limited to changes in Lopez Reservoir storage with potential for incremental changes in the frequency and duration of reservoir high water levels and incremental increases in downstream flow conditions due to additional spill events. Existing management protocols regarding low water conditions in the reservoir, and management of dam releases for habitat conditions, agricultural irrigation, and groundwater recharge would not change as a result of the project.

Contracts would be reviewed for consistency with the Arroyo Grande Creek HCP when it is finalized to ensure no adverse downstream effects to listed species or designated critical habitat occur. As such, the project is not expected to have impacts that will be individually limited, but cumulatively considerable. Therefore, project impacts, when considered together with past, on-going, and future projects in the vicinity, would not be cumulatively considerable and would not compound or increase other environmental impacts. Therefore, all project-related impacts will be less than significant.

(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The project would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. The proposed contract changes would increase water supply resiliency for the Contractors, increasing their portfolio management options for providing a safe and reliable source of drinking water to their customers and increasing potential use of existing State Water allocations within the District. Increased water levels in Lopez Reservoir are expected to reduce the likelihood of low-water restrictions during droughts. Collectively, these changes would benefit the District and the Contractors by reducing the pressure on any one water supply source. Collectively these changes would benefit Contractor customers by reducing the potential for drought-related restrictions on water use and potentially reducing water costs.

Effects of increased water storage in Lopez Reservoir is expected to have a beneficial effect on recreational use of Lopez Recreation Area. Potential for increased water losses through increased evaporation from the reservoir and spill over the dam would be minor in scale and would not contribute to substantial adverse water supply effects. The potential for increased spill would result in periodic, incremental increases in Arroyo Grande Creek flow that would not cause substantial adverse effects from erosion or flooding conditions. The project would not conflict with adjacent land uses, pose any hazards, or interfere with public safety or emergency response procedures. Implementation of the project would result in net benefits to public water supply. Therefore, the project is not expected to have adverse effects, and is expected to have some beneficial effects, on human beings.

Conclusion/Mitigation

The project will have a less than significant impact on the environment. No mitigation measures are required.

Exhibit A - Initial Study References and Agency Contacts

The County Public Works Department has contacted various agencies for their comments on the proposed project. With respect to the subject application, the following have been contacted for early consultation (marked with an ☒) and when a response was made, it is either attached or in the application file:

Lopez Water Contract Changes NOI Contact List

Company/Agency/Department Notified by District	Response in File	Nature of Response
San Luis Obispo County Air Pollution Control District	Yes	No comments.
San Luis Obispo County Parks & Recreation	Yes	Provide standard requirements.
San Luis Obispo County Environmental Health Department	None Received	NA
San Luis Obispo County Agricultural Commissioner	None Received	NA
Avila Valley Advisory Council	None Received	NA
Oceano Advisory Council	None Received	NA
California Department of Fish and Wildlife	None Received	NA
California State Parks	None Received	NA
US Environmental Protection Agency	None Received	NA
National Marine Fisheries Service	Yes	
US Army Corps of Engineers	None Received	NA
US Fish and Wildlife Service	None Received	NA
Avila Beach Community Services District	None Received	NA
Oceano Community Services District	Yes	Provided contact information; no comments.
City of Arroyo Grande Community Development	None Received	NA
City of Grover Beach	None Received	NA
City of Pismo Beach	Yes	Provided contact information; no comments.
San Luis Obispo County Agricultural Task Force	None Received	NA
Creek Lands Conservation	None Received	NA
South County Sanitation District	None Received	NA
Notified through State Clearinghouse NOC	None Received	NA
California Air Resources Board	None Received	NA
California Coastal Commission	None Received	NA
California Department of State Parks, Division of Boating and Waterways	None Received	NA
California Department of Transportation District 5	None Received	NA
California Department of Conservation	None Received	NA
California Department of Food and Agriculture	None Received	NA
California Department of Forestry and Fire Protection	None Received	NA
California Department of Water Resources	None Received	NA
California Highway Patrol	None Received	NA
California Natural Resources Agency	None Received	NA
California Public Utilities Commission	None Received	NA
California State Lands Commission	None Received	NA
Department of Toxic Substances Control	None Received	NA
Office of Emergency Services	None Received	NA
Native American Heritage Commission	None Received	NA
State Office of Historic Preservation	None Received	NA

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California Department of Parks and Recreation	None Received	NA
State Water Resources Control Board – Water Quality, Drinking Water, Water Rights, and Financial Assistance Divisions	None Received	NA
California Department of Water Resources	None Received	NA

** "No comment" or "No concerns"-type responses are usually not attached

The following checked ("☒") reference materials have been used in the environmental review for the proposed project and are hereby incorporated by reference into the Initial Study. The following information is available at the County Public Works Department.

- ☒ Project File for the Subject Application

County Documents

- ☐ Coastal Plan Policies
- ☐ Framework for Planning (Coastal/Inland)
- ☐ General Plan (Inland/Coastal), includes all maps/elements; more pertinent elements:
  - ☐ Agriculture Element
  - ☐ Conservation & Open Space Element
  - ☐ Economic Element
  - ☐ Housing Element
  - ☐ Noise Element
  - ☐ Parks & Recreation Element/Project List
  - ☐ Safety Element
- ☒ Land Use Ordinance (Inland/Coastal)
- ☐ Building and Construction Ordinance
- ☐ Public Facilities Fee Ordinance
- ☐ Real Property Division Ordinance
- ☐ Affordable Housing Fund
- ☐ Airport Land Use Plan
- ☐ Energy Wise Plan
- ☐ Select Planning Area
- ☐ Design Plan
- ☐ Specific Plan
- ☐ Annual Resource Summary Report
- ☐ Circulation Study

Other Documents

- ☒ Clean Air Plan/APCD Handbook
- ☐ Regional Transportation Plan
- ☐ Uniform Fire Code
- ☒ Water Quality Control Plan (Central Coast Basin – Region 3)
- ☒ Archaeological Resources Map
- ☐ Area of Critical Concerns Map
- ☒ Special Biological Importance Map
- ☒ CA Natural Species Diversity Database
- ☒ Fire Hazard Severity Map
- ☒ Flood Hazard Maps
- ☒ Natural Resources Conservation Service Soil Survey for SLO County
- ☒ GIS mapping layers (e.g., habitat, streams, contours, etc.)
- ☐ Other

Initial Study – Environmental Checklist

Additional References: The following project-specific information and/or reference materials have been considered as a part of the Initial Study:

California Office of Historic Preservation. 2021. California Historical Resources. Online search for sites in San Luis Obispo County conducted April 14, 2021, at https://ohp.parks.ca.gov/listedresources/.

California State Parks. 2020. Oceano Dunes District Draft Habitat Conservation Plan, draft dated November 2020 and related documents available at: https://www.oceanoduneshcp.com/document-library.

California Water Commission. 2021. Climate change projections for Water Storage Investment Program (WSIP). Technical Reference and Model Components accessible online at https://data.ca.gov/dataset/climate-change-projections-for-water-storage-investment-program-wsip.

Central Coast Blue. 2018. http://centralcoastblue.com/.

County of San Luis Obispo Flood Control and Water Conservation District. 2007. Interim Downstream Release Schedule. Zone 3, Lopez Project, February.

GSI Water Solutions, Inc. 2021. Northern Cities Management Area 2020 Annual Monitoring Report. Prepared for City of Arroyo Grande, City of Grover Beach, Oceano Community Services District, and City of Pismo Beach. April.

SLO Watershed Project, undated. Arroyo Grande Creek Description, with excerpt from the Arroyo Grande Creek Watershed Management Plan. A project of the Upper Salinas-Las Tablas Resource Conservation District. Accessed online at http://slowatershedproject.org/watersheds/arroyo-grande-creek/ on January 4, 2021.

State Water Resources Control Board. 2021. California 303(d) List Approved by the U.S. Environmental Protection Agency April 6, 2018. Accessed online at https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml on January 4, 2021.

SWCA. 2019. Natural Environment Study, Lopez Drive Bridge Seismic Retrofit Project, Lopez Drive, Arroyo Grande, San Luis Obispo County. Prepared for California Department of Transportation and County of San Luis Obispo Department of Public Works. May.

SWCA. 2018. Lopez Drive Bridge Seismic Retrofit Project Archaeological Survey Report. Prepared for California Department of Transportation and County of San Luis Obispo Public Works Department. January.

Western Hydrologics. 2021. Zone 3 Contract Change Modeling Results, San Luis Obispo County Flood Control and Water Conservation District. November. [Attachment A]

Zone 3 Contract Change Modeling Results

San Luis Obispo County Flood Control and Water Conservation District

November 24, 2021

Prepared under the responsible charge of

Jeffery K. Meyer	Jared C. Emery
C 54387	C 81467

WESTERN HYDROLOGICS
WATER & HYDROPOWER CONSULTING

610 Auburn Ravine Road, Suite C, Auburn, CA 95603

Western Hydrologics performed modeling at the request of the Zone 3 Contractors to investigate outcomes of proposed Zone 3 Contract Changes (the Project) under various scenarios. The Project provides opportunities for the Contractors to store both Lopez water and State Water Project water (SWP) year over year. The modeling scenarios are listed in Table 1. Scenarios B, C, E, and F represent modeling of the Project. The modeling was broken down into either Maximize Lopez Storage or Maximize SWP Storage to provide bookends of how the Project affects Contractors proposed storage accounts. The intent of the modeling is to evaluate the following:

1. Improved Water Management Opportunities: Opportunities for Zone 3 Agencies to store Lopez and store SWP water thru the Agency Initiated Exchanges provisions of the proposed Contract Changes (the Project) and supply prioritization to improve local water supply availability during drought conditions, while limiting losses from spills during wet periods.
2. Climate Change: Evaluation of potential impact of climate change on Lopez Reservoir inflow, evaporation, and other conditions. These Climate Change hydrology planning scenarios are required to support the California Environmental Quality Act (CEQA) impact analyses.

1.0 Assumptions

A detailed description of the model scenario assumptions is provided in Table 1.

Table 1 - Scenario Summary

Scenario	Scenario Parameters					
	Hydrology	**Downstream Releases**	**Municipal Demands**	**Supply Priority[2]**	**Storage Rights**	**Low Reservoir Response Plan**
A -Baseline	1969 -2020	IDRS Release Schedule	2035 Demands	No Storage (Lopez, SWP, Groundwater)	No	Not Included
B – Project: Maximize Lopez Storage	1969-2020	IDRS Release Schedule	2035 Demands	With Storage (SWP, Groundwater, Lopez)	Unreleased Downstream Releases, Unused Entitlements	Not Included
C – Project: Maximize SWP Storage	1969 -2020	IDRS Release Schedule	2035 Demands	With Storage (Lopez, Groundwater, SWP)	Unreleased Downstream Releases, SWP Exchange, Unused Entitlements	Not Included
D - Climate Change Baseline	Climate Change 1969 -2020	IDRS Release Schedule	2035 Demands	No Storage (Lopez, SWP, Groundwater)	No	Not Included
E - Climate Change Project: Maximize Lopez Storage	Climate Change 1969 -2020	IDRS Release Schedule	2035 Demands	With Storage (SWP, Groundwater, Lopez)	Unreleased Downstream Releases, Unused Entitlements	Not Included
F - Climate Change Project: Maximize SWP Storage	Climate Change 1969 -2020	IDRS Release Schedule	2035 Demands	With Storage (Lopez, Groundwater, SWP)	Unreleased Downstream Releases, SWP Exchange, Unused Entitlements	Not Included

1.1 Priorities:

The available water sources are used in the following order to meet demands:

Baseline Scenarios (A,D):

1. Lopez Entitlement water.
2. Imported SWP water
3. Groundwater Entitlement limited to 1,080 AF per year to ensure no seawater intrusion.

Maximize Lopez Storage Scenario (B,E):

1. Imported SWP water
2. Groundwater Entitlement limited to 1,080 AF per year to ensure no seawater intrusion.
3. Lopez Entitlement water.
4. Stored Lopez water

Maximize SWP Storage Scenarios (C,F):

1. Lopez Entitlement water
2. Groundwater Entitlement limited to 1,080 AF per year to ensure no seawater intrusion.
3. Imported SWP water
4. Stored Lopez water
5. Stored SWP imports are not to be used for downstream releases.

1.2 Consumptive Demands and Supplies:

Consumptive Demand

The model used projected 2035 consumptive demand estimates based on an evaluation of anticipated future demand for the Zone 3 Agencies. The 2035 demand estimates were developed by dividing 2018 water demands by the estimated 2018 populations to develop gallons per capita per day (gpcd) demand factors for each agency. 2018 demands were utilized because they incorporated demand reduction behaviors adopted by Zone 3 Contractor customers during the historic drought from 2011 to 2017. These demand factors were then applied to the estimated populations for 2035 obtained from the Zone 3 Contractors 2015 UWMPs, where available, and input from OCSD staff. The 2015 UWMP estimates for 2035 water usage were not used because they did not include recent trends in demand reduction. 2020 UWMP data was not available at the time the model was developed. Actual demands will vary based on customer demand behaviors, climatic conditions, and socio-economic and other factors.

Table 2 – Projected 2035 Water Demands – All Scenarios

Water User	Annual Consumptive Demand
Pismo Beach	1,888
City of Arroyo Grande	2,510
City of Grover Beach	1,330
Oceano CSD	1,016
CSA 12	245
Total	**6,989**

Lopez Lake Supply

Safe yield of the reservoir is 8,730 AFY: 4,530 AFY for pipeline deliveries, and 4,200 AFY for downstream releases.[1] Entitlement for pipeline deliveries are outlined in Table 3.[2]

Table 3 - Lopez Lake Treated Water Entitlement

Water User	Entitlement (AFY)
Pismo Beach	892
Oceano CSD	303
Grover Beach	800
Arroyo Grande	2,290
CSA 12	245
Total	**4,530**

State Water Project Supply

Water Service Amounts (WSA) for SWP delivery at the Lopez SWP turnout are 2392 AF, outlined in Table 4.[3]

Table 4 - SWP Lopez Turnout Water Service Amount

Sub-Contractor	WSA[1]	Drought Buffer[2]
Pismo Beach	1,240	1,240
Oceano CSD	750	750
San Miguelito MWC[3]	275	275
Avila Beach CSD[4]	100	100
Avila Valley MWC[4]	20	20
San Luis Coastal USD[4]	7	7

Notes:

1. This is the maximum amount of SWP water available to the agency
2. Drought buffer provides a level of insurance that an agency will receive its maximum amount in any one year
3. The Project will not affect this agency because they are not a Zone 3 Contractor
4. Subcontractor of CSA 12's entitlement of Lopez water

State Water Project allocations are taken from the DWR 2013 State Water Project Delivery Reliability Report's existing demand level Calsim runs for 1968-2003, and historical allocations are used for 2004-2020.

Santa Maria Groundwater Basin Extraction

The Northern Cities Management Areas (NCMA) Agencies (Cities of Arroyo Grande, Grover Beach, Pismo Beach and the Oceano Community Services District) have an agreement for groundwater management, associated with the Santa Maria Groundwater Basin Adjudication (2002 Management Agreement) that establishes groundwater entitlements for the NCMA Agencies, which are shown in Table 5. However, groundwater modeling, completed as part of the Central Coast Blue Phase 1B Hydrogeologic Evaluation has indicated that pumping the full NCMA Agency Entitlements (4,330 AFY) during periods of extended drought could increase the risk of seawater intrusion. To respond to this threat, the NCMA Agencies have voluntarily limited their groundwater pumping to an amount of approximately 1,080 AF per year to prevent seawater intrusion. For the purposes of the Zone 3 Contract Change Modeling, the target of

[1] SLO Master Water Report, section 2.2.8.
[2] SLO Master Water Report, section 4.3.4 and Table 4.9.
[3] SLO Master Water Report, section 4.3.1 and Table 4.5.

1,080 AFY was allocated to each of the NCMA Agencies according to their percentage of the NCMA Municipal Entitlement and their assumed groundwater extractions were limited to the targets shown in Table 5.

Table 5 – Modeled Groundwater Extraction

NCMA Agencies	Groundwater Entitlement (AFY)	Groundwater Entitlement Percentage (%)	Groundwater Extraction Target (AFY)
Pismo Beach	700	16%	175
City of Arroyo Grande	1,323	31%	330
City of Grover Beach	1,407	32%	351
Oceano CSD	900	21%	224
Total	4,330	100%	1,080

Supply Availability Assumptions - The estimated amount of available water supply and usage priority for each Zone 3 contractor was calculated based on the anticipated amount of Lopez, Santa Maria Groundwater Basin and State Water Project water each agency would have available under potential future conditions. The actual amounts of available supply, potential future supplies, and each agencies' strategy for using those supplies will vary by agency. Arroyo Grande's Pismo Formation water supply was not incorporated in this analysis, however, if incorporated would likely proportionally increase the amount of stored Lopez Water the City of Arroyo Grande could generate.

Table 6. Modeled Supply Available by Zone 3 Contractor

Zone 3 Contractor	Lopez (AFY)	Groundwater Extraction Target (AFY)	SWP (AFY)	Total (AFY)
Pismo	892	175	1,240	2,307
City of Arroyo Grande	2,290	330	0	2,620
City of Grover Beach	800	351	0	1,151
Oceano CSD	303	224	750	1,277
CSA 12[1]	245	0	0	245

Notes:

1. Certain CSA 12 subcontractors have a SWP allocation but CSA 12 itself does not.

1.3 Climate Change Hydrology Development

Climate change adjusted hydrology was developed using the data products from the California Water Commission's (CWC) dataset for Water Storage Investment Program applications[4]. These data products include the results from statewide Variable Infiltration Capacity (VIC) watershed runoff models performed with historical meteorology and climate change adjusted meteorology using climate change assumptions centered at the year 2070. These VIC models are better suited to be used in a comparative manner rather than predictive, and for this reason a ratio is taken of climate change adjusted VIC model output to historic meteorology VIC model output. These ratios are applied to historic hydrology to estimate the climate change adjusted hydrology.

The CWC's VIC model provides gridded output for the state of California. VIC model results for the project watersheds were developed by delineating watersheds and crossing those watersheds with the VIC gridded output. Watersheds and CWC grid cells are shown in Figure 2. The ratio of VIC model Climate Change results to VIC model historic results is then applied to calculated historic project hydrology. The resulting climate change adjusted basin inflows are summarized in Table 7. An exceedance curve of annual inflow volumes is shown in Figure 1.

Table 7 and Figure 1 both indicate that the Climate Change Adjusted hydrology is wetter than the historic hydrology. This phenomenon may be counterintuitive to many but is common to the coastal watersheds along the California Coast. Sierra Nevada watersheds also experience an increase in annual average runoff under Climate Change Adjusted hydrology using the CWC data. However, the pattern of runoff shifts to earlier in the year to a time when reservoirs can't capture as much of the runoff due to flood control operations. While local Arroyo Grande Creek supplies appear to increase under Climate Change Adjusted hydrology, the State Water Project supplies decrease. This is because the State Water Project supplies originate in the northern Sierra Nevada mountains above Lake Oroville.

Table 7 - Climate Change Adjusted Annual Average Inflows

Watershed	Historic Inflow (1969-2020), AF	Climate Change Adjusted Inflow, AF	Difference, AF	Difference, %
Lopez Lake	15,867	17,367	1,500	9.5%
Arroyo Grande Basin	21,792	24,502	2,710	12.4%

[4] Data and more information can be found at : https://data.ca.gov/dataset/climate-change-projections-for-water-storage-investment-program-wsip

Figure 1 - Annual Inflow Exceedance, Historical and Climate Change Adjusted Hydrology

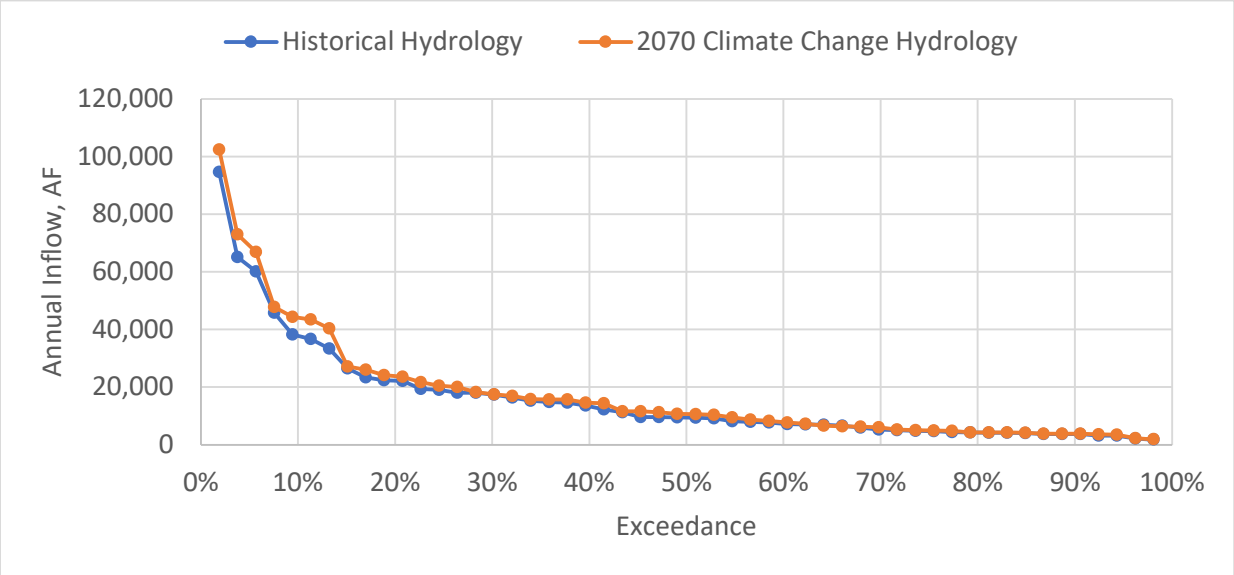
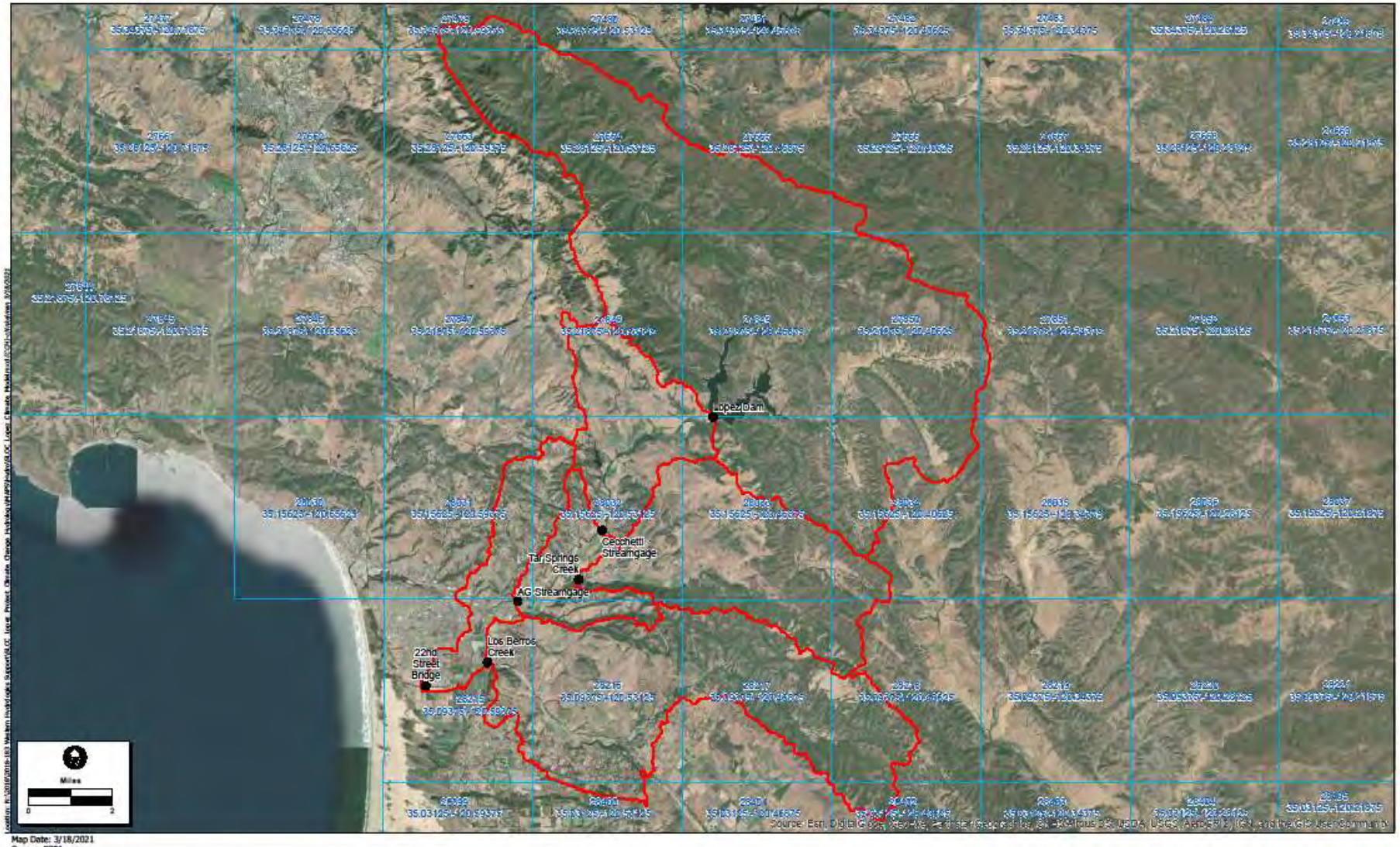


Figure 2 - CWC Climate Change Grid Cells and Project Watersheds



Map Date: 3/18/2021
Source: ESRI

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

SLOC Lopez Project Climate Change Hydrology

2018-183 Western Hydrologics

2.0 Model Results

Model results are presented in three separate sections. Section 2.1 presents summary results of the baseline (A) versus Project scenarios (B,C) using Historic hydrology (51-year period of record) see Table 11. Table 12 provides the same results using Climate Change hydrology (D, E, F). Annual average values of water delivered and put to storage in Lopez are shown in Table 8 (Scenarios A and D), Table 9 (Scenarios B and E), and Table 10 (Scenarios C and F). The purpose is to illustrate the differences of each of the items below using Historic hydrology versus Climate Change hydrology. Results include:

- Lopez Lake Storage Annual Low Point
- Downstream Releases
- Evaporation
- Number of Spills
- Peak Daily Spill Rate

In addition, Table 13 presents summary results of the Project which will give each Contractor a storage account including:

- Maximum amount stored in a year
- Maximum use of stored water in a year
- Maximum lost to spill in a year
- Total lost to spills over simulation period

Section 2.2 presents the same types of information presented in Section 2.1 but with Climate Change Hydrology (D, E, F) and in more detail on an annual basis. Section 2.3 presents the results of the Spill minimization studies performed on study F. The Zone 3 Contractors requested modeling that would look at ways to minimize the number of spill events under the Project model. Three scenarios were modeled in which limitations were placed on the amount of SWP water that could be stored by any contractor.

2.1 Results Summary

Table 8 - Modeled Annual Average Water Delivered and Stored (AFY) – Baseline (A, D)

		Pismo Beach	Grover Beach	Arroyo Grande	Oceano	CSA 12	**Total**
Lopez Lake Entitlement Supply	Delivered same year	892	800	2,290	303	245	**4,530**
	Delivered to Lopez Storage	0	0	0	0	0	**0**
	Total	892	800	2,290	303	245	**4,530**
Lopez Lake Surplus Supply	Delivered same year	20	18	51	7	0	**96**
State Water Project Supply	Delivered same year	792	0	0	477	0	**1,269**
	Delivered to Lopez Storage	0	0	0	0	0	**0**
	Total	792	0	0	477	0	**1,269**
Groundwater Supply		175	351	170	224	0	**920**
Total Delivered/Stored		1,879	1,169	2,511	1,011	245	**6,815**

Table 9 - Modeled Annual Average Water Delivered and Stored (AFY) - with Project (B, E)

		Pismo Beach	Grover Beach	Arroyo Grande	Oceano	CSA 12	**Total**
Lopez Lake Entitlement Supply	Delivered same year	583	800	2180	115	245	**3923**
	Delivered to Lopez Storage	336	0	162	191	0	**689**
	Total	919	800	2342	306	245	**4612**
Lopez Lake Surplus Supply	Delivered same year	3	18	0	1	0	**22**
State Water Project Supply	Delivered same year	1072	0	0	637	0	**1709**
	Delivered to Lopez Storage	0	0	0	0	0	**0**
	Total	1072	0	0	637	0	**1709**
Groundwater Supply		175	351	330	224	0	**1080**
Total Delivered/Stored		**2169**	**1169**	**2672**	**1168**	**245**	**7423**

Table 10 - Modeled Annual Average Water Delivered and Stored (AFY) - with Project (C, F)

		Pismo Beach	Grover Beach	Arroyo Grande	Oceano	CSA 12	**Total**
Lopez Lake Entitlement Supply	Delivered same year	892	800	2,180	303	245	**4420**
	Delivered to Lopez Storage	0	0	162	0	0	**162**
	Total	892	800	2,342	303	245	**4582**
Lopez Lake Surplus Supply	Delivered same year	20	18	0	7	0	**45**
State Water Project Supply	Delivered same year	745	0	0	448	0	**1193**
	Delivered to Lopez Storage	354	0	0	215	0	**569**
	Total	1099	0	0	663	0	**1762**
Groundwater Supply		175	351	330	224	0	**1080**
Total Delivered/Stored		**2186**	**1169**	**2672**	**1197**	**245**	**7469**

Table 11 - Summary Results Table - with Historic Hydrology

			With Project	
		Baseline (A)	**Maximize Lopez Storage (B)**	**Maximize SWP Storage (C)**
Lopez Lake Storage Annual Low Point (AF)	Average	34,380	36,183	36,051
	Minimum	9,105	12,690	12,298
	Maximum	49,066	49,295	49,359
Downstream Releases (AFY)	Average	4,100	4,100	4,100
	Maximum	4,100	4,100	4,100
Evaporation (AFY)	Average	2,585	2,655	2,649
	Maximum	3,992	4,060	4,061
Number of Spills	Total	16	18	18
Spill Rate (Daily Peak in cubic feet per second)	Average	150	194	191
	Maximum	2,426	2,427	2,427

Table 12- Summary Results Table - with Climate Change Hydrology

			With Project	
		Baseline (D)	Maximize Lopez Storage (E)	Maximize SWP Storage (F)
Lopez Lake Storage Annual Low Point (AF)	Average	35,439	37,179	37,061
	Minimum	9,681	13,331	12,926
	Maximum	48,925	49,267	49,351
Downstream Releases (AFY)	Average	4,100	4,100	4,100
	Maximum	4,100	4,100	4,100
Evaporation (AFY)	Average	2,645	2,708	2,702
	Maximum	3,984	4,043	4,043
Number of Spills	Total	20	21	21
Spill Rate (Daily Peak in cubic feet per second)	Average	268	315	315
	Maximum	2,740	2,740	2,740

Table 13 - Summary of Contractor Storage Accounts (over a 51 year period of simulation)

Contractor	Maximum amount stored in a year (AF)	Maximum use of stored water in a year (AF)	Maximum lost to Spill in a year (AF)	Total lost to spills over simulation period (AF)
With Project - Maximize Lopez Storage (B) – Historical Hydrology				
Pismo	483	553	1,748	11,205
Oceano	286	327	1,041	6,607
Arroyo Grande	166	0	1,171	6,016
With Project - Maximize SWP Storage (C) – Historical Hydrology				
Pismo	494	533	1,583	12,202
Oceano	306	320	961	7,444
Arroyo Grande	166	0	1,169	6,015
With Project - Maximize Lopez Storage (E)–Climate Change Hydrology				
Pismo	483	533	1,692	11,074
Oceano	286	308	1,030	6,491
Arroyo Grande	166	0	1,080	6,102
With Project - Maximize SWP Storage (F) –Climate Change Hydrology				
Pismo	494	533	1,527	12,449
Oceano	306	320	928	7,595
Arroyo Grande	166	0	1,079	6,147

Note: For a year by year accounting of agency storage see Section 2.2.6

2.2 Annual Results for Climate Change Hydrology Scenarios

The results in the following sections represent details related to the modeling using Climate Change Hydrology and the Project scenarios.

2.2.1 Total Lopez Lake Storage

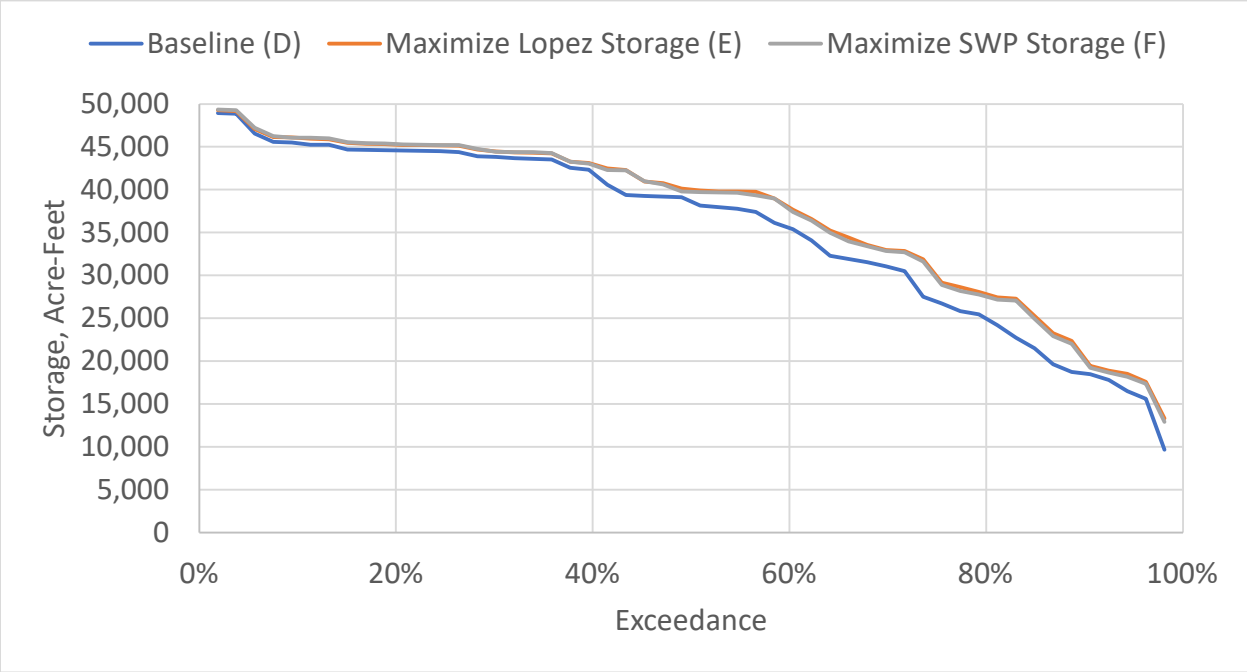
The Project can cause additional water to be stored in Lopez Lake due to deliveries from Lopez Lake being offset by increased take of SWP water and subsequent storage of Lopez Lake water. The annual storage low point in Lopez Lake is shown in Table 14. An exceedance of the storage low point values is shown graphically in Figure 3. Annual storage low point is defined as the lowest reservoir storage within a Lopez water year (April 1 through March 30). For example, 1969 represents April 1, 1969, through March 30, 1970.

Table 14 - Lopez Lake Annual Low Point with Climate Change Hydrology

	Baseline (D)	Maximize Lopez Storage (E)	Difference	Maximize SWP Storage (F)	Difference
	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Average	35,439	37,179	1,740	37,061	1,622
1969	46,537	47,072	535	47,207	669
1970	43,674	44,339	665	44,385	711
1971	37,956	39,759	1,803	39,717	1,761
1972	30,483	32,949	2,466	32,846	2,363
1973	39,270	42,451	3,181	42,266	2,996
1974	44,361	45,119	759	45,217	856
1975	40,580	42,266	1,686	42,241	1,661
1976	35,374	37,646	2,272	37,386	2,012
1977	27,502	29,145	1,643	28,874	1,372
1978	44,686	45,327	641	45,402	716
1979	42,331	43,085	755	43,038	707
1980	44,533	45,202	669	45,278	745
1981	42,558	43,248	690	43,236	678
1982	45,506	46,067	561	46,056	550
1983	48,839	49,150	311	49,268	429
1984	43,600	44,309	709	44,372	772
1985	38,121	39,794	1,674	39,764	1,643
1986	44,469	45,176	707	45,191	723
1987	39,192	39,787	594	39,619	426
1988	32,275	32,834	559	32,685	410
1989	25,823	27,275	1,452	27,050	1,227
1990	17,799	18,894	1,095	18,657	858
1991	18,450	19,421	971	19,220	770
1992	16,483	17,555	1,072	17,341	859
1993	25,449	27,441	1,992	27,148	1,699

1994	19,622	22,359	2,737	22,020	2,398
1995	45,581	46,127	547	46,227	646
1996	44,546	45,157	611	45,198	652
1997	45,241	45,859	618	45,962	721
1998	48,925	49,267	343	49,351	426
1999	43,891	44,649	759	44,745	854
2000	43,498	44,229	731	44,250	752
2001	43,817	44,452	635	44,424	607
2002	39,114	40,731	1,617	40,605	1,491
2003	34,072	36,558	2,487	36,373	2,301
2004	31,893	35,208	3,315	34,951	3,058
2005	44,624	45,450	825	45,527	903
2006	44,584	45,299	716	45,376	793
2007	37,379	38,970	1,591	38,956	1,577
2008	37,772	40,119	2,346	39,675	1,903
2009	31,529	34,419	2,890	33,942	2,413
2010	36,123	39,880	3,757	39,323	3,200
2011	45,226	45,927	701	46,035	809
2012	39,367	40,945	1,578	40,954	1,587
2013	31,041	33,528	2,487	33,393	2,351
2014	22,728	25,246	2,518	24,920	2,192
2015	15,607	18,504	2,897	18,151	2,543
2016	9,681	13,331	3,650	12,926	3,244
2017	24,180	28,615	4,435	28,174	3,994
2018	18,721	23,241	4,520	22,909	4,189
2019	26,702	31,876	5,173	31,593	4,891
2020	21,508	28,048	6,540	27,766	6,258

Figure 3 - Lopez Lake Storage Annual Low Point



2.2.2 Downstream releases

The Project modeling shows no change in non-spill downstream releases. The modeling shows that Lopez Lake can deliver 4,100 AF of non-spill downstream releases each year in both the baseline and Project scenarios in both historical hydrology and climate change hydrology models.

2.2.3 Evaporation

The higher Lopez Lake storage levels result in higher evaporation with the contract changes. Increases due to increased storage is deducted from each contractor's storage account in proportion to their storage account volumes. Annual Average Evaporation Volumes for both the Baseline and Project modeling are shown in Tables 15 and 16.

Table 15 - Annual Evaporation Volumes, Maximize Lopez Storage (E)

	Baseline (D)	With Project (E)	Difference	Increase due to Storage of Lopez water
	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Average	2,645	2,708	62	62
Total	137,545	140,792	3,247	3,247
1969	2,608	2,615	8	8
1970	3,962	3,976	14	14
1971	3,984	4,043	58	58
1972	3,430	3,544	114	114
1973	3,356	3,495	139	139
1974	3,460	3,509	50	50
1975	3,311	3,354	44	44

1976	3,283	3,380	97	97
1977	2,978	3,102	124	124
1978	3,617	3,655	38	38
1979	3,656	3,671	15	15
1980	3,349	3,359	10	10
1981	3,923	3,938	15	15
1982	3,160	3,173	14	14
1983	3,032	3,036	4	4
1984	3,538	3,548	10	10
1985	3,135	3,184	49	49
1986	2,881	2,898	17	17
1987	2,561	2,586	25	25
1988	2,824	2,851	27	27
1989	2,769	2,822	53	53
1990	2,391	2,494	103	103
1991	2,010	2,090	79	79
1992	1,932	2,013	81	81
1993	2,282	2,368	87	87
1994	2,123	2,267	144	144
1995	2,688	2,726	37	37
1996	3,196	3,205	9	9
1997	3,402	3,411	9	9
1998	2,687	2,691	5	5
1999	2,835	2,842	7	7
2000	3,095	3,106	11	11
2001	2,867	2,877	9	9
2002	2,594	2,634	40	40
2003	2,475	2,553	78	78
2004	2,462	2,585	123	123
2005	2,353	2,382	30	30
2006	2,524	2,534	9	9
2007	2,560	2,597	37	37
2008	2,247	2,307	60	60
2009	2,313	2,415	101	101
2010	2,008	2,111	103	103
2011	2,202	2,222	21	21
2012	2,007	2,034	27	27
2013	1,772	1,830	58	58
2014	1,669	1,765	96	96
2015	1,298	1,431	133	133

2016	1,198	1,361	164	164
2017	2,002	2,197	195	195
2018	1,732	1,967	234	234
2019	970	1,087	117	117
2020	836	950	114	114

Table 16 - Annual Evaporation Volumes, Maximize SWP Storage (F)

	Baseline (D)	With Project (F)	Difference	Increase due to Storage of SWP water	Increase due to Storage of Lopez water
	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Average	2,645	2,702	57	41	16
Total	137,545	140,507	2,962	2,135	827
1969	2,608	2,615	8	8	0
1970	3,962	3,978	16	12	5
1971	3,984	4,043	59	46	14
1972	3,430	3,540	110	87	23
1973	3,356	3,488	133	106	27
1974	3,460	3,508	48	40	9
1975	3,311	3,357	46	41	5
1976	3,283	3,375	93	78	14
1977	2,978	3,087	109	84	25
1978	3,617	3,651	34	24	9
1979	3,656	3,671	15	15	0
1980	3,349	3,360	10	10	0
1981	3,923	3,939	16	16	0
1982	3,160	3,173	13	13	0
1983	3,032	3,036	4	4	0
1984	3,538	3,549	11	7	4
1985	3,135	3,186	50	39	11
1986	2,881	2,898	17	15	2
1987	2,561	2,583	21	16	5
1988	2,824	2,842	19	4	15
1989	2,769	2,812	43	16	27
1990	2,391	2,477	86	43	42
1991	2,010	2,073	63	8	54
1992	1,932	1,997	65	0	65
1993	2,282	2,353	71	16	56
1994	2,123	2,248	125	62	63
1995	2,688	2,722	34	21	13
1996	3,196	3,205	10	10	0

1997	3,402	3,412	10	10	0
1998	2,687	2,692	6	6	0
1999	2,835	2,843	8	8	0
2000	3,095	3,107	12	11	0
2001	2,867	2,876	9	9	0
2002	2,594	2,631	37	32	5
2003	2,475	2,547	72	60	12
2004	2,462	2,576	114	95	19
2005	2,353	2,381	28	23	6
2006	2,524	2,534	10	10	0
2007	2,560	2,599	39	34	5
2008	2,247	2,302	54	45	9
2009	2,313	2,397	84	66	18
2010	2,008	2,095	87	69	19
2011	2,202	2,221	19	16	3
2012	2,007	2,035	28	25	4
2013	1,772	1,829	57	48	9
2014	1,669	1,758	90	73	17
2015	1,298	1,415	117	86	30
2016	1,198	1,338	140	104	36
2017	2,002	2,178	176	134	42
2018	1,732	1,949	217	166	51
2019	970	1,081	111	85	27
2020	836	944	108	81	27

2.2.4 Annual and Monthly Spill Volumes

Annual spill volumes are shown in Tables 17 and 18, and annual spill volume exceedances are shown in Table 19. The Project under both scenarios (E & F) increases spill events in the climate change hydrology studies from 20 out of the 52-year study period to 21 years out of the 52-year study period. Annual spill volume exceedances are shown graphically in Figure 4. Of the total increase in spills in the Maximize SWP storage scenario (F), 77% of the spills are due to storage of SWP water in Lopez Reservoir, and the remaining 23% of the increase is due to increased storage of Lopez water.

Table 17 - Modeled Annual Spills with Maximize Lopez Storage (E)

	Annual Spill Volume			Days of Spill		
	Baseline (D)	With Project (E)	Difference	Baseline (D)	With Project (E)	Difference
	Acre-Feet	Acre-Feet	Acre-Feet	Days	Days	Days
Average	5,591	6,119	529	30	35	5
Total	290,711	318,195	27,484	1,558	1,811	253
Count	20	21	1	20	21	1
1969	9,806	10,224	419	121	121	0
1970	820	1,509	690	29	32	3
1971	0	0	0	0	0	0
1972	0	0	0	0	0	0
1973	0	0	0	0	0	0
1974	768	4,073	3,305	21	65	44
1975	0	0	0	0	0	0
1976	0	0	0	0	0	0
1977	0	0	0	0	0	0
1978	14,308	16,088	1,780	82	86	4
1979	431	1,224	793	18	19	1
1980	26,164	26,989	825	93	96	3
1981	828	1,621	793	27	29	2
1982	833	1,754	922	36	38	2
1983	88,114	88,839	725	202	208	6
1984	6,306	6,729	423	120	128	8
1985	0	0	0	0	0	0
1986	5,439	7,210	1,772	49	54	5
1987	0	0	0	0	0	0
1988	0	0	0	0	0	0
1989	0	0	0	0	0	0
1990	0	0	0	0	0	0
1991	0	0	0	0	0	0
1992	0	0	0	0	0	0
1993	0	0	0	0	0	0

1994	0	0	0	0	0	0
1995	7,462	10,362	2,900	80	91	11
1996	11,141	11,768	627	76	82	6
1997	34,945	35,632	687	120	121	1
1998	58,673	59,495	822	169	188	19
1999	3,342	3,722	380	103	137	34
2000	4,298	5,100	802	65	64	-1
2001	5,621	6,428	807	54	52	-2
2002	0	0	0	0	0	0
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	3,191	3,191	0	58	58
2006	4,414	5,371	957	40	63	23
2007	0	0	0	0	0	0
2008	0	0	0	0	0	0
2009	0	0	0	0	0	0
2010	0	0	0	0	0	0
2011	6,999	10,865	3,866	53	79	26
2012	0	0	0	0	0	0
2013	0	0	0	0	0	0
2014	0	0	0	0	0	0
2015	0	0	0	0	0	0
2016	0	0	0	0	0	0
2017	0	0	0	0	0	0
2018	0	0	0	0	0	0
2019	0	0	0	0	0	0
2020	0	0	0	0	0	0

Table 18 - Modeled Annual Spills with Maximize SWP Storage (F)

	Annual Spill Volume			Days of Spill		
	Baseline (D)	With Project (F)	Difference	Baseline (D)	With Project (F)	Difference
	Acre-Feet	Acre-Feet	Acre-Feet	Days	Days	Days
Average	5,591	6,106	516	30	35	5
Total	290,711	317,520	26,809	1,558	1,827	269
Count	20	21	1	20	21	1
1969	9,806	10,192	386	121	121	0
1970	820	1,562	743	29	37	8
1971	0	0	0	0	0	0
1972	0	0	0	0	0	0
1973	0	0	0	0	0	0

1974	768	3,900	3,131	21	63	42
1975	0	0	0	0	0	0
1976	0	0	0	0	0	0
1977	0	0	0	0	0	0
1978	14,308	15,816	1,508	82	85	3
1979	431	1,307	877	18	21	3
1980	26,164	26,977	812	93	94	1
1981	828	1,719	890	27	31	4
1982	833	1,718	886	36	38	2
1983	88,114	88,826	711	202	203	1
1984	6,306	6,846	541	120	139	19
1985	0	0	0	0	0	0
1986	5,439	7,210	1,771	49	54	5
1987	0	0	0	0	0	0
1988	0	0	0	0	0	0
1989	0	0	0	0	0	0
1990	0	0	0	0	0	0
1991	0	0	0	0	0	0
1992	0	0	0	0	0	0
1993	0	0	0	0	0	0
1994	0	0	0	0	0	0
1995	7,462	10,023	2,561	80	89	9
1996	11,141	11,914	774	76	82	6
1997	34,945	35,721	776	120	125	5
1998	58,673	59,576	903	169	182	13
1999	3,342	3,739	397	103	145	42
2000	4,298	5,247	949	65	67	2
2001	5,621	6,499	878	54	54	0
2002	0	0	0	0	0	0
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	3,010	3,010	0	57	57
2006	4,414	5,404	990	40	63	23
2007	0	0	0	0	0	0
2008	0	0	0	0	0	0
2009	0	0	0	0	0	0
2010	0	0	0	0	0	0
2011	6,999	10,313	3,315	53	77	24
2012	0	0	0	0	0	0
2013	0	0	0	0	0	0

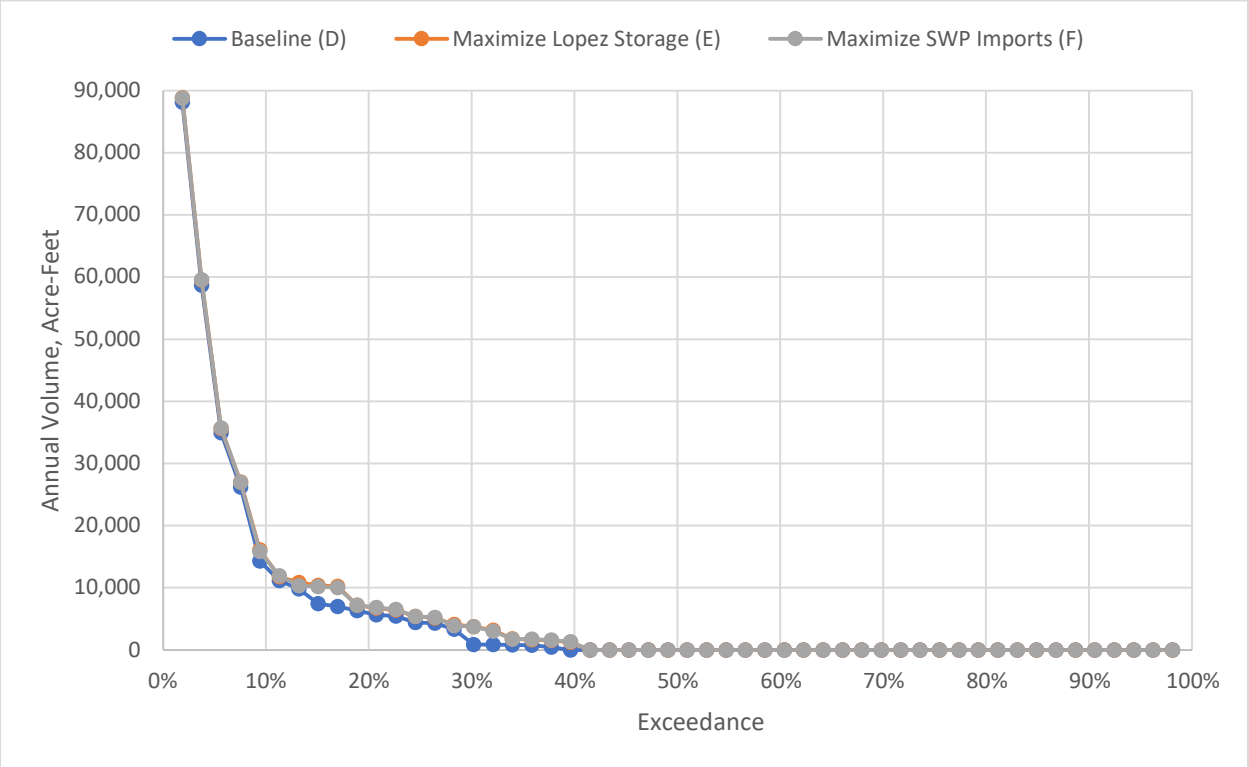
2014	0	0	0	0	0	0
2015	0	0	0	0	0	0
2016	0	0	0	0	0	0
2017	0	0	0	0	0	0
2018	0	0	0	0	0	0
2019	0	0	0	0	0	0
2020	0	0	0	0	0	0

Table 19 - Modeled Annual Spill Volume Exceedances

	Baseline (D)	Maximize Lopez Storage (E)	Maximize SWP Storage (F)
	Acre-Feet		Acre-Feet
2%	88,114	88,839	88,826
4%	58,673	59,495	59,576
6%	34,945	35,632	35,721
8%	26,164	26,989	26,977
9%	14,308	16,088	15,816
11%	11,141	11,768	11,914
13%	9,806	10,865	10,313
15%	7,462	10,362	10,192
17%	6,999	10,224	10,023
19%	6,306	7,210	7,210
21%	5,621	6,729	6,846
23%	5,439	6,428	6,499
25%	4,414	5,371	5,404
26%	4,298	5,100	5,247
28%	3,342	4,073	3,900
30%	833	3,722	3,739
32%	828	3,191	3,010
34%	820	1,754	1,719
36%	768	1,621	1,718
38%	431	1,509	1,562
40%	0	1,224	1,307
42%	0	0	0
43%	0	0	0
45%	0	0	0
47%	0	0	0
49%	0	0	0
51%	0	0	0
53%	0	0	0

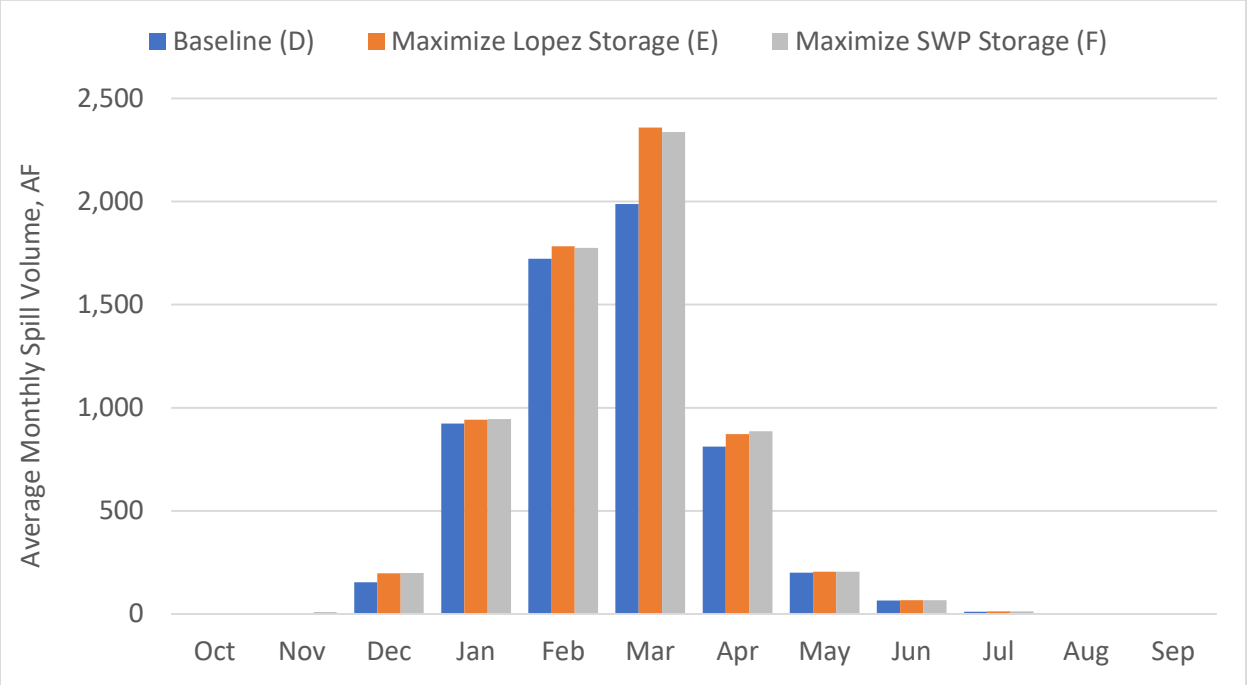
55%	0	0	0
57%	0	0	0
58%	0	0	0
60%	0	0	0
62%	0	0	0
64%	0	0	0
66%	0	0	0
68%	0	0	0
70%	0	0	0
72%	0	0	0
74%	0	0	0
75%	0	0	0
77%	0	0	0
79%	0	0	0
81%	0	0	0
83%	0	0	0
85%	0	0	0
87%	0	0	0
89%	0	0	0
91%	0	0	0
92%	0	0	0
94%	0	0	0
96%	0	0	0
98%	0	0	0

Figure 4 - Annual Spill Volume Exceedance



Average monthly spill volumes are shown in Figure 5. Increases in spills are generally concentrated in February through April, with the largest increase in March.

Figure 5 - Average Monthly Spills at Lopez Reservoir



2.2.5 Peak Flow Rates

Peak flow rates due to spills at selected locations along Arroyo Grande are shown in Tables 20 through 22. Peak flow rates are shown graphically in figures 6 through 8.

Table 20 - Annual Peak Spill Rates below Lopez Dam

	Climate Change Baseline (D)	Maximize Lopez Storage (E)	Difference	Maximize SWP Storage (F)	Difference
	CFS	CFS	CFS	CFS	CFS
1969	301	301	0	301	0
1970	70	107	37	114	44
1971	0	0	0	0	0
1972	0	0	0	0	0
1973	0	0	0	0	0
1974	32	193	161	193	161
1975	0	0	0	0	0
1976	0	0	0	0	0
1977	0	0	0	0	0
1978	1,560	2,006	446	2,006	446
1979	44	234	189	232	188
1980	1,725	1,726	0	1,726	0
1981	76	308	232	307	231
1982	85	296	212	276	191
1983	2,740	2,740	0	2,740	0
1984	522	522	0	522	0
1985	0	0	0	0	0
1986	602	603	0	603	0
1987	0	0	0	0	0
1988	0	0	0	0	0
1989	0	0	0	0	0
1990	0	0	0	0	0
1991	0	0	0	0	0
1992	0	0	0	0	0
1993	0	0	0	0	0
1994	0	0	0	0	0
1995	707	707	0	707	0
1996	783	784	0	784	0
1997	1,030	1,030	0	1,030	0
1998	1,231	1,231	0	1,231	0
1999	182	182	0	182	0
2000	140	272	132	270	130

2001	756	1,188	431	1,190	434
2002	0	0	0	0	0
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	300	300	300	300
2006	369	369	0	369	0
2007	0	0	0	0	0
2008	0	0	0	0	0
2009	0	0	0	0	0
2010	0	0	0	0	0
2011	451	658	207	658	207
2012	0	0	0	0	0
2013	0	0	0	0	0
2014	0	0	0	0	0
2015	0	0	0	0	0
2016	0	0	0	0	0
2017	0	0	0	0	0
2018	0	0	0	0	0
2019	0	0	0	0	0
2020	0	0	0	0	0

Figure 6 - Annual Peak Spill Rates below Lopez Dam (D,F)

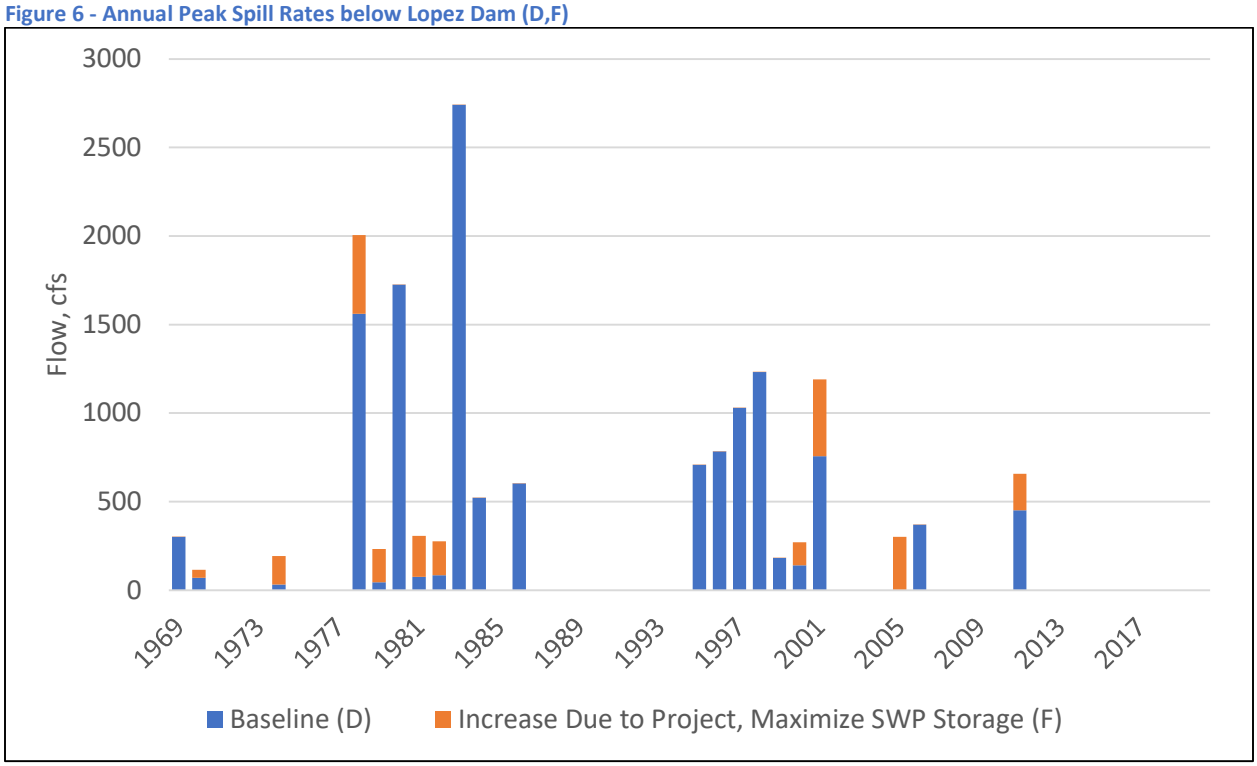


Table 21 - Annual Peak Spill Rates at AG stream gage

	Climate Change Baseline (D)	Maximize Lopez Storage (E)	Difference	Maximize SWP Storage(F)	Difference
	CFS	CFS	CFS	CFS	CFS
1969	1534.6	1534.6	0.0	1534.6	0.0
1970	142.1	166.5	24.5	166.5	24.5
1971	36.0	36.0	0.0	36.0	0.0
1972	96.4	96.4	0.0	96.4	0.0
1973	349.5	349.5	0.0	349.5	0.0
1974	130.8	286.5	155.7	286.5	155.7
1975	18.4	18.4	0.0	18.4	0.0
1976	15.1	15.1	0.0	15.1	0.0
1977	14.0	14.0	0.0	14.0	0.0
1978	1706.7	2152.9	446.2	2152.9	446.2
1979	106.8	334.3	227.5	332.9	226.1
1980	1955.6	1955.8	0.2	1955.8	0.2
1981	124.2	337.9	213.7	336.5	212.3
1982	283.4	543.9	260.6	523.2	239.8
1983	5647.4	5647.6	0.2	5647.6	0.2
1984	891.6	891.8	0.2	891.8	0.2
1985	14.8	14.8	0.0	14.8	0.0
1986	830.8	831.0	0.2	831.0	0.2
1987	13.0	13.0	0.0	13.0	0.0
1988	18.7	18.7	0.0	18.7	0.0
1989	35.8	35.8	0.0	35.8	0.0
1990	8.5	8.5	0.0	8.5	0.0
1991	294.9	294.9	0.0	294.9	0.0
1992	465.0	465.0	0.0	465.0	0.0
1993	492.7	492.7	0.0	492.7	0.0
1994	12.9	12.9	0.0	12.9	0.0
1995	1358.8	1358.8	0.0	1358.8	0.0
1996	931.3	931.5	0.2	931.5	0.2
1997	1334.6	1334.8	0.2	1334.8	0.2
1998	1718.3	1718.5	0.2	1718.5	0.2
1999	202.4	202.5	0.2	202.5	0.2
2000	182.8	345.9	163.2	344.4	161.7
2001	1954.6	2385.9	431.2	2388.4	433.7
2002	9.6	9.6	0.0	9.6	0.0
2003	30.4	30.4	0.0	30.4	0.0
2004	51.1	51.1	0.0	51.1	0.0

2005	276.7	425.7	149.1	425.7	149.1
2006	504.4	504.6	0.2	504.6	0.2
2007	17.9	17.9	0.0	17.9	0.0
2008	440.7	440.7	0.0	440.7	0.0
2009	25.5	25.5	0.0	25.5	0.0
2010	274.7	274.7	0.0	274.7	0.0
2011	761.2	1419.2	658.0	1419.2	658.0
2012	20.5	20.5	0.0	20.5	0.0
2013	13.3	13.3	0.0	13.3	0.0
2014	12.0	12.0	0.0	12.0	0.0
2015	14.1	14.1	0.0	14.1	0.0
2016	6.0	6.0	0.0	6.0	0.0
2017	463.1	463.1	0.0	463.1	0.0
2018	9.7	9.7	0.0	9.7	0.0
2019	236.6	236.6	0.0	236.6	0.0
2020	23.2	23.2	0.0	23.2	0.0

Figure 7 - Annual Peak Spill Rates at AG stream gage (D, F)

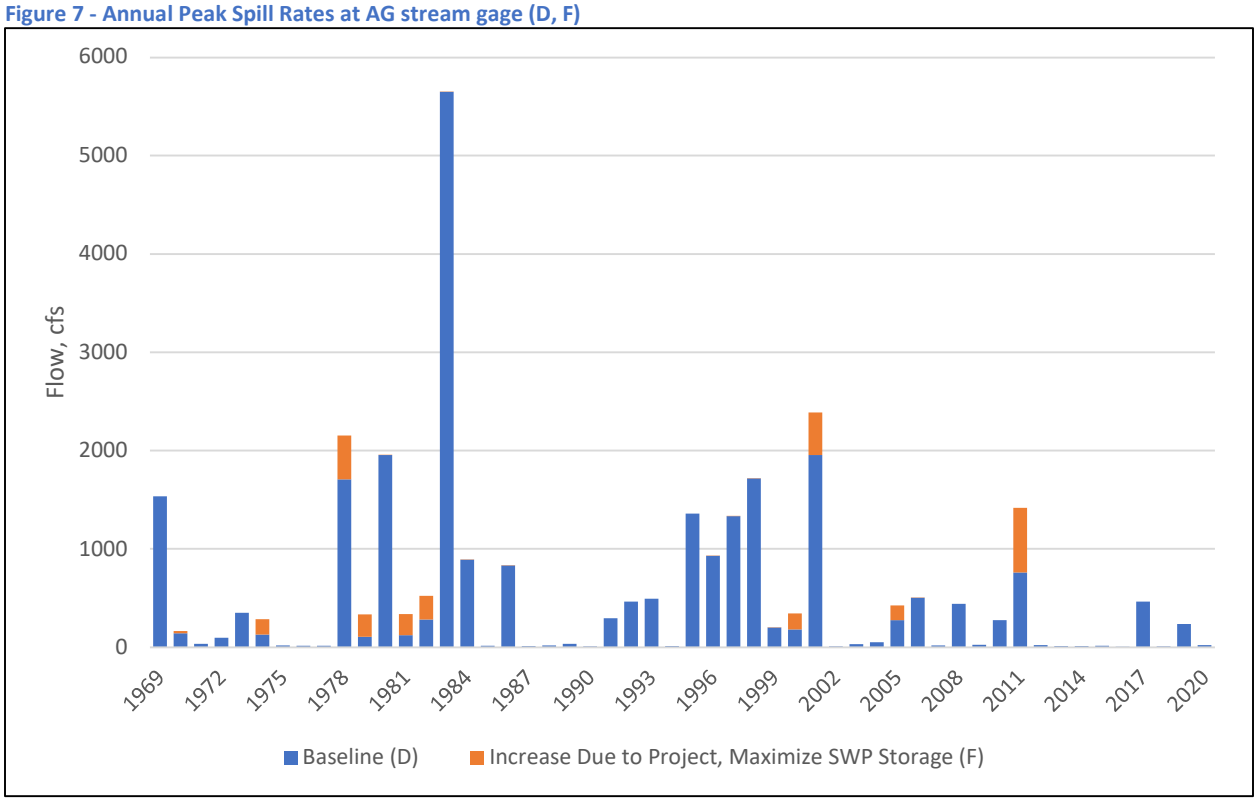
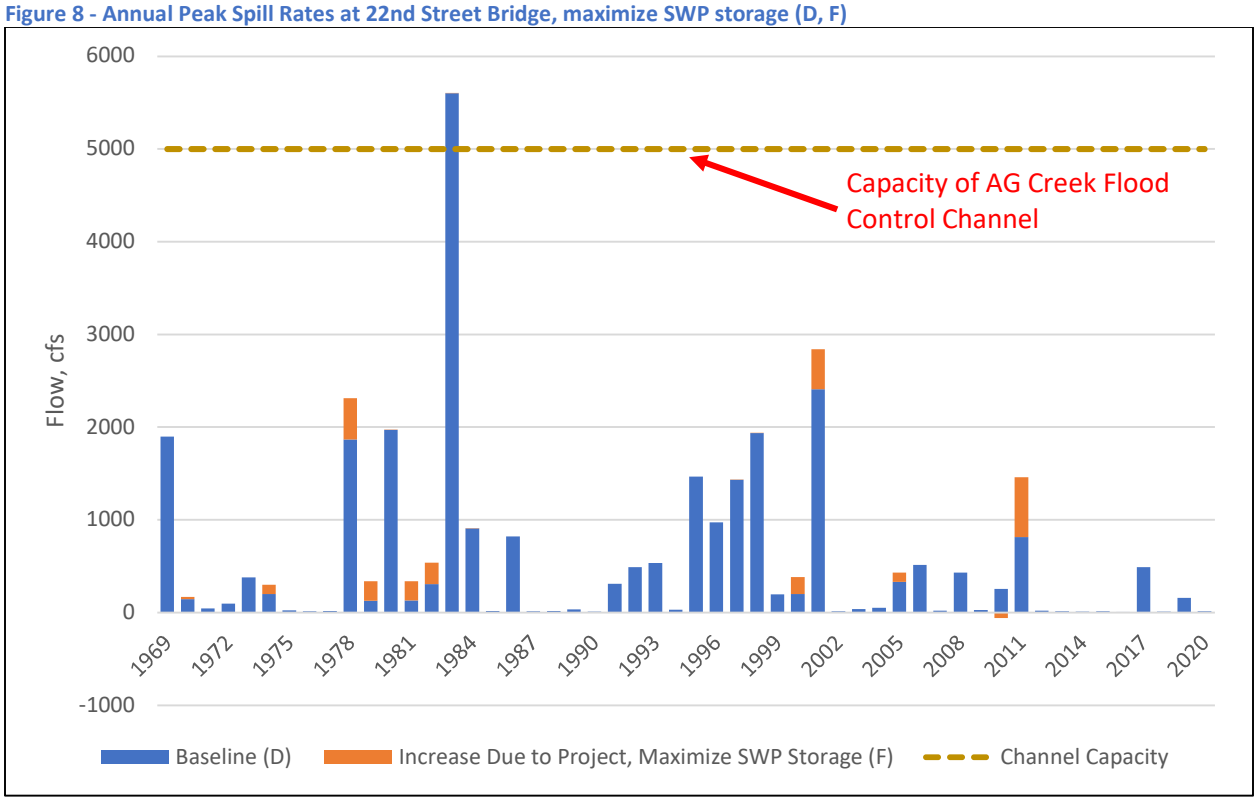


Table 22 - Annual Peak Spill Rates at 22nd Street Bridge

	Baseline (D)	Maximize Lopez Storage (E)	Difference	Maximize SWP Storage (F)	Difference
	CFS	CFS	CFS	CFS	CFS
1969	1898.8	1898.8	0.0	1898.8	0.0
1970	145.4	167.9	22.4	167.9	22.4
1971	44.7	44.7	0.0	44.7	0.0
1972	96.8	96.8	0.0	96.8	0.0
1973	378.5	378.2	-0.3	378.2	-0.3
1974	198.1	299.6	101.4	299.5	101.4
1975	23.9	23.9	0.0	23.9	0.0
1976	14.7	14.6	0.0	14.6	0.0
1977	15.5	15.5	0.0	15.5	0.0
1978	1866.3	2312.6	446.2	2312.6	446.2
1979	126.9	340.0	213.1	338.6	211.7
1980	1970.6	1970.8	0.2	1970.8	0.2
1981	132.2	337.6	205.4	336.3	204.1
1982	305.8	556.7	250.9	537.5	231.7
1983	5603.0	5603.1	0.2	5603.1	0.2
1984	906.9	907.0	0.2	907.0	0.2
1985	16.1	16.1	-0.1	16.1	-0.1
1986	821.8	818.3	-3.5	818.2	-3.6
1987	13.0	12.9	-0.1	12.9	-0.1
1988	17.7	17.6	-0.1	17.6	-0.1
1989	35.8	35.8	0.0	35.8	0.0
1990	8.5	8.5	0.0	8.5	0.0
1991	309.5	307.1	-2.4	307.1	-2.4
1992	489.2	485.3	-3.9	485.3	-3.9
1993	533.4	528.8	-4.5	528.8	-4.6
1994	31.8	31.7	-0.1	31.7	-0.1
1995	1465.1	1465.1	0.0	1465.1	0.0
1996	974.1	968.8	-5.4	968.5	-5.6
1997	1432.4	1432.6	0.2	1432.6	0.2
1998	1936.5	1936.7	0.2	1936.7	0.2
1999	196.2	195.3	-0.9	195.3	-1.0
2000	200.8	384.5	183.7	383.1	182.3
2001	2407.3	2838.6	431.2	2841.1	433.7
2002	11.7	11.7	0.0	11.7	0.0

2003	37.4	37.4	0.0	37.4	0.0
2004	49.7	49.2	-0.5	49.2	-0.5
2005	330.5	430.0	99.6	430.0	99.5
2006	512.3	508.2	-4.1	508.1	-4.2
2007	18.5	18.5	0.0	18.5	0.0
2008	429.3	425.2	-4.1	425.1	-4.1
2009	25.6	25.3	-0.3	25.3	-0.3
2010	255.0	195.8	-59.1	195.8	-59.1
2011	813.1	1459.7	646.6	1459.7	646.6
2012	19.2	19.0	-0.2	19.0	-0.2
2013	13.3	13.3	0.0	13.3	0.0
2014	11.1	9.8	-1.3	9.8	-1.3
2015	14.1	14.1	0.0	14.1	0.0
2016	7.5	7.5	0.0	7.5	0.0
2017	488.1	488.1	0.0	488.1	0.0
2018	10.4	10.4	0.0	10.4	0.0
2019	156.6	156.6	0.0	156.6	0.0
2020	12.1	12.1	0.0	12.1	0.0

Figure 8 - Annual Peak Spill Rates at 22nd Street Bridge, maximize SWP storage (D, F)



2.2.6 Storage Accounts – Maximize Lopez Storage (E)

Three of the five contractors have supplies in excess of demands at the 2035 level of demand – Pismo Beach, Oceano CSD, and Arroyo Grande. Pismo Beach, Oceano CSD, and Arroyo Grande are modeled as storing Lopez Lake water in Lopez Lake. An accounting of the water in these storage accounts for each year is shown in Tables 23 through 25.

Table 23 - Pismo Beach Use of Storage Account under maximize Lopez Storage (E)

Calendar Year	Delivered to Storage	Delivery from Storage	Lost to Evaporation	Lost to Spills	Resulting End of Year Storage
	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Average	336	44	32	213	487
1969	399	0	0	0	0
1970	450	3	22	0	299
1971	443	0	59	0	677
1972	442	0	92	0	1,028
1973	443	0	110	0	1,357
1974	483	70	11	1,692	0
1975	443	0	25	0	386
1976	312	0	59	0	768
1977	0	533	75	0	506
1978	418	10	3	555	0
1979	444	21	16	141	211
1980	416	28	1	570	0
1981	431	26	15	148	197
1982	421	5	3	607	0
1983	299	5	0	303	0
1984	407	1	12	0	174
1985	443	0	40	0	571
1986	437	36	2	954	0
1987	0	200	14	0	116
1988	0	113	4	0	0
1989	443	0	8	0	90
1990	0	235	28	0	185
1991	0	204	2	0	0
1992	0	3	0	0	0
1993	443	0	6	0	82
1994	443	0	38	0	483
1995	422	17	2	890	0
1996	414	34	1	284	0
1997	403	29	14	72	205
1998	331	15	0	543	0

1999	408	19	0	167	0
2000	428	37	8	209	136
2001	414	37	10	307	176
2002	443	0	33	0	562
2003	443	0	58	0	943
2004	442	0	86	0	1,300
2005	468	83	13	1,443	177
2006	467	22	1	541	0
2007	443	0	21	0	390
2008	94	0	40	0	765
2009	324	0	61	0	1,009
2010	443	0	62	0	1,292
2011	466	48	3	1,649	0
2012	442	0	15	0	390
2013	443	0	38	0	791
2014	0	151	56	0	941
2015	247	0	61	0	945
2016	442	0	94	0	1,136
2017	443	0	107	0	1,469
2018	142	0	119	0	1,740
2019	0	0	58	0	1,923
2020	0	321	69	0	1,888

Table 24 - Oceano CSD Use of Storage Account under Maximize Lopez Storage (E)

Calendar Year	Delivered to Storage	Delivery from Storage	Lost to Evaporation	Lost to Spills	Resulting End of Year Storage
	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Average	191	33	19	125	279
1969	194	0	0	0	0
1970	254	3	12	0	164
1971	268	0	34	0	393
1972	267	0	55	0	609
1973	268	0	66	0	810
1974	286	53	6	1,001	0
1975	268	0	15	0	227
1976	189	0	36	0	460
1977	0	308	44	0	320
1978	219	9	2	354	0
1979	261	21	8	81	114
1980	214	25	1	318	0
1981	246	25	8	83	105
1982	238	5	2	349	0

1983	112	5	0	169	0
1984	218	2	6	0	91
1985	268	0	23	0	333
1986	246	31	1	554	0
1987	0	104	8	0	76
1988	0	80	3	0	0
1989	268	0	5	0	57
1990	0	135	16	0	118
1991	0	125	1	0	0
1992	0	1	0	0	0
1993	268	0	4	0	54
1994	268	0	24	0	298
1995	218	13	1	541	0
1996	225	31	0	146	0
1997	203	28	7	40	108
1998	123	11	0	300	0
1999	207	18	0	81	0
2000	237	36	4	118	71
2001	221	35	6	168	93
2002	268	0	19	0	323
2003	268	0	34	0	556
2004	267	0	51	0	775
2005	269	69	7	854	96
2006	269	17	0	302	0
2007	268	0	12	0	229
2008	57	0	24	0	466
2009	196	0	39	0	649
2010	268	0	39	0	821
2011	263	36	2	1,030	0
2012	267	0	9	0	228
2013	268	0	23	0	472
2014	0	57	34	0	592
2015	149	0	38	0	587
2016	267	0	59	0	705
2017	268	53	63	0	857
2018	90	142	63	0	878
2019	0	118	28	0	891
2020	0	126	31	0	885

Table 25 - Arroyo Grande Use of Storage Account under Maximize Lopez Storage (E)

Calendar Year	Delivered to Storage	Delivery from Storage	Lost to Evaporation	Lost to Spills	Resulting End of Year Storage
	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Average	162	0	22	117	317
1969	0	0	0	0	0
1970	165	0	11	0	154
1971	165	0	26	0	293
1972	166	0	38	0	420
1973	165	0	44	0	541
1974	165	0	4	701	0
1975	165	0	10	0	155
1976	166	0	23	0	297
1977	165	0	41	0	421
1978	165	0	2	584	0
1979	165	0	7	61	97
1980	166	0	0	262	0
1981	165	0	7	65	92
1982	165	0	1	256	0
1983	165	0	0	165	0
1984	166	0	11	0	155
1985	165	0	22	0	298
1986	165	0	1	462	0
1987	165	0	8	0	157
1988	166	0	23	0	299
1989	165	0	39	0	425
1990	165	0	53	0	536
1991	165	0	59	0	642
1992	166	0	70	0	738
1993	165	0	69	0	834
1994	165	0	79	0	919
1995	165	0	4	1,080	0
1996	166	0	0	165	0
1997	165	0	8	38	119
1998	165	0	0	283	0
1999	165	0	0	165	0
2000	166	0	4	94	67
2001	165	0	5	143	84
2002	165	0	14	0	236
2003	165	0	23	0	377
2004	166	0	34	0	509
2005	165	0	6	583	84

2006	165	0	0	249	0
2007	165	0	9	0	157
2008	166	0	16	0	306
2009	165	0	27	0	444
2010	165	0	28	0	581
2011	165	0	1	745	0
2012	166	0	6	0	159
2013	165	0	15	0	309
2014	165	0	25	0	449
2015	165	0	36	0	578
2016	166	0	57	0	686
2017	165	0	58	0	792
2018	165	0	62	0	896
2019	165	0	31	0	1,030
2020	166	0	39	0	1,156

2.2.7 Storage Accounts – Maximize SWP Imports

Three contractors have supplies in excess of demands at the 2035 level of demand – Pismo Beach, Oceano CSD, and Arroyo Grande. Pismo Beach and Oceano CSD are modeled as storing SWP water in Lopez Lake (via a swap with Lopez supply), and Arroyo Grande is modeled as storing Lopez Lake water in Lopez Lake. An accounting of the water in these storage accounts for each year is shown in Tables 26 through 28.

Table 26 - Pismo Beach Use of Storage Account under Maximize SWP Storage (F)

Calendar Year	Delivered to Storage	Delivery from Storage	Lost to Evaporation	Lost to Spills	Resulting End of Year Storage
	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Average	354	45	36	239	693
1969	444	2	9	170	374
1970	478	33	14	383	417
1971	443	0	55	0	803
1972	442	1	88	0	1,157
1973	443	0	106	0	1,491
1974	494	51	20	1,493	417
1975	443	0	45	0	813
1976	312	1	74	0	1,050
1977	0	533	73	0	445
1978	448	5	10	501	375
1979	449	7	12	451	353
1980	446	5	10	399	386
1981	442	8	12	456	350

1982	434	5	10	767	0
1983	321	49	3	270	0
1984	442	0	10	0	431
1985	443	0	45	0	827
1986	454	12	9	881	377
1987	0	278	14	0	85
1988	0	83	2	0	0
1989	443	0	19	0	422
1990	0	216	30	0	178
1991	0	178	2	0	0
1992	0	0	0	0	0
1993	443	0	16	0	425
1994	443	0	51	0	814
1995	452	9	9	877	368
1996	439	18	8	781	0
1997	444	3	9	0	432
1998	313	124	3	586	35
1999	452	9	9	27	439
2000	449	7	8	487	385
2001	431	3	7	445	358
2002	443	0	33	0	765
2003	443	0	59	0	1,147
2004	442	1	87	0	1,502
2005	481	38	11	1527	404
2006	482	40	8	428	408
2007	443	0	34	0	814
2008	94	2	44	0	862
2009	324	0	60	0	1,123
2010	443	0	62	0	1,502
2011	481	39	9	1,523	410
2012	442	1	25	0	826
2013	443	0	50	0	1,217
2014	0	249	60	0	910
2015	247	0	63	0	1,092
2016	442	1	103	0	1,431
2017	443	0	115	0	1,756
2018	195	0	121	0	1,827
2019	443	0	61	0	2,207
2020	0	305	68	0	1,835

Table 27 - Oceano CSD use of Storage Account under Maximize SWP Storage (F)

Calendar Year	Delivered to Storage	Delivery from Storage	Lost to Evaporation	Lost to Spills	Resulting End of Year Storage
	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Average	215	27	22	146	422
1969	269	1	5	96	227
1970	281	12	9	241	245
1971	268	0	34	0	480
1972	267	0	54	0	696
1973	268	0	65	0	899
1974	306	38	13	895	259
1975	268	0	28	0	499
1976	189	0	46	0	642
1977	0	320	43	0	281
1978	271	3	6	315	228
1979	272	4	8	277	211
1980	272	5	6	240	234
1981	266	3	8	279	211
1982	263	4	6	463	0
1983	197	34	2	163	0
1984	267	0	7	0	263
1985	268	0	28	0	503
1986	275	8	6	537	227
1987	0	167	8	0	54
1988	0	53	1	0	1
1989	268	0	13	0	256
1990	0	127	18	0	110
1991	0	111	1	0	0
1992	0	0	0	0	1
1993	268	0	11	0	258
1994	268	0	32	0	495
1995	273	5	6	535	222
1996	265	11	6	472	0
1997	270	1	6	0	263
1998	226	82	2	377	23
1999	273	5	6	24	268
2000	272	5	5	298	234
2001	257	2	5	272	214
2002	268	0	21	0	461
2003	268	0	36	0	693
2004	267	0	53	0	909
2005	295	27	7	924	247

2006	295	28	5	260	250
2007	268	0	22	0	497
2008	57	1	27	0	528
2009	196	0	38	0	687
2010	268	0	38	0	917
2011	295	27	6	928	251
2012	267	0	16	0	505
2013	268	0	31	0	741
2014	0	148	36	0	559
2015	149	0	39	0	670
2016	267	0	64	0	875
2017	268	0	71	0	1,072
2018	118	0	74	0	1,117
2019	268	0	37	0	1,347
2020	0	181	41	0	1,124

Table 28 - Arroyo Grande Use of Storage Account under Maximize SWP Storage (F)

Calendar Year	Delivered to Storage	Delivery from Storage	Lost to Evaporation	Lost to Spills	Resulting End of Year Storage
	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Average	162	0	21	118	303
1969	0	0	0	0	0
1970	165	0	11	2	152
1971	165	0	26	0	291
1972	166	0	38	0	419
1973	165	0	44	0	539
1974	165	0	6	699	0
1975	165	0	10	0	155
1976	166	0	23	0	297
1977	165	0	41	0	421
1978	165	0	2	584	0
1979	165	0	0	165	0
1980	166	0	0	166	0
1981	165	0	1	164	0
1982	165	0	0	165	0
1983	165	0	0	165	0
1984	166	0	11	1	154
1985	165	0	21	0	297
1986	165	0	1	461	0
1987	165	0	8	0	157
1988	166	0	23	0	299

1989	165	0	39	0	425
1990	165	0	53	0	536
1991	165	0	59	0	642
1992	166	0	70	0	737
1993	165	0	69	0	833
1994	165	0	80	0	918
1995	165	0	4	1,079	0
1996	166	0	0	166	0
1997	165	0	0	164	0
1998	165	0	0	165	0
1999	165	0	0	165	0
2000	166	0	0	165	0
2001	165	0	0	165	0
2002	165	0	9	0	156
2003	165	0	19	0	303
2004	166	0	29	0	439
2005	165	0	5	556	43
2006	165	0	0	207	0
2007	165	0	9	0	157
2008	166	0	16	0	306
2009	165	0	27	0	444
2010	165	0	28	0	581
2011	165	0	2	744	0
2012	166	0	6	0	159
2013	165	0	15	0	309
2014	165	0	25	0	449
2015	165	0	37	0	578
2016	166	0	57	0	686
2017	165	0	58	0	792
2018	165	0	62	0	895
2019	165	0	31	0	1,029
2020	166	0	39	0	1,155

2.3 *Spill Minimization Analysis*

Modeling was requested that would look at ways to minimize the number of spill events under the project model. A set of sensitivity runs based on scenario F (Maximize SWP Storage with climate change hydrology) were modeled in which limitations were placed on the amount of SWP water that could be stored by any contractor. When reservoir spills occur in the modeling, the model prioritized spills from storage accounts in the following order consistent with the proposed contract changes:

1. Spill from Lopez SWP accounts in proportion to their storage volumes
2. Spill from Lopez storage accounts in proportion to their storage volumes
3. Spill from Flood Control District account when all other storage accounts have been depleted.

This method often results in SWP storage accounts being spilled on the leading edge of the inflow hydrograph, and Lopez storage accounts being spilled closer to the peak of the hydrograph. Some years both accounts spill on the same day. Limiting the amount of SWP water that can be stored in Lopez Reservoir will result in a lower volume of spill in most years, but often does not reduce the increase in annual peak flow rates below Lopez Reservoir. An example of this is shown for a spill event in 1978, the largest spill event in the period of record, in Figure 9 below. In addition to the contract change modeling, results are shown for a modeling study in which the SWP storage accounts are limited to 10% of the contractor's annual demand, which is a very restrictive limitation and yet has a negligible effect on peak flow rates in this event.

Figure 9 - 1978 Spill Event

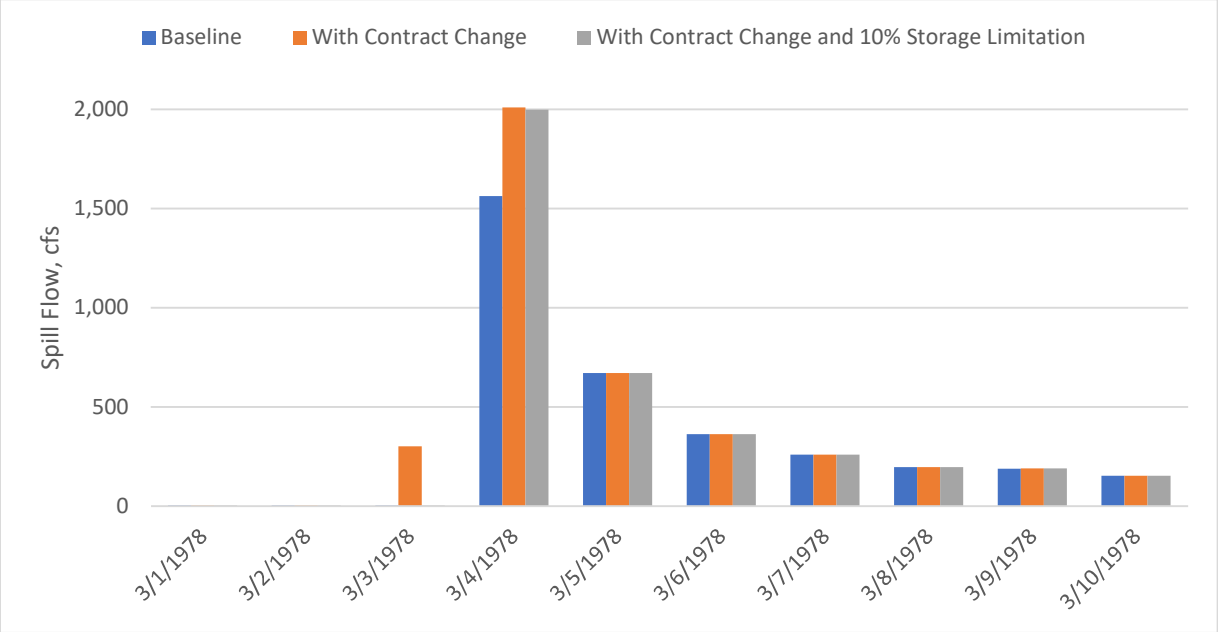
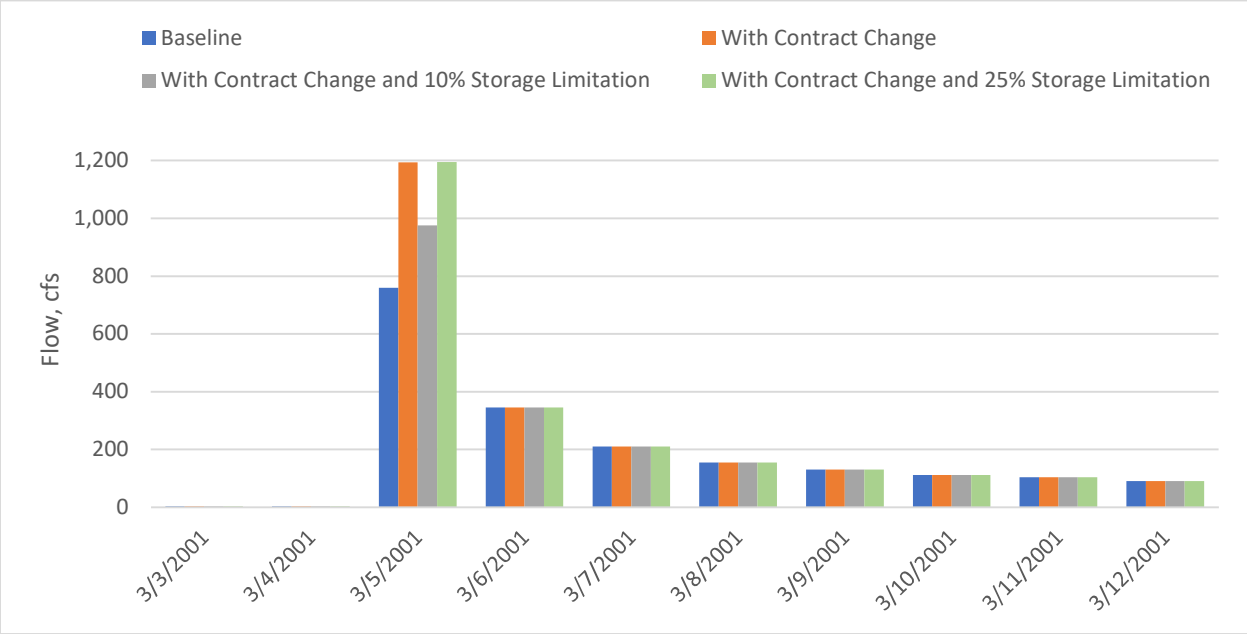


Figure 10 shows daily spill flows for a spill event in 2001. Here, putting a 10% of annual demand limitation on SWP storage reduces the increase in spill by less than 50%, but a 25% of annual demand limitation brings spills back to the peak flow of the full with project study.

Figure 10 - 2001 Spill Event



The effect of a SWP storage limitation on annual spill volumes are shown in Table 29.

Table 29 - Effect of SWP Storage Limitations on Spill Volumes

SWP Storage Limitation	Total Spill Volume, 1969-2020
Base line Case (D) –	290,711
Project (F) – SWP Storage Limited to 10% of annual demand	302,853
Project (F) – SWP Storage Limited to 25% of annual demand	310,655
Project (F) – SWP Storage Limited to 50% of annual demand	314,479
Project (F) – SWP Storage Limited to 100% of annual demand	317,521
Project (F) – No Limitation	317,521

Note: Annual demand is that shown in Table 2