

Volume 1 of 2

LOS VAQUEROS RESERVOIR EXPANSION PROJECT DRAFT SUPPLEMENT TO THE FINAL EIS/EIR

Prepared for
United States Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
Contra Costa Water District

June 2017

Cooperating Agencies
California Department of Water Resources
National Marine Fisheries Services
United States Army Corps of Engineers
United States Fish and Wildlife Service
Western Area Power Administration



Los Vaqueros Reservoir, Contra Costa County



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“The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.”

“The Mission of the Contra Costa Water District is to strategically provide a reliable supply of high quality water at the lowest cost possible, in an environmentally responsible manner.”

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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m ³	microgram per cubic meter
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACI	American Concrete Institute
Act	Delta Protection Act of 1992
ACWA	Association of California Water Agencies
ACWD	Alameda County Water District
Addendum	EIR Addendum #1
AF	acre-feet
AIA	Airport Influence Area
AL	Agricultural Lands
ALUPC	Airport Land Use Compatibility Plan
ANN	Artificial Neural Network
APE	Area of Potential Effects
ASCE	American Society of Civil Engineers
AWA	Amador Water Agency
AWWA	American Water Works Association
BAAQMD	Bay Area Air Quality Management District
BARR	Bay Area Regional Reliability
BAWSCA	Bay Area Water Supply and Conservation Agency
Bay-Delta	San Francisco Bay/Sacramento-San Joaquin Delta Estuary
Bay-Delta WQCP	Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary
BBID	Byron-Bethany Irrigation District
BDCP	Bay Delta Conservation Plan
BEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BO	Biological Opinion
Brentwood	City of Brentwood
CALFED	CALFED Bay-Delta Program

CALFED ROD	CALFED Bay-Delta Program Programmatic Environmental Impact Report Record of Decision
CAMT	Collaborative Adaptive Management Team
CAP	Clean Air Plan
CARB	California Air Resources Board
CBC	California Building Code
CBSC	California Building Standards Commission
CCTAG	Climate Change Technical Advisory Group
CCWD	Contra Costa Water District
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CDWA	Central Delta Water Agency
CE	California Endangered
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFP	California fully protected species
CFR	Code of Federal Regulation
cfs	cubic feet per second
CH ₄	methane
Cl	chloride
cm	centimeter
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CRAR	Cultural Resources Assessment Report
CRHR	California Register for Historical Resources
CSAMP	Collaborative Science and Adaptive Management Program
CSC	California Species of Special Concern
CT	California Threatened
CUPA	Certified Unified Program Agency
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board

CWA	Clean Water Act
CWC	California Water Commission
D-1641	State Water Resources Control Board Decision 1641
dBA	A-weighted decibels
DCC	Delta Cross Channel
DOSD	Division of Safety of Dams
DPS	drought planning sequence
DREAM	Demonstration Recharge Extraction and Aquifer Management
DSM2	Delta Simulation Model 2
DTSC	Department of Toxic Control Substances
DWR	Department of Water Resources
eastern site	Randall-Bold Water Treatment Plant site
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Parks District
EC	electrical conductivity
ECCID	East Contra Costa Irrigation District
EIS	Environmental Impact Statement
EIR	Environmental Impact Report
E/I ratio	ratio of CVP and SWP exports to Delta inflow
EMF	Electric and Magnetic Fields
EO	Executive Order
EOM	end-of-month
ERP	Ecosystem Restoration Program
ESU	Evolutionarily Significant Unit
FC	Candidate for Federal Listing
FD	Federal Delisted Species
FE	Federal Endangered
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
First Update	First Update to the Climate Change Scoping Plan
FMMP	Farmland Mapping and Monitoring Program
FPE	Proposed for Listing as Endangered
FPT	Proposed for Listing as Threatened
FRWA	Freeport Regional Water Authority
FRWP	Freeport Regional Water Project

FSC	Federal Species of Concern
FSCC	Folsom South Canal Connection
FT	Federal Threatened
FTA	Federal Transit Administration
FY	Fiscal Years
GCM	global climate models
GHG	greenhouse gas
Gr	grassland
GRCD	Grassland Resource Conservation District
Guidelines	CEQA Air Quality Guidelines
GWD	Grasslands Water District
HAP	Hazardous Air Pollutants
HCP	Habitat Conservation Plan
Historic District	Kellogg Creek Historic District
hp	horsepower
IBC	International Building Code
ICC	International Code Council
IRWM	Integrated Regional Water Management
ITA	Indian Trust Assets
JSA	Joint Settlement Agreement
JVID	Jackson Valley Irrigation District
K	soil erodibility factor
km	kilometer(s)
kWh	kilowatt hour
La	lacustrine
Ldn	Day Evening Night Sound Level
Leq	equivalent sound level
LOS	level of service
LS	Less-than-Significant Impact
LSM	Less-than-Significant Impact with Mitigation
LV MOU	Memorandum of Understanding on the Expansion of Los Vaqueros Reservoir
LVE Project	Los Vaqueros Reservoir Expansion Project
M	moment magnitude
MAF	million acre-feet

MEI	Maximally Exposed Individual
MG	million-gallon
MGD	million gallons per day
mg/L	milligram(s) per liter
MID	Modesto Irrigation District
M&I	municipal and industrial
mmhos/cm	millimhos per centimeter
MMRP	Mitigation Monitoring and Reporting Program
MMWD	Marin Municipal Water District
MRP	Municipal Regional Permit
msl	mean sea level
MT	metric tons
MTC	Metropolitan Transportation Commission
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Community Conservation Plan
NEPA	Nation Environmental Policy Act
NFE	nontidal freshwater emergent
NHPA	National Historic Preservation Act
NI	No Impact
NMFS	National Marine Fisheries Service
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSJWCD	North San Joaquin Water Conservation District
NSW	Natural Seasonal Wetland
NWIC	Northwest Information Center
OCAP	Operations Criteria and Plan
OCAP BOs	Biological Opinions for the Long-Term Operational Criteria and Plan for the CVP and SWP
OMR	Old and Middle Rivers
OS	Open Space
PDA	protest dismissal agreement
PI	plasticity index
PIT	passive integrated transponder

PM2.5	Fine Particulate Matter
PM10	Respirable Particulate Matter
ppm	parts per million
PR	Parks and Recreation
Program Elements	six hazardous materials and waste programs of the Unified Program
PRPA	Paleontological Resources Preservation Act
Qds	Pleistocene and Holocene dune sand
Qpaf	Pleistocene alluvial fans and fluvial deposits
QTu	Pliocene and Pleistocene continental drainage deposits unrelated to modern drainages
RCPS	Regional Climate Protection Strategy
RMS	room mean square
ROD	Record of Decision
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SB 32	Senate Bill 32
SBX7-7	Senate Bill X7-7
Scoping Plan	Climate Change Scoping Plan
SCS	sustainable communities strategy
SCVWD	Santa Clara Valley Water District
SCWA	Sacramento County Water Agency
SDC	seismic design category
SDWA	South Delta Water Agency
SE	saline emergent
SEWD	Stockton East Water District
SFPUC	San Francisco Public Utilities Commission
SGMA	Sustainable Groundwater Management Act
SH	Single Residential-High Density
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SLDMWA	San Luis & Delta-Mendota Water Authority
SR4	State Route 4
SU	Significant and Unavoidable
SWP	State Water Project
SWPPP	storm water pollution prevention plan

TAC	Toxic Air Contaminants
TAF	thousand-acre foot (feet)
TCP	traditional cultural properties
TFE	tidal freshwater emergent
UC	upland cropland
UCMP	University of California Museum of Paleontology
Unified Program	United Hazardous Waste and Hazardous Materials Management Regulatory Program
US	upland scrub
USACE or Corps	United States Army Corps of Engineers
USBR or Reclamation	United States Department of the Interior, Bureau of Reclamation, Mid-Pacific Region
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VFD	Variable Frequency Drive
VFW	valley/foothill woodland forest
VRF	valley/foothill riparian
WaterMAP	Water Management Action Plan
WCPP	Walnut Creek Pumping Plant
Western	Western Area Power Administration
western site	undeveloped land adjacent to surface infrastructure near the confluence of the Contra Costa Canal and Los Vaqueros Pipeline
WID	Woodbridge Irrigation District
WIIN	Water Infrastructure Improvements for the Nation
WQCP	Water Quality Control Plant
WQRMP	Water Quality and Resource Management Program
WSMP	Water Supply Management Program
WUA	Weighted Usable Area
WY	Water Year
X2	the location of the two parts per thousand isohaline as measured from the Golden Gate
Zone 7	Alameda County Flood Control and Conservation District, Zone 7

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CHAPTER 1

Introduction and Summary

The Los Vaqueros Reservoir Expansion Project (LVE Project) is a multi-agency effort that is expected to provide local, regional and statewide environmental, water supply reliability, and water quality benefits. The LVE Project is included as one of five surface water storage projects identified for further investigation under the comprehensive federal/state cooperative program known as the CALFED Bay-Delta Program (CALFED), which was designed to improve the quality and reliability of California's water supplies while restoring the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta). The CALFED Bay-Delta Program began in May 1995 to address the complex issues that surround the Bay-Delta. In August 2000, the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) issued its Record of Decision (ROD) for the CALFED Bay-Delta Final Programmatic Environmental Impact Statement and Report (CALFED PEIS/EIR). The CALFED ROD reflected an extensive alternatives development process and a final selection of a long-term plan (Preferred Program Alternative), which included specific actions to carry out the CALFED program objectives. Preliminary studies in support of the CALFED PEIS/R considered approximately 100 initial alternatives. The initial alternatives varied in the level of effort applied to actions related to water use efficiency, water quality, ecosystem quality, and levee system integrity components. The Final Environmental Impact Statement/Environmental Impact Report for the LVE Project builds upon the CALFED work done on developing the LVE Project concept and alternatives. The Contra Costa Water District (CCWD) is the lead agency under the California Environmental Quality Act (CEQA) and Reclamation is the lead agency under the National Environmental Policy Act (NEPA) for the LVE Project.

The U.S. Congress has authorized Reclamation to undertake a Federal Feasibility Study for the LVE Project through Public Laws 108-7 and 108-361. The Final Federal Feasibility Study is scheduled to be completed by November 2018. NEPA analysis is required to complete the Federal Feasibility Study. The LVE Project is also eligible for state funding through the California Water Commission (CWC) Water Storage Investment Program, which is detailed later in this chapter. Funding applications are required to be submitted to the CWC no later than August 14, 2017.

The Los Vaqueros Reservoir is an off-stream reservoir located in southeastern Contra Costa County that is owned and operated by CCWD and was originally constructed with a capacity of 100,000 acre-feet (100 TAF). The LVE Project Final Environmental Impact Statement/Environmental Impact Report (certified March 31, 2010), was modified by the August 2013 EIR Addendum #1 (together, the Final EIS/EIR). The Final EIS/EIR analyzed, among other alternatives, a Timing Variant under which Los Vaqueros Reservoir would be

expanded first to 160 TAF and later to 275 TAF. Los Vaqueros Reservoir has now been expanded to 160 TAF, and Reclamation and CCWD are currently evaluating the second phase of expansion up to the 275-TAF capacity (Phase 2 Expansion).

Since the Final EIS/EIR was certified, refinements on water sources and destinations have been made, and operational assumptions have been updated, primarily to reflect current and projected drought conditions, updated Delta hydrology models, and water quality monitoring. There is now more information about water supply demand and operational preferences from the local water agencies and south-of-Delta wildlife refuges that have been identified as potential partners in the Phase 2 Expansion project. In addition, the regulatory and environmental conditions in which the project would be operated have been modified over the past seven years.

These changes alter the Project Description as analyzed in the Final EIS/EIR, and thus additional environmental analysis is needed to ensure that these changes do not result in impacts not previously contemplated. CCWD and Reclamation have determined that a Supplement to the Final EIS/EIR (Supplement) be prepared in accordance with NEPA Regulations 40 CFR Section 1502.9(c) and CEQA Guidelines Section 15163. Pursuant to these Regulations and Guidelines, this Supplement contains only minor additions or changes which would make the Final EIS/EIR adequately apply to the LVE Project.

1.1 Summary of Past Analysis

1.1.1 Draft EIS/EIR

The LVE Project Draft EIS/EIR was released in February 2009. The Draft EIS/EIR described the proposed expansion project, identified the environmental consequences associated with implementation of the project, specified mitigation measures to reduce significant and potentially significant impacts, and analyzed and compared the environmental effects of four action alternatives, along with the No Project/No Action Alternative. The four action alternatives were distinguished primarily by the size of the expansion of Los Vaqueros Reservoir, the combination of new and expanded conveyance facilities, and the operational emphasis:

1. Alternative 1 – Expanded 275-TAF Reservoir, South Bay Connection, Environmental Water Management and Water Supply Reliability Dual Emphasis
2. Alternative 2 – Expanded 275-TAF Reservoir, South Bay Connection, Environmental Water Management Emphasis
3. Alternative 3 – Expanded 275-TAF Reservoir, No South Bay Connection, Environmental Water Management Emphasis
4. Alternative 4 – Expanded 160-TAF Reservoir, No South Bay Connection, Water Supply Reliability Emphasis

1.1.2 Final EIS/EIR

The LVE Project Final EIS/EIR was released in March 2010 and responded to comments received on the Draft EIS/EIR. The Final EIS/EIR consisted of the entire Draft EIS/EIR (Volumes 1, 2, and 3) and Volume 4 with the comments, responses to comments, and revisions to the Draft EIS/EIR. The key differences between the Draft EIS/EIR and the Final EIS/EIR were the following:

1. Facility refinements including the reduction of the Eastside Trail (all alternatives), realignment of the Westside Trail (Alternative 4), and addition of a second core borrow area zone (Alternative 4);
2. Hydrologic modeling updates to reflect the recently issued 2008 U.S. Fish and Wildlife Service (USFWS) Operations Criteria and Plan (OCAP) Biological Opinion (BO) (USFWS, 2008) and 2009 National Marine Fisheries Service (NMFS) OCAP BO (NMFS, 2009), as well as comments on the Draft EIS/EIR;
3. Changed status of Alternative 3, which, based on the results of the impact analysis, was not recommended for approval; and
4. Introduction of the Timing Variant to Alternative 1, which proposed expanding Los Vaqueros Reservoir to 275 TAF in two stages — from 100 TAF to 160 TAF first, followed by an expansion to 275 TAF seven or more years later.

The Final EIS/EIR showed that the Timing Variant to Alternative 1 might cause impacts that are of the same type, but somewhat greater than those described for Alternative 1 in the Draft EIS/EIR, due to: 1) areas at the dam site and at the southern marina locations where ground disturbance would occur twice; 2) effects associated with two rounds of construction activity; and, 3) additive footprint impacts associated with the need to use borrow area sites associated with both the 160-TAF expansion and, if later approved, the 275-TAF expansion. Mitigation identified in the Final EIS/EIR for these impacts was found to be applicable, and no new or substantially more severe significant impacts (compared to the impacts of Alternative 1) were anticipated if the 275-TAF expansion were to be approved after the 160-TAF project was completed. (See Final EIS/EIR, pages 2-24 – 2-27, and CCWD Board Resolution 10-05, page 6.)

1.1.3 Record of Decision/Notice of Determination

CCWD's Board of Directors certified the EIR, adopted CEQA findings, and approved Alternative 4 (expanding Los Vaqueros Reservoir to 160 TAF, Water Supply Reliability Emphasis) on March 31, 2010 in Resolution 10-05. CCWD filed a Notice of Determination for the 160-TAF expansion of Los Vaqueros Reservoir on April 1, 2010. Alternative 4 in the Final EIS/EIR was also identified as the environmentally superior alternative under CEQA. As described in the Final EIS/EIR, implementation of Alternative 4 would not preclude further expansion of the reservoir. It was acknowledged that "Reclamation and other potential state and regional partners would continue to study the larger expansion alternatives in the context of other on-going Delta initiatives and programs.... If Reclamation and CCWD select Alternative 4 and later decide to

pursue a larger reservoir expansion, then additional NEPA and CEQA analyses and documentation would be undertaken, as necessary.” (Final EIS/EIR, page 1-2.)

Reclamation signed and approved a Record of Decision (ROD) on March 11, 2011 that approved Alternative 4 as the Environmentally Preferable Alternative. Reclamation’s action was to enter into an integrated operations agreement with CCWD. The Los Vaqueros Reservoir Coordinated Operations Agreement was executed on April 28, 2011, and stated the purpose of the agreement was to facilitate cooperative operation of the Central Valley Project (CVP) and the LVE Project to “ensure that the respective goals of CCWD and Reclamation are met to the extent feasible” (LVR Coordinated Operations Agreement, page 3). The ROD did not address the potential to further expand to Los Vaqueros Reservoir to 275 TAF or to implement the Timing Variant as presented in the Final EIS/EIR.

CCWD rejected the Timing Variant as not feasible in 2011 because the expansion of Los Vaqueros Reservoir to 275 TAF required partners that had not committed to the project at the time the Final EIS/EIR was under consideration. CCWD’s Board of Directors further found that expansion to 160 TAF was justified regardless of whether the reservoir were ever expanded further, and that approval of Alternative 4 did not in any way commit CCWD to approve or implement the Timing Variant. Potential partners are now actively engaged in planning Phase 2 Expansion, and thus the current Los Vaqueros Reservoir Expansion Project can move forward in a manner following the Timing Variant to Alternative 1 that was analyzed in the Final EIS/EIR.

1.1.4 Addendum

An EIR Addendum #1 (Addendum) that described and analyzed minor revisions and additions that occurred since the Project was approved in 2010 was prepared in August 2013. These Project revisions fall into three categories: habitat mitigation implementation (habitat enhancement and land management on acquired mitigation lands); facility construction footprint area adjustments for select facilities; and dam outfall maintenance. The following details these changes:

1. **Habitat Mitigation Implementation.** This category includes two specific habitat restoration and enhancement projects that CCWD has now implemented as part of its overall wetland mitigation requirement: Deer Valley East Property (0.68 acre seasonal wetland establishment) and Kellogg Creek Restoration (3,000 linear feet within the Los Vaqueros Watershed). This category also includes long-term land management of mitigation properties to meet habitat enhancement and management objectives. CCWD acquired 5,079 acres of habitat in Contra Costa, Alameda and San Joaquin counties to meet mitigation obligations to compensate for habitat and species impacts of the 160-TAF expansion.
2. **Facilities Construction Footprint Adjustments.** Adjustments to planned construction zones for select facilities were made in the field during construction to respond to actual conditions on the ground. In some cases, actual construction zone disturbance areas were smaller than proposed and analyzed in the Final EIS/EIR, and in other cases, construction zones were expanded and/or the location was modified. Facilities that required construction footprint adjustments include the dam and shell borrow area (expanded), secondary core borrow/staging area (reduced), core borrow area (reduced), recreation trails (permanent area of effect reduced; temporary area of effect expanded), and the relocated marina facilities (expanded due to the addition of a water supply tank to service the marina facilities).

3. **Dam Outfall Maintenance.** The outfall for the Los Vaqueros Reservoir discharges to Kellogg Creek at the toe of the dam. Vegetation growth must be cleared from this outfall channel in order to maintain the flow capacity required to allow reservoir drainage in the event of an emergency. CCWD developed a more specific plan for this outfall vegetation clearance effort and for maintaining this outfall area free of vegetation as part of its annual maintenance activities.

1.2 Summary of Los Vaqueros Reservoir Expansion Project

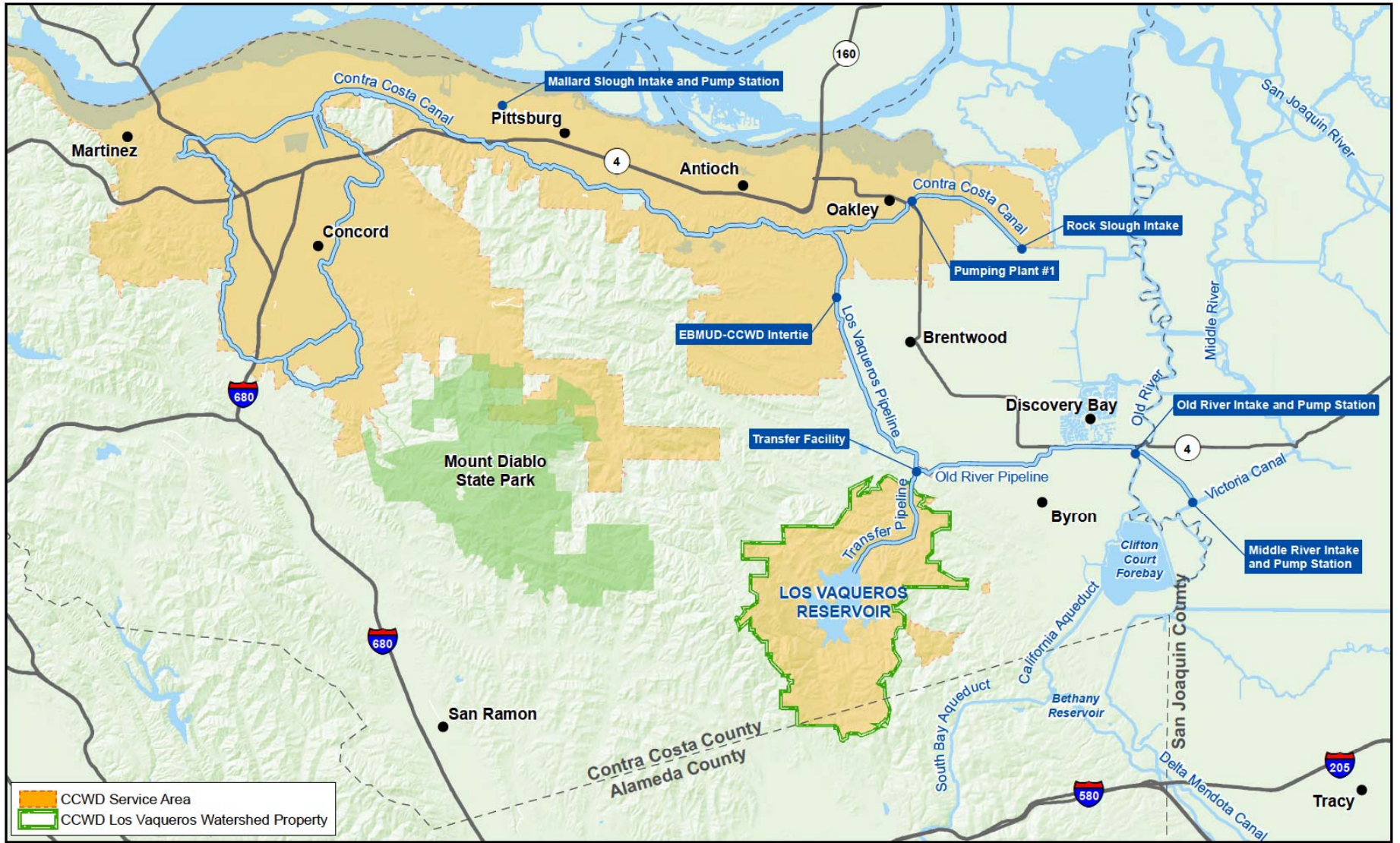
The original Los Vaqueros Reservoir Project was built in 1997 to improve CCWD's ability to deliver good water quality year-round and to provide emergency storage for CCWD's customers. In 2012, Los Vaqueros Reservoir was expanded from 100 TAF to 160 TAF storage capacity. This expansion provides water supply reliability for CCWD during droughts, in addition to providing the same water quality and emergency storage benefits of the original Los Vaqueros Reservoir. Los Vaqueros Reservoir also provides flood control benefits on Kellogg Creek. This section describes current facility conditions and the proposed Phase 2 Expansion, and introduces the potential partners.

1.2.1 Current 2017 CCWD Facilities

CCWD operates Los Vaqueros Reservoir as an integrated system with the Contra Costa Canal and Rock Slough Intake, which were completed as part of the CVP in 1948, and the Old River Intake and Pump Station, which CCWD built as part of the original Los Vaqueros Reservoir Project in 1997, and the Middle River Intake and Pump Station at Victoria Canal, which CCWD originally named the Alternative Intake Project and constructed in 2010. These facilities are operated to balance delivered water quality, water supply for droughts and emergencies, and cost considerations. CCWD also owns Los Vaqueros Watershed, which encompasses approximately 20,000 acres surrounding Los Vaqueros Reservoir. Los Vaqueros Watershed lands are managed for water quality, conservation and recovery of special-status species and their habitats, and recreation. The CCWD service area, Los Vaqueros Watershed lands, and CCWD's major untreated water facilities are shown in **Figure 1-1**. The current characteristics of the CCWD facilities that have changed from what was described in the Final EIS/EIR, are described here.

1.2.1.1 Los Vaqueros Dam

The existing Los Vaqueros Dam, expanded to its current elevation in 2012, is a 230-foot-high zoned earthfill embankment dam with a crest elevation of 521 feet above mean sea level. The volume of the dam embankment is about 3.8 million cubic yards. The surface area of Los Vaqueros Reservoir occupies about 1,840 acres when full at about 160 TAF. A spillway is located on the left abutment and is designed to accommodate the probable maximum flood in the watershed upstream of the dam. Since Los Vaqueros Reservoir is an off-stream reservoir, the majority of the water stored is pumped up from the Delta to storage; the probability of spilling from Los Vaqueros Reservoir is much lower than from other more conventional on-stream storage reservoirs. The dam was designed to withstand the maximum credible earthquake of



SOURCE: USGS; ESA, 2017

Los Vaqueros Reservoir Expansion Project Draft Supplement to the Final EIS/EIR
Figure 1-1
CCWD Service Area and Major Facilities

moment magnitude (M) 7.0 on the Greenville Fault, about 4 miles west of the dam. The dam is in full compliance with all requirements of the California Department of Water Resources, Division of Safety of Dams (DSOD) and is inspected annually by DSOD. CCWD continuously monitors the dam and conducts formal visual inspections of the dam on a monthly basis. CCWD provides annual monitoring reports to DSOD summarizing the results of these inspections and instrument readings for all monitoring equipment.

1.2.1.2 Los Vaqueros Watershed Recreation Facilities

As part of the expansion of Los Vaqueros Reservoir to 160-TAF capacity, the Los Vaqueros Marina Complex, including the remodeled marina building, maintenance and storage facilities, picnic facilities, boat dock, access ramps, fishing piers, fish cleaning station, and parking lot, was relocated upslope of its previous location on the southern end of Los Vaqueros Reservoir. The trails and access roads that would have been inundated or otherwise lost as part of the 160-TAF expansion were relocated.

Recreation facilities and programs are managed in a manner consistent with the Resource Management Plan adopted by the CCWD Board of Directors in 1999 and updated in 2016, and with biological opinions issued by USFWS and California Department of Fish and Wildlife (CDFW) covering San Joaquin kit fox, bald eagle, California red-legged frog, and Alameda whipsnake, among other threatened and endangered species in the Los Vaqueros Watershed.

1.2.1.3 Contra Costa Canal Replacement Project

The Contra Costa Canal is owned by Reclamation and operated by CCWD. The canal is the primary conveyance facility for CCWD's untreated water supply, carrying water both from the Rock Slough Intake and the Old River Intake, Middle River Intake, and Los Vaqueros Reservoir (via the Los Vaqueros Pipeline) for deliveries to water treatment plants, large industries, and irrigation customers throughout CCWD's service area.

The Contra Costa Canal is 48 miles long. CCWD's Contra Costa Canal Replacement Project replaces the 4-mile long, unlined portion of the Contra Costa Canal between the Rock Slough Fish Screen and Pumping Plant #1 with a buried 10'-diameter concrete pipe. The remaining 44 miles after Pumping Plant #1 are concrete-lined. The earth-lined portion of the Contra Costa Canal is subject to water quality degradation due to seepage into the canal from saline groundwater in the area, as well as seepage losses where the groundwater table is lower than canal water levels. Replacing the open channel with a buried pipe also eliminates evaporative losses. Removal of the open water facility also improves public safety, system security, and flood control, which are needed in light of the developing and planned urbanization in the vicinity. Segments 1 and 2 of the Canal Replacement Project have been completed, and construction for Segments 3 and 4 is planned for 2018. Funding for Segment 5, the final segment, has yet to be identified, although CEQA/NEPA and mitigation for the entire project has been completed. CCWD issued a Mitigated Negative Declaration and a Mitigation Monitoring and Reporting Program in 2006.

The Contra Costa Canal has capacities ranging from 350 cfs at the Rock Slough Intake to 22 cfs at its western terminus at the Martinez Reservoir. A series of four pumping plants lift the water

from Rock Slough to 126 feet above sea level, after which the water flows by gravity to the terminus. The pumping capacity at Pumping Plant #1 will be limited to approximately 200 cfs with the completion of the Canal Replacement Project, due to the increase in friction losses in the pipe compared to the open channel.

1.2.1.4 Los Vaqueros Energy Recovery Project

The Los Vaqueros Energy Recovery Project was completed in 2012 and generates up to 1 megawatt of power by recapturing energy from water delivered in the Los Vaqueros Pipeline using a conduit hydroelectric turbine-generator system. The Los Vaqueros Pipeline connects the Transfer Facility to the Contra Costa Canal at the Neroly Blending Facility in Oakley. The pipeline is in an 85-foot right-of-way and has a capacity of 365 cfs for gravity flow downhill from the Transfer Facility to the turbine-generator at the Neroly Blending Facility. The Neroly Blending Facility includes a flow control station that dissipates excess water pressure from the pipeline in order to control the amount of water entering the Contra Costa Canal. The energy recovery system was installed to capture the energy released in this process and transmit it to other CCWD facilities to offset existing electrical loads.

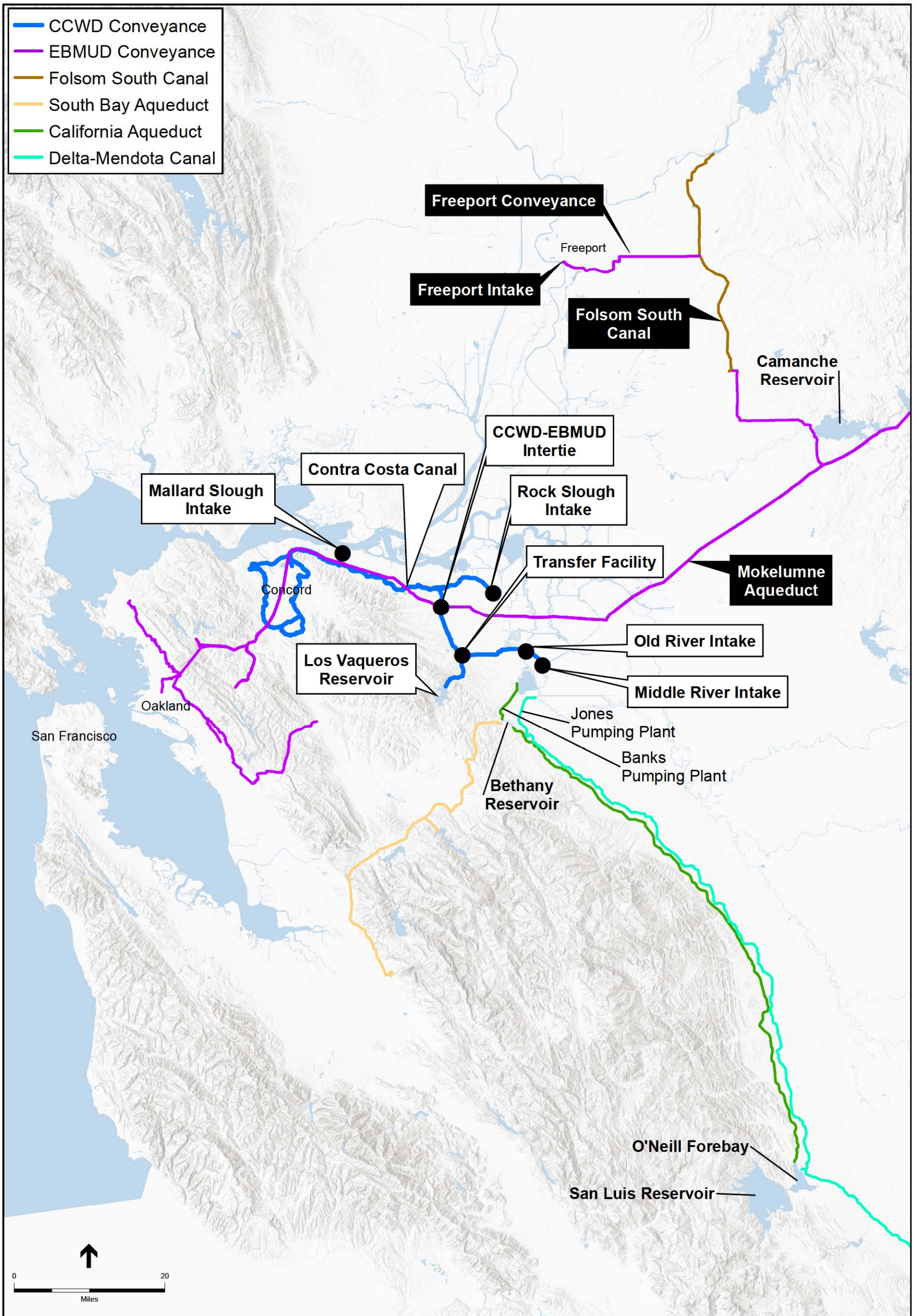
1.2.1.5 Rock Slough Fish Screen

Reclamation, in collaboration with CCWD, is responsible for completion of a fish screen at the Rock Slough Intake under the 1992 Central Valley Project Improvement Act and the 1993 U.S. Fish and Wildlife Service Biological Opinion for delta smelt for the Los Vaqueros Project to reduce fishery impacts from operations of Contra Costa Canal and Pumping Plant #1. Construction of the Rock Slough Fish Screen was substantially completed in 2011. Reclamation and CCWD are currently evaluating potential improvements to the facility. Currently, permits are being acquired for the suite of facility improvements and long-term operation and maintenance of the Rock Slough Fish Screen. Implementation of the improvements is pending additional funding.

1.2.1.6 EBMUD-CCWD Intertie

East Bay Municipal Utility District (EBMUD) owns and operates the Mokelumne Aqueducts, which convey water to EBMUD's service area from Pardee Reservoir on the Mokelumne River in the Sierra Nevada and the Freeport Intake on the Sacramento River. For additional details on the existing conditions of EBMUD facilities, operations, and water supply, see Appendix A. The EBMUD-CCWD Intertie connects Los Vaqueros Pipeline with Mokelumne Aqueduct #2 where the two facilities intersect in Brentwood (see **Figure 1-2**).

With no additional pumping required, the 155-cfs EBMUD-CCWD Intertie can be used to deliver water from Mokelumne Aqueduct #2 into the Los Vaqueros Pipeline, either uphill to the Transfer Facility for storage in Los Vaqueros Reservoir or downhill to the Contra Costa Canal for delivery to CCWD's service area. Water can also be moved from the Transfer Facility through the Los Vaqueros Pipeline to be pumped into Mokelumne Aqueduct #2 to deliver to EBMUD's service area, although flows in this direction cannot currently be sustained for long periods.



SOURCE: CCWD

Los Vaqueros Reservoir Expansion Project Draft Supplement to the Final EIS/EIR
Figure 1-2
 EBMUD-CCWD Intertie and Freeport Regional Water Facility

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The Freeport Regional Water Project was completed in 2010 by EBMUD and Sacramento County Water Agency (SCWA). Facilities include a water intake and pumping plant in the Sacramento River at Freeport, a pipeline connecting the Freeport Intake to the Folsom South Canal, a pipeline connecting the southern end of the Folsom South Canal to the Mokelumne Aqueduct, and two pumping plants in series to pump water from the Folsom South Canal and the Mokelumne Aqueduct. SCWA supplies drinking water to approximately 35,000 customers in the central part of Sacramento County using up to 132 cfs of Freeport Intake capacity, supplementing its groundwater supplies. EBMUD takes its dry-year CVP contract water through the Freeport Regional Water Facility at a rate of up to 155 cfs. Since EBMUD only uses the Freeport Intake in dry years, EBMUD's Board of Directors has adopted principles for use by other parties of unused EBMUD capacity in the Freeport Regional Water Facility.

Under an agreement between CCWD, EBMUD, SCWA, and the Freeport Regional Water Authority, CCWD can opt to divert up to 3,200 acre-feet per year of CCWD's CVP contract water supply at the Freeport Regional Water Intake Facility and convey this water through EBMUD facilities and the Folsom South Canal owned by Reclamation for delivery through the EBMUD-CCWD Intertie. The EBMUD-CCWD Intertie also functions as an emergency connection between EBMUD and CCWD, enabling the districts to share water resources in an emergency or during planned outages. The EBMUD-CCWD Intertie can also be used to facilitate regional transfers and exchanges with other parties that share interconnections or have other mechanisms for water exchange with either EBMUD or CCWD.

The EBMUD-CCWD Intertie was first used in February 2011 to deliver CCWD's CVP contract water to CCWD under an agreement between CCWD and EBMUD as part of the system operational readiness testing of the Freeport Regional Water Authority facilities. The EBMUD-CCWD Intertie was used again in September 2013 to deliver 2,000 acre-feet of Mokelumne River water transferred from Woodbridge Irrigation District to CCWD and in July 2014 to deliver 1,609 acre-feet of CCWD's CVP contract water from the Freeport Intake. The EBMUD-CCWD Intertie has not been used to move any substantial amounts of water into Mokelumne Aqueduct #2 from Los Vaqueros Pipeline; while this operation could be done in an emergency, pressure head in Los Vaqueros Pipeline is not high enough for flows to Mokelumne Aqueduct #2 to be sustained without pumping.

1.2.2 Proposed Phase 2 Expansion Project

The Phase 2 Expansion project is the second phase of the Los Vaqueros Reservoir Expansion Project and proposes to expand Los Vaqueros Reservoir from 160 TAF to 275 TAF storage capacity, upgrade existing conveyance facilities, and construct new conveyance facilities to meet the project objectives of the LVE Project. The project objectives are unchanged from those described in the Final EIS/EIR. The two primary objectives are (1) to develop water supplies for environmental water management (Environmental Water Management) and (2) to increase water supply reliability for Bay Area water providers (Water Supply Reliability). A secondary objective is to improve the quality of water deliveries to municipal and industrial customers in the San Francisco Bay Area without impairing the project's ability to meet the environmental and water supply reliability objectives (Water Quality).

Since certification of the Final EIS/EIR, refinements have been made to elements of the previously analyzed facilities, and operational assumptions have been updated, primarily to reflect more detailed water demand and operational preference information from the potential project partners (described below in Section 1.2.3), as well as updated regulatory and environmental conditions in which the project would be operated. The facility and operational refinements are described in the Project Description in Chapter 2, and the changes to regulatory and environmental conditions are described in Section 1.3. Further, revision of Reclamation's integrated operations agreement with CCWD will be required.

The action alternatives considered in this Supplement are formulated to capture a range of potential project operations. Alternative 1A would prioritize water supply reliability for regional municipal and industrial and agricultural uses. Alternative 1B would balance water deliveries for water supply reliability for regional water providers and ecosystem uses for south-of-Delta wildlife refuges. Alternative 2A would prioritize environmental water management with water deliveries to south-of-Delta wildlife refuges. Alternatives 1A, 1B, and 2A all would propose to expand Los Vaqueros Reservoir to 275 TAF and add or upgrade conveyance facilities. Alternative 4A would have the same operational priorities as Alternative 1B, and would include many of the conveyance facilities features of the other action alternatives but would not propose to expand Los Vaqueros Reservoir to 275 TAF.

The issues to be resolved that are described in the Final EIS/EIR remain unchanged. New issues to be resolved include questions about the benefits of the Phase 2 Expansion project for the specific project partners now identified; questions about whether the effects of climate change would change the project benefits or impacts and questions about whether implementation of California WaterFix would change the project benefits or impacts. Chapter 3 of this Supplement provides an assessment of project benefits using the criteria required by the CWC; Chapter 5 presents an analysis of project benefits and effects under climate change conditions; and Appendix B addresses project benefits and effects if the proposed California WaterFix project is implemented.

1.2.3 Project Partners

The potential partners include Local Agency Partners, which consist of the ten regional water agencies listed below that supply water for municipal and industrial and agricultural uses in the Bay Area and Delta region, and the fourteen south-of-Delta wildlife refuges (Refuges) designated in the Central Valley Project Improvement Act (CVPIA), which are managed by the CDFW, USFWS, and landowners of privately owned/managed wetlands. (Reclamation is obligated under Section 3604(d) of the CVPIA to provide specific annual amounts of firm water supplies of suitable quality to nineteen Central Valley wildlife refuges, including fourteen wildlife refuges located south-of-Delta, and to cover the costs of acquiring water and conveying these water supplies to the wildlife refuge boundaries.) The potential partners have all identified a need for improved water supply reliability for municipal and industrial and agricultural beneficial uses or environmental water management in the form of improved water supply reliability for Refuges that could be met by the Phase 2 Expansion project.

All of the Local Agency Partners and Refuge agencies (USFWS, CDFW, and Grassland Water District [GWD]) are signatories to the Los Vaqueros Memorandum of Understanding, as described below. Each of the Local Agency Partners, along with GWD (a water agency that delivers water to private wetlands and state and federal wildlife refuges), have also entered into separate cost share agreements with CCWD to provide funding and in-kind services for the planning studies of the Phase 2 Expansion project, which are this Supplement and the application to the CWC for Water Storage Investment Program funding. Following the analysis of potential benefits of the proposed project and an evaluation of other factors, such as environmental impacts, alternatives and mitigation measures, funding availability, demand, and other individual agency water supply options, each agency will decide individually whether to continue to participate in the Phase 2 Expansion project.

1.2.3.1 Local Agency Partners

The Local Agency Partners are shown in **Figure 1-3a** and described here. The individual water supply reliability needs identified by each Local Agency Partner are described in Chapter 2, and their potential benefits from Phase 2 Expansion are discussed in Chapter 3.

Alameda County Flood Control and Water Conservation District, Zone 7 (Zone 7)

Alameda County Flood Control and Conservation District, Zone 7 (Zone 7 Water Agency or Zone 7) supplies treated drinking water to retailers serving approximately 240,000 people and businesses in Pleasanton, Livermore, Dublin, and, through special agreement with the Dublin San Ramon Services District, the Dougherty Valley area in San Ramon. Zone 7 also supplies untreated irrigation water to local vineyards, farms and golf courses, and provides flood protection to all of eastern Alameda County.

Alameda County Water District (ACWD)

ACWD supplies drinking water to over 349,000 residents and the businesses in the cities of Fremont, Newark, and Union City in southern Alameda County. ACWD's primary sources of supply come from the Bay-Delta (via the State Water Project), the San Francisco Regional Water System, and local supplies including groundwater and surface water. ACWD is a member of BAWSCA.

Bay Area Water Supply and Conservation Agency (BAWSCA)

BAWSCA is a special district that provides regional water supply planning, resource development, and conservation program services to enhance the reliability of the 16 cities, 8 water districts, and 2 private water providers that provide water to over 1.7 million people and 40,000 commercial, industrial and institutional accounts in Alameda, Santa Clara and San Mateo Counties. BAWSCA was enabled by a special act of the California Legislature and was formed by its member agencies in 2003 to directly represent the interests of its member agencies in matters related to the San Francisco Regional Water System (SF RWS). BAWSCA enables the customers of the SF RWS to work with the San Francisco Public Utilities Commission (SFPUC) on an equal basis to ensure that the system is maintained, and to collectively and efficiently meet local responsibilities.

BAWSCA's member agencies include: Alameda County Water District, City of Brisbane, City of Burlingame, California Water Service (CWS) - Bear Gulch, CWS - Mid-Peninsula, CWS - South San Francisco, Coastside County Water District, City of Daly City, City of East Palo Alto, Estero Municipal Improvement District, Guadalupe Valley Municipal Improvement District, City of Hayward, Town of Hillsborough, City of Menlo Park, Mid-Peninsula Water District, City of Millbrae, City of Milpitas, City of Mountain View, North Coast County Water District, City of Palo Alto, Purissima Hills Water District, City of Redwood City, City of San Bruno, San Jose Municipal Water System, City of Santa Clara, Stanford University, and Westborough Water District.

Byron-Bethany Irrigation District (BBID)

BBID is a special district serving water to parts of Alameda, Contra Costa, and San Joaquin counties, with over 160 agricultural customers on a total area of 30,000 acres and approaching 20,000 residents in the Mountain House community. BBID diverts water under its own pre-1914 water right from the intake channel of the California Aqueduct and also receives water under a long-term CVP water supply contract. BBID is also a member of the San Luis & Delta-Mendota Water Authority (SLDMWA).

City of Brentwood (Brentwood)

The City of Brentwood (Brentwood) is a community of over 60,000 residents in eastern Contra Costa County. Brentwood utilizes groundwater from its seven groundwater wells and surface water diverted by CCWD to supply domestic water to more than 18,500 service connections. Brentwood is within ECCID's service area and has a long-term agreement with East Contra Costa Irrigation District (ECCID) to serve Brentwood's residents water through ECCID's water right.

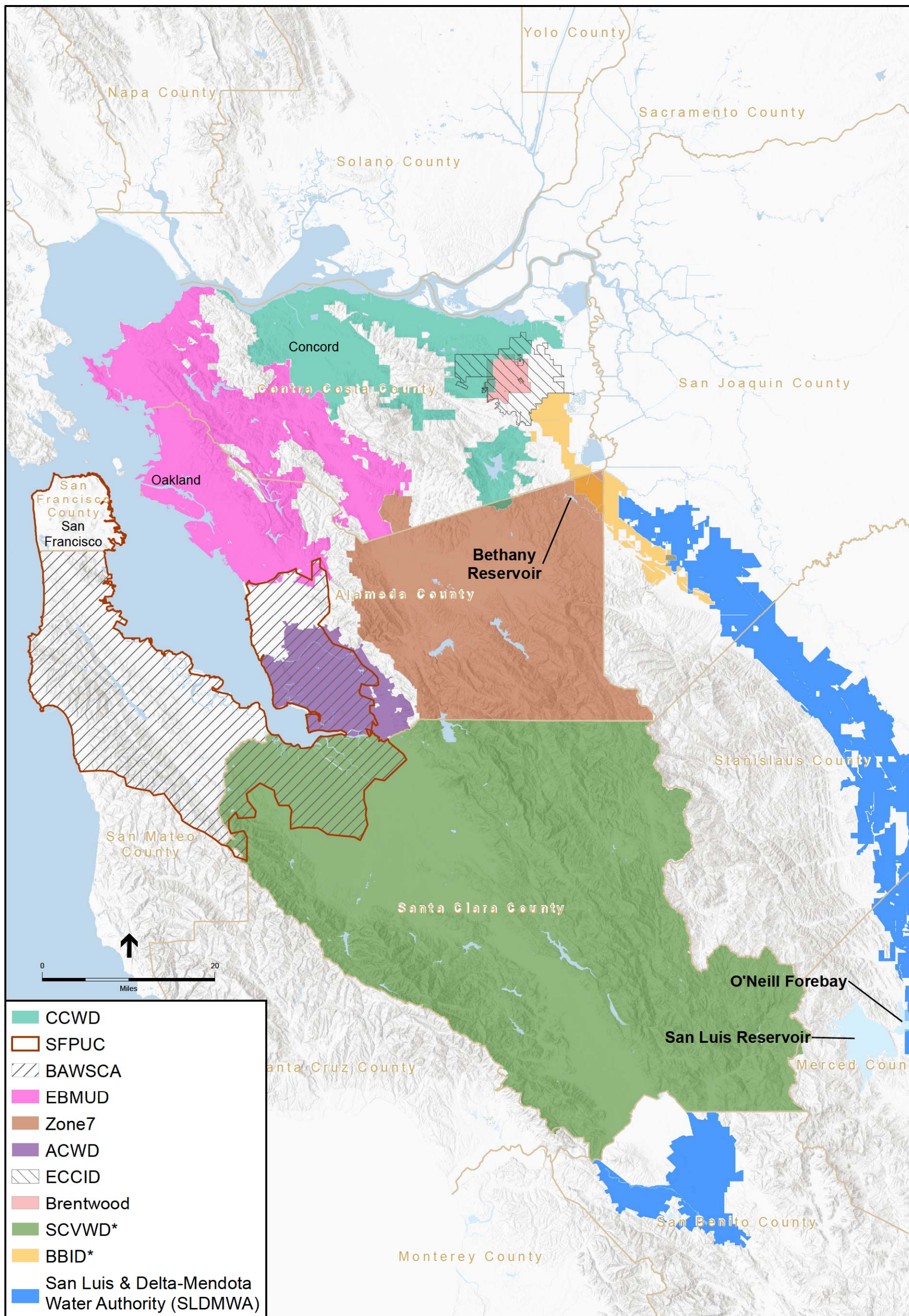
East Bay Municipal Utility District (EBMUD)

EBMUD provides high-quality drinking water for 1.4 million customers in Alameda and Contra Costa counties. EBMUD has water rights on the Mokelumne River and also a long-term dry year CVP water supply contract. For more background on EBMUD's water supply and operations, see Appendix A.

East Contra Costa Irrigation District (ECCID)

ECCID is a special district established in 1926 under the Irrigation District Law. The primary purpose of ECCID is to provide irrigation water to the agricultural community within the cities of Brentwood, Knightsen, and Oakley, and the unincorporated area south and east of the Brentwood city limits. ECCID also provides water to four local golf courses and miles of median strip landscaping and open space areas throughout the City of Brentwood.

ECCID has a 1912 appropriative right to divert 250 cfs from Indian Slough on Old River for irrigation, domestic use, and stock watering within the ECCID service area. In 1981, ECCID entered into an agreement with the Department of Water Resources (DWR) ensuring a certain quantity and quality of water.



* Also a SLDMWA Member Agency.
 Please see Figure 1-3b for full list of SLDMWA Member Agencies.

SOURCE: CCWD

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Figure 1-3a
 Service Areas of Local Agency Partners

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A portion of ECCID's service area overlaps all of the City of Brentwood's and a portion of CCWD's service areas. In 1991, ECCID, CCWD, and DWR entered into an agreement allowing CCWD to divert up to 8,200 acre-feet of water under ECCID's water right at Rock Slough and Old River Intakes. In 1999, ECCID entered into an agreement with Brentwood to provide up to 14,800 acre feet of water. Together, the water made available to both CCWD and the City of Brentwood serves an estimated population of over 75,000 within the overlap areas.

Santa Clara Valley Water District (SCVWD)

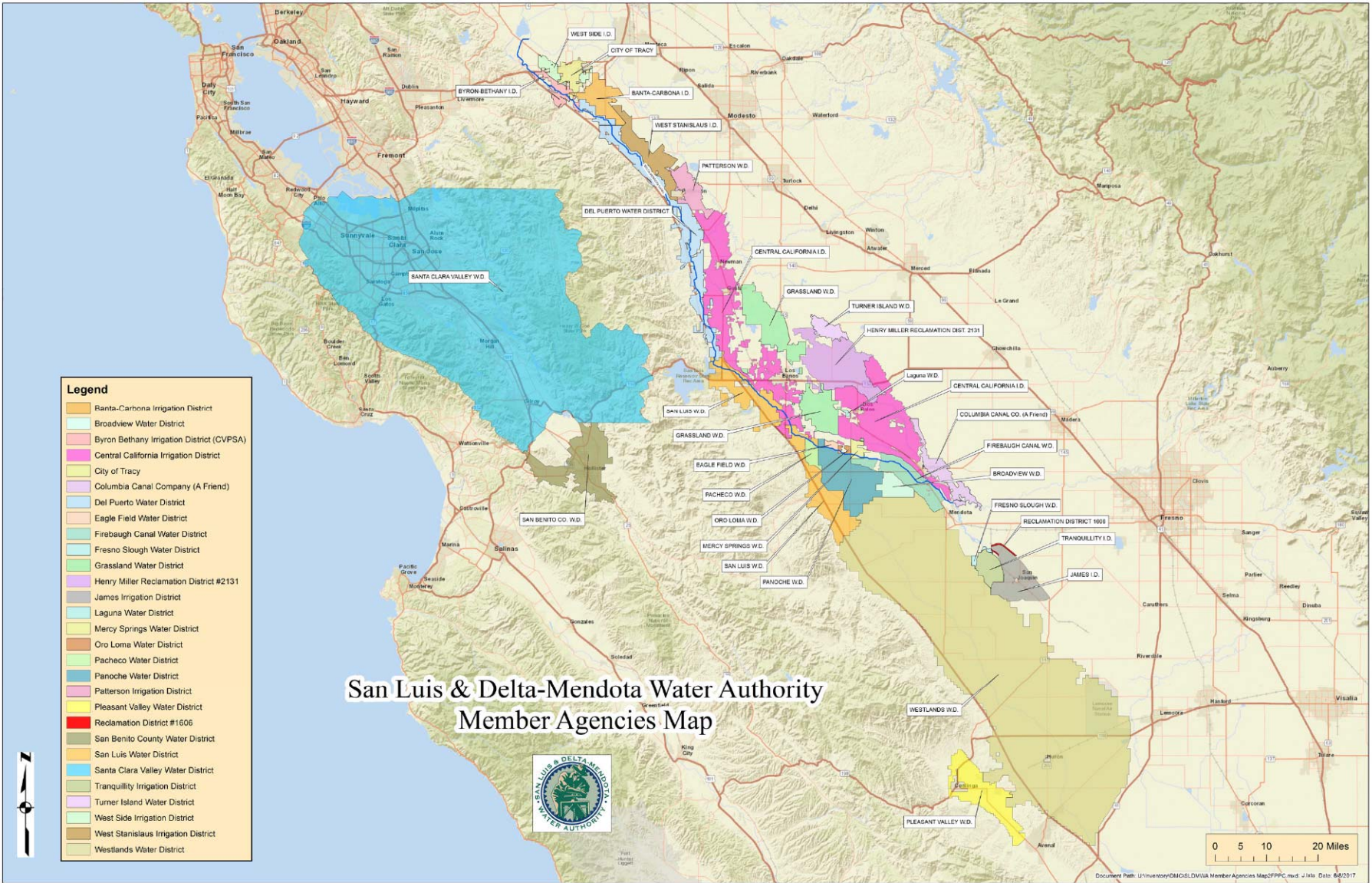
SCVWD provides wholesale water supply, groundwater management, flood protection, and stream stewardship services to approximately 2 million people in Santa Clara County. It serves the cities of Campbell, Cupertino, Gilroy, Los Altos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga and Sunnyvale, and the towns of Los Gatos and Los Altos Hills. Thirteen water retailers serve the county - California Water Service Company, City of Milpitas Community Services, City of Morgan Hill, City of Mountain View Public Works, City of Palo Alto Utilities Department, City of Santa Clara Water Department, City of Sunnyvale Public Works Department, Gilroy Community Services Department, Great Oaks Water Company, Purissima Hills Water District, San Jose Municipal Water System, San Jose Water Company, and Stanford University. Some retailers are also customers of SFPUC and members of BAWSCA. SCVWD is a State Water Project contractor, a Central Valley Project contractor, and a member of SLDMWA.

San Francisco Public Utilities Commission (SFPUC)

The San Francisco Public Utilities Commission (SFPUC) is the third largest municipal utility in California, serving 2.6 million residential, commercial, and industrial customers in the San Francisco Bay Area. Approximately one-third of the SFPUC's system-wide deliveries go to retail customers in San Francisco, and the other two-thirds go to 26 wholesale customers, who are represented collectively by BAWSCA. Approximately 85% of the SFPUC's regional water supply comes from the Tuolumne River watershed, which includes storage at Hetch Hetchy Reservoir in Yosemite National Park. Local reservoirs in the Alameda and Peninsula watersheds provide the remaining 15% of the SFPUC's regional supply. The SFPUC also has a Local Water Program, which includes conservation as well as groundwater, recycled water and other non-potable supplies to meet demands in its retail service area.

San Luis & Delta-Mendota Water Authority (SLDMWA)

SLDMWA consists of water agencies representing approximately 2,100,000 acres and 29 CVP water service contractors within the western San Joaquin Valley, San Benito and Santa Clara counties (see **Figure 1-3b**). SLDMWA member districts are Banta-Carbona Irrigation District, Broadview Water District, Byron Bethany Irrigation District, Central California Irrigation District, City of Tracy, Columbia Canal Company, Del Puerto Water District, Eagle Field Water District, Firebaugh Canal Water District, Fresno Slough Water District, Grassland Water District, Henry Miller Reclamation District #2131, James Irrigation District, Laguna Water District, Mercy Springs Water District, Oro Loma Water District, Pacheco Water District, Panoche Water District, Patterson Irrigation District, Pleasant Valley Water District, Reclamation District 1606, San Benito County



SOURCE: San Luis & Delta-Mendota Water Authority

Los Vaqueros Reservoir Expansion Project Draft Supplement to the Final EIS/EIR
Figure 1-3b
Service Areas of SLDMWA Member Agencies

Water District, San Luis Water District, Santa Clara Valley Water District, Tranquility Irrigation District, Turner Island Water District, West Side Irrigation District, West Stanislaus Irrigation District, and Westlands Water District.

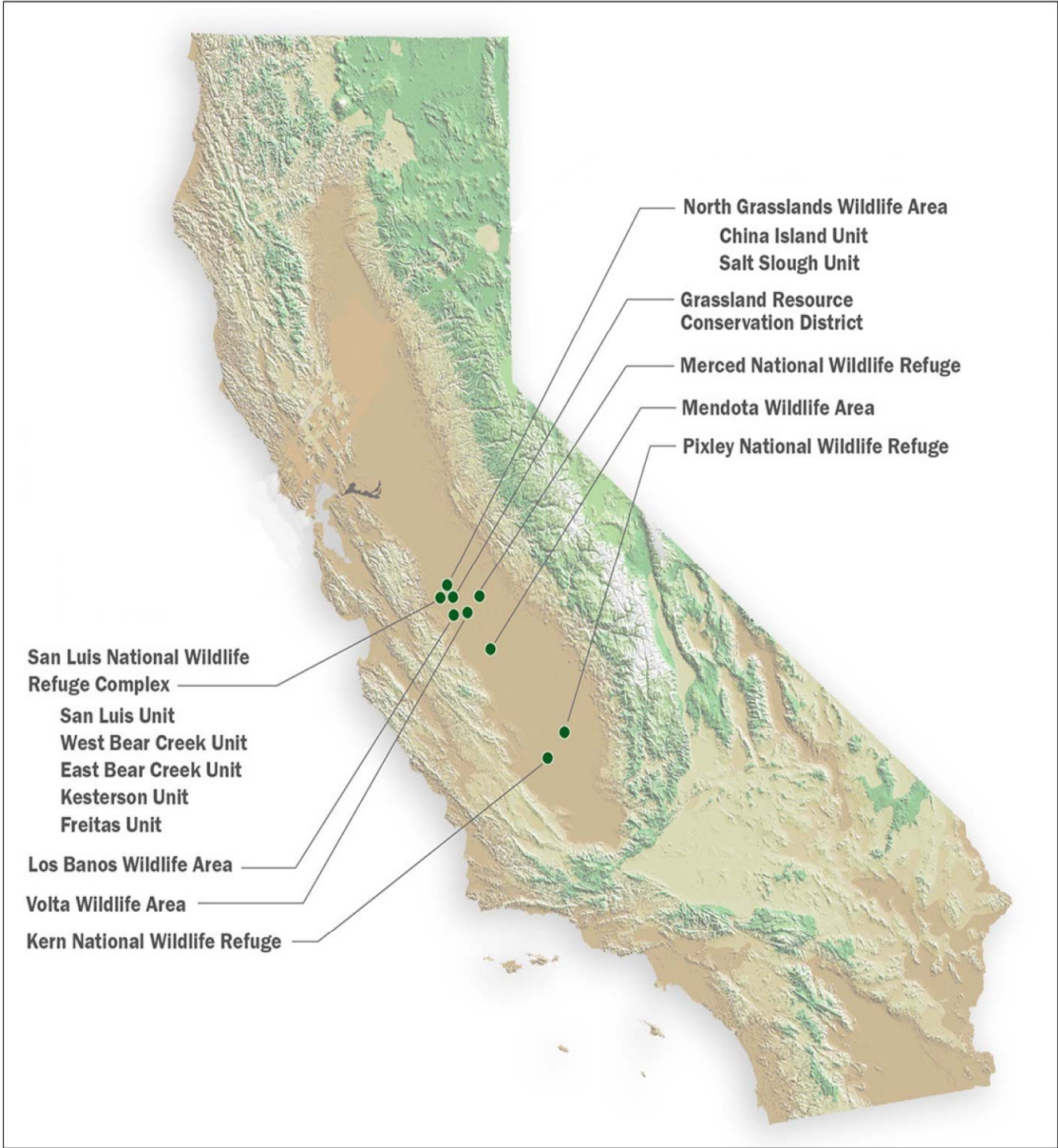
Reclamation has an operations and maintenance agreement with SLDMWA to operate, maintain, and self-fund the physical works and appurtenances associated with the Jones Pumping Plant, the Delta-Mendota Canal, the O'Neill Pump/Generating Plant, the San Luis Drain, and associated works. One function SLDMWA serves is to help negotiate water transfers with and on behalf of its member agencies when CVP allocations have been reduced and there is a need for supplemental water.

1.2.3.2 South-of-Delta Wildlife Refuges

A century ago, the Central Valley of California contained over 4 million acres of natural wetlands, but since then, over 90 percent of the Central Valley wetlands have disappeared. Today, thousands of acres of wetlands have been protected and restored through federal, state, and local collaborative efforts. The wildlife refuges support millions of wintering waterfowl and serve as critical stopovers for migratory birds along the Pacific Flyway every year, along with providing habitat for resident birds and other wildlife.

Section 3406(d) of the 1992 federal Central Valley Project Improvement Act (CVPIA) requires Reclamation to provide firm water supplies of suitable quality to maintain and improve wetland habitat areas in the Central Valley of California. The fourteen south-of-Delta wildlife refuges (Refuges) in the San Joaquin Valley named in the CVPIA are managed by the USFWS, CDFW, and the landowners of privately owned/managed wetlands in the Grassland Resources Conservation District (GRCD). The Refuges are the San Luis, West Bear Creek, East Bear Creek, Kesterson, and Freitas Units of the San Luis National Wildlife Refuge, the Los Banos Wildlife Area, Volta Wildlife Area, Kern National Wildlife Refuge, China Island and Salt Slough Units of the North Grasslands Wildlife Area, Grassland Resource Conservation District, Merced National Wildlife Refuge, Mendota Wildlife Area, and Pixley National Wildlife Refuge, all shown in **Figure 1-4**. Another five wildlife refuges identified in the CVPIA are located north of the Delta in the Sacramento Valley. Prior to the enactment of the CVPIA, most of the wildlife refuges relied on surplus water storage, agricultural return flows, junior water rights, and groundwater for water supply; these sources were all either unreliable or of marginal water quality, or both.

The U.S. Department of the Interior's Refuge Water Supply Program, created to implement the CVPIA, is managed jointly by Reclamation and USFWS and is responsible for the acquisition of refuge water supplies of suitable quality, the construction of conveyance systems to deliver those water supplies, and the conveyance of the refuge water itself. The Refuge Water Supply Program coordinates closely with CDFW, GWD, and the Central Valley Joint Venture (a self-directed coalition consisting of state and federal agencies, private conservation organizations and a corporation working toward the common goal of providing for the habitat needs of migrating and resident birds in the Central Valley of California) to provide and manage water supplies for wetland habitat on the federal, state, and private managed wetlands in the Central Valley. USFWS, CDFW, and GWD each have a long-term water contract with Reclamation for water



SOURCE: Grassland Resource Conservation District, 2017

Figure 1-4
South of Delta Wildlife Refuges

supplies for the Refuges (Reclamation and USFWS, 2001; Reclamation and CDFW, 2001; and Reclamation and GWD, 2001). The overarching goal of the Refuge Water Supply Program is to ensure that all wetland habitat areas identified in the CVPIA annually receive water of a specified quantity and suitable quality, meeting needed flow rate and timing, for optimal habitat management. The CVPIA mandates under Section 3406(d) are to acquire or secure the water supply necessary to meet each individual wildlife refuge's annual water allocation, convey this water to the wildlife refuge boundaries, and upgrade conveyance facilities or build new facilities to provide the necessary conveyance capacity to meet the wildlife refuges' scheduled water needs. The CVPIA specifies that the Refuge Water Supply Program is responsible for all costs associated with implementation of Section 3406(d), except for a 25% State of California cost share of those costs associated with providing water supplies under CVPIA Section 3406(d)(2).

Environmental compliance documents related to Refuge water supply have been completed. Key documents include the 1999 CVPIA Programmatic EIS (Reclamation and USFWS, 1999) and the 2001 Refuge Water Supply Program Long-Term Water Supply Agreements (Reclamation et al., 2010), along with the Final NEPA Environmental Assessment and CEQA Initial Studies for these agreements.

Refuge water supply needs from Phase 2 Expansion are described in Chapter 2, and potential benefits are discussed in Chapter 3.

U.S. Fish and Wildlife Service (USFWS)

The CVPIA Refuges managed by USFWS are the San Luis, East Bear Creek, West Bear Creek, Freitas and Kesterson Units of the San Luis National Wildlife Refuge, Kern National Wildlife Refuge, Merced National Wildlife Refuge, and Pixley National Wildlife Refuge. USFWS is responsible for decisions concerning biological resource issues and habitat requirements of these wildlife refuges.

California Department of Fish and Wildlife (CDFW)

The Refuges managed by CDFW are the North Grasslands Wildlife Area (China Island and Salt Slough Units), Volta Wildlife Area, Los Banos Wildlife Area, and Mendota Wildlife Area.

Grassland Water District (GWD)

GWD is a California Water District established under section 34000 of the California Water Code. GWD delivers Central Valley Project water and other water supplies acquired through the Refuge Water Supply Program to the wetlands within Grassland Resource Conservation District (GRCD), located in the San Joaquin Valley in Merced County. In addition to a long-term water supply contract with Reclamation to manage CVPIA water supplies provided by Reclamation for the GRCD, GWD has a conveyance contract with Reclamation to convey CVPIA water supplies to adjacent state wildlife management areas and federal wildlife refuges. GWD is a member of San Luis & Delta-Mendota Water Authority.

Most of GWD's 51,537 acres are contained within the GRCD boundary. The GRCD contains approximately 75,000 acres and is composed of privately owned/managed wetland areas, as well

as all or portions of several state and federal wildlife refuges. The area is the largest block of contiguous wetlands remaining in California's Central Valley and is a major wintering ground for migratory waterfowl and shorebirds of the Pacific Flyway. Up to 60 percent of the Central Valley's wintering population of ducks use this area. USFWS ranks the habitat provided by GRCD as the most important complex of wetlands in the San Joaquin Valley. The wetlands of GRCD are the largest component of the Grasslands Ecological Area, which is designated as a wetland of international importance under the International Ramsar Convention on Wetlands. The Western Hemispheric Shorebird Reserve Network also recognizes the Grasslands Ecological Area as an international shorebird reserve of global importance.

Although the lands within GRCD are primarily managed for waterfowl and shorebird habitat, hundreds of species of birds, mammals, reptiles and amphibians utilize the Grasslands Ecological Area each year. GWD has a Water Management Plan, and conducts integrated habitat management with adjacent wetland managers through the Grassland Habitat Management Coordination Committee. The management objectives of GRCD include an active program to encourage natural food plant production (such as swamp timothy, smartweed, and wild millet) and habitat protection. Land uses include seasonally flooded wetlands, moist soil impoundments, permanent wetland, irrigated pasture, and croplands.

1.2.3.3 Los Vaqueros Memorandum of Understanding

The original Memorandum of Understanding between several state, federal, and local agencies and CCWD regarding the CALFED Bay-Delta Program Studies on the Expansion of Los Vaqueros Reservoir (LV MOU) was executed in April 2001 (DWR et al., 2001). The LV MOU memorialized how necessary preliminary studies (feasibility study, environmental review, and preliminary design) concerning the expansion of Los Vaqueros Reservoir were and are to be carried out consistent with the CALFED Bay-Delta Program Programmatic Environmental Impact Report Record of Decision (CALFED ROD), dated August 28, 2000. The LV MOU was a requirement of the CALFED ROD. The LV MOU memorialized key local agency principles, such as beneficiary pays, the requirement for transparency in analysis of the project, and protection of local agency water rights. Potential later phases of an expansion of Los Vaqueros Reservoir, including final design, financing and construction, were not covered by the LV MOU. One of the purposes of the LV MOU was to identify potential local agency partners.

The original LV MOU signatories included the California Department of Water Resources, California Department of Fish and Game (now California Department of Fish and Wildlife), U.S. Fish and Wildlife Service, CCWD, Alameda County Water District, San Francisco Bay Area Water Users Association (now Bay Area Water Supply and Conservation Agency), San Francisco Public Utilities Commission, Santa Clara Valley Water District, and Zone 7. Additional signatories to the LV MOU include Reclamation, Byron Bethany Irrigation District, City of Brentwood, County of Contra Costa, East Bay Municipal Utility District, East Contra Costa Irrigation District, Grassland Water District, and San Luis & Delta-Mendota Water Authority. In December 2016, DWR and CCWD extended the LV MOU on behalf of all the signatories through December 31, 2018 (DWR and CCWD, 2016).

1.2.3.4 Pilot Partnership Projects

Since the completion of the 160-TAF expansion of Los Vaqueros Reservoir, CCWD determined that up to 30,000 acre-feet in Los Vaqueros Reservoir could be made available over the near term to local water agencies for short-term water storage. In recognition of the potential for mutual and regional benefits through use of existing infrastructure, CCWD has cooperatively undertaken several pilot partnership projects with some of the Local Agency Partners, described below. These one-time demonstration projects considered the source of water, method of delivery, costs, and responsibility and process for obtaining approvals for short-term storage of water, and they enable the partners to evaluate the feasibility of potential longer term partnerships involving the use of Los Vaqueros Reservoir.

East Bay Municipal Utility District

In 2013, in keeping with the principles of agreement for a water supply reliability partnership between EBMUD and CCWD, EBMUD and CCWD entered into a one-time agreement to wheel water transferred to CCWD by Woodbridge Irrigation District through EBMUD's Mokelumne Aqueduct (CCWD and EBMUD, 2013). Woodbridge Irrigation District has a pre-1914 appropriative water right on the Mokelumne River and agreed to transfer 2,000 acre-feet of this water to CCWD in 2013 (CCWD and WID, 2013). The water was made available for transfer through conservation and the use of other sources of supply. Woodbridge Irrigation District's points of diversion are located downstream of EBMUD's Pardee Reservoir, so EBMUD was able to physically divert the transfer water through the Mokelumne Aqueduct system and deliver it through the EBMUD-CCWD Intertie to CCWD in September 2013. In addition to specifying that CCWD would pay the variable costs for wheeling of the transfer water, the agreement also gave EBMUD the option to purchase up to 2,000 acre-feet of water from CCWD, to be exercised before December 31, 2025 and subject to public and governmental review, permitting, and approval.

Alameda County Water District

In 2013, ACWD and CCWD entered into a cooperative agreement for the use of Los Vaqueros Reservoir for a one-time storage and exchange demonstration project (ACWD and CCWD, 2014). CCWD agreed to transfer up to 5,000 acre-feet of water previously stored in Los Vaqueros Reservoir under CCWD's Los Vaqueros water right (State Water Resources Control Board Water Rights Permit 20749) to ACWD. Because there is no direct connection between CCWD and ACWD facilities, the stored Los Vaqueros water right water needed to be transferred to ACWD through exchange with a like amount of CCWD's CVP contract supply. To accomplish the transfer, CCWD used the stored water to meet its customer demand in lieu of diverting directly out of the Delta under its CVP contract, transferring an equivalent amount of its CVP contract supply to ACWD. This Delta water not diverted by CCWD was then available to be diverted at Banks Pumping Plant and conveyed to ACWD at the rate equal to the rate that the stored water was used to decrease CCWD direct diversions from the Delta. Although ACWD and CCWD had begun developing this cooperative pilot project to evaluate the use of Los Vaqueros Reservoir for regional water supply reliability well before the 2014 drought emergency, the exchange of 5,000 acre-feet of water took place in July and August 2014 and constituted most of ACWD's

water supply during this period; due to the drought, ACWD's State Water Project allocation for the year was not available to be delivered until September.

ACWD and CCWD worked cooperatively to obtain the regulatory approvals necessary to implement this exchange demonstration project. Because of the lack of a direct connection between CCWD and ACWD facilities and the need for an exchange to complete the transfer of previously stored water, temporary transfer petitions involving Central Valley Project water rights permits, including a reservoir refill agreement, and scheduling coordination with State Water Project operations of Banks Pumping Plant were needed. Reclamation completed a NEPA Environmental Assessment and Finding of No Significant Impact in order to file the Central Valley Project water rights temporary transfer petitions. This one-time temporary transfer was exempt from CEQA under California Water Code section 1729. In order to encourage voluntary water transfers during the drought emergency, the State Water Resources Control Board expedited the processing of the temporary transfer petitions while maintaining rigorous public and stakeholder review.

Byron Bethany Irrigation District

In 2014, in the midst of the recent drought and potential curtailment of BBID's pre-1914 water rights by the State Water Resources Control Board, BBID and CCWD entered into a cooperative agreement for the use of Los Vaqueros Reservoir for a one-time storage and exchange demonstration project (BBID and CCWD, 2014). CCWD agreed to transfer up to 4,000 acre-feet of water previously stored in Los Vaqueros Reservoir under CCWD's Los Vaqueros water right to BBID. The water was exchanged in a mechanism similar to the 2014 ACWD-CCWD pilot transfer, except that the CVP water left in the Delta, when the stored BBID water was used in lieu of CCWD Delta diversions, was diverted by BBID at the BBID intake channel just north of Banks Pumping Plant. 1,714 acre-feet of water was transferred to BBID in September and October 2014. Due to the continued drought and potential for curtailment of BBID's water right, an additional 500 acre-feet of water was transferred in August and September 2015, to support the urgent need for an alternative supply of water for the Mariposa Energy Center, a BBID customer that requires an uninterrupted water supply.

Alameda County Water District and Zone 7 Water Agency

In 2014, ACWD, CCWD, and Zone 7 entered into a cooperative agreement for the use of Los Vaqueros Reservoir for a one-for-one exchange demonstration project (ACWD et al., 2014; ACWD et al., 2015). Building on the successful transfer of previously stored water from CCWD to ACWD in the summer of 2014, ACWD, CCWD, and Zone 7 were interested in a pilot project that would first divert ACWD and Zone 7's water supplies to storage in Los Vaqueros Reservoir and then deliver that water to ACWD and Zone 7 using the same mechanism demonstrated in the 2014 pilot project. This new demonstration project was to be a one-for-one exchange of ACWD and Zone 7's State Water Project water for an equal amount of CCWD's Central Valley Project water. ACWD and Zone 7 each agreed to transfer up to 2,500 acre-feet of their SWP water supply for CCWD to use in CCWD's service area in lieu of releasing water stored in Los Vaqueros Reservoir. The water exchanged would have been a combination of ACWD and Zone 7's SWP water, including ACWD or Zone 7's Semitropic Water Storage District groundwater bank return water or Zone 7's Cawelo Water District groundwater bank return water, which is typically

available to be scheduled for delivery in the fall and winter. In exchange, CCWD agreed to transfer an equal amount of CCWD's CVP water to ACWD and Zone 7 the following summer by using stored water in lieu of Delta diversions, making CCWD's unused CVP water available in the Delta for diversion through Banks Pumping Plant for delivery to ACWD and Zone 7.

ACWD, CCWD, and Zone 7 secured the necessary permits and approvals for this exchange; temporary transfer petitions involving Central Valley Project and State Water Project water rights were needed, and Reclamation completed an Environmental Assessment and Finding of No Significant Impact in support of this pilot project. Unfortunately, this demonstration project could not be completed because, Delta hydrology changed before coordination with State Water Project operations could be completed. The time window for completing this demonstration project could not be extended because the exchange had been arranged to take advantage of an abnormal set of circumstances. CCWD's CVP contract allocation was very low in 2014 and 2015 due to the drought, so CCWD needed to use water from Los Vaqueros Reservoir storage for water supply, rather than just for water quality blending; the need to use this storage is what would have enabled the exchange. CCWD would have used ACWD and Zone 7's SWP water diverted from the Delta instead of water from Los Vaqueros Reservoir storage to meet its customer demand in the winter of 2014 or 2015, and the water not released from storage that winter would be available the following summer to facilitate the exchange of CCWD's CVP supply in the Delta to ACWD and Zone 7 through the mechanism described above for the 2014 ACWD pilot project. This pilot project would not have stored SWP water in Los Vaqueros Reservoir. Diversion of ACWD and Zone 7's SWP water to storage in Los Vaqueros Reservoir would have required a permanent modification to SWP water rights permits and additional associated approvals.

1.2.3.5 Pilot Partnership Projects In Progress

Grassland Water District

In March 2017, GWD submitted an application to the California Natural Resources Agency in response to the Central Valley Project Improvement Act Grant Program, for the Los Vaqueros Refuge Water Pilot Project to transfer up to 10,000 acre-feet of CVP water per year, for four water years, up to a total of 32,000 AF, from CCWD to the wildlife refuge water supply pool, to meet Central Valley Project Improvement Act obligations (GWD, 2017). The pilot project would occur in two steps: First, in coordination with Reclamation, CVP water would be diverted and stored by CCWD in Los Vaqueros Reservoir for later transfer to the Refuge Water Supply Program for delivery to the south-of-Delta wildlife refuges. Since there is no direct conveyance to deliver water from Los Vaqueros Reservoir to the Refuges, CCWD would then, in lieu of diverting water from the Delta, use the water stored in Los Vaqueros Reservoir to meet its customer demands, with water that CCWD would have diverted from the Delta transferred to the Refuge Water Supply Program for delivery to the south-of-Delta wildlife refuges through Jones Pumping Plant. This project represents a pilot for local, state, and federal agencies to assess the potential refuge benefits of the Phase 2 Expansion project. The expected date for approvals by the California Natural Resources Agency of the grant funding is August or September 2017. If the grant is awarded, GWD and CCWD will work cooperatively to complete the appropriate public

review, permitting and approval process for this pilot project, including CEQA and NEPA environmental analysis and Reclamation approvals.

Westlands Water District

On April 11, 2017, following a winter with very high precipitation, Reclamation announced a 100 percent CVP Contract allocation to south-of-Delta agricultural contractors. In May 2017, Westlands Water District, which is a CVP south-of-Delta agricultural contractor and a member of SLDMWA, and CCWD entered into a cooperative agreement for the use of Los Vaqueros Reservoir for a one-time storage and exchange demonstration project. CCWD agreed to store up to 5,000 acre-feet of Westlands Water District's CVP Contract allocation in Los Vaqueros Reservoir to be delivered in a future year to Westlands Water District through exchange. Reclamation filed a NEPA Categorical Exclusion Checklist for this pilot project. CCWD and Westlands Water District are working with Reclamation to assess how the pilot exchange could be implemented.

1.3 Changes in Conditions since the Final EIS/EIR

As stated above, there have been significant changes to the regulatory and environmental conditions surrounding the LVE Project since the Final EIS/EIR process was completed. In addition, there have been other environmental documents/findings by participating agencies that affect current and future water allocation conditions. The following describes these changes.

1.3.1 Delta Stewardship Council Delta Plan

Following the 2009 Delta Reform Act and the formation of the Delta Stewardship Council, the Delta Stewardship Council prepared and adopted the final Delta Plan in 2013 (DSC, 2013). The Delta Plan requires that projects that are located in or have the potential to impact the Delta are required to demonstrate consistency with policies of the Delta Plan, in order to serve the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem, in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.

In 2015, the Delta Stewardship Council determined that an amendment was required to update conveyance, storage, and operations portions of the Delta Plan and adopted nineteen principles for water conveyance in the Delta, storage systems, and for operations of both to achieve the coequal goals (DSC, 2015). These principles provide the guidance for the amendment to the Delta Plan that is currently in progress; a final amendment is anticipated to be adopted by the Delta Stewardship Council in late 2017 or early 2018. In the principles, the Delta Stewardship Council concluded that new or expanded water storage projects are necessary. These principles are not in conflict with the CWC requirements for the Water Storage Investment Program.

The Phase 2 Expansion project would be an action covered by the Delta Plan. In 2015, CCWD had an early consultation with Delta Stewardship Council staff on the need for a consistency determination for the Phase 2 Expansion. Based on the 2013 Delta Plan and the 2016 principles and a review of the Delta Stewardship Council's covered actions checklist, CCWD, as the CEQA

lead agency, has made the initial determination that the Phase 2 Expansion would be consistent with the Delta Plan. Detailed findings and certification of consistency with the Delta Plan would be completed during the permitting phase of the Phase 2 Expansion.

1.3.2 Sustainable Groundwater Management Act

A three-bill package, known as the Sustainable Groundwater Management Act (SGMA), was signed into law in 2014. The legislation, amended in 2015, allows local agencies to customize groundwater sustainability plans to their regional economic and environmental needs, and creates a framework for sustainable, local groundwater management.

SGMA provides for sustainable use of groundwater basins, enhances local management of groundwater consistent with rights to use or store groundwater, establishes minimum standards for effective, continuous management of groundwater, provides local groundwater agencies with the authority, technical, and financial assistance needed to maintain groundwater supplies, avoids or minimizes impacts for land subsidence, improves data collection and understanding of groundwater resources and management, increases groundwater storage and removes impediments to recharge, and empowers local agencies to manage groundwater basins, while minimizing state intervention.

The primary groundwater basins within the CCWD service area are the Ygnacio, Clayton, Pittsburg Plain, and Tracy Groundwater Basins or Sub-Basins. CCWD does not manage groundwater, nor does it use groundwater to meet any demands (CCWD, 2016). CCWD, in cooperation with other agencies in East Contra Costa County, is working to ensure compliance with SGMA. The Local Agency Partners are also all working to ensure compliance with SGMA in their own basins or sub-basins.

1.3.3 Integrated Regional Water Management

Contra Costa Water District and the Local Agency Partners are all actively involved in Integrated Regional Water Management (IRWM) planning within their respective regions. Through IRWM, participating agencies collaborate to identify and implement cost-effective, sustainable, multi-benefit solutions to water management issues within the region. CCWD and the Local Agency Partners participate in several IRWM groups: San Francisco Bay Area, East Contra Costa County, Westside-San Joaquin, and Pajaro River Watershed.

Phase 2 Expansion is not included in any of these IRWM planning efforts for several reasons, most prominently because Los Vaqueros Reservoir Expansion was originally identified and studied through the CALFED Storage Program as a storage project with the potential to provide federal and State-wide benefits, and because as currently configured, the Phase 2 Expansion would provide benefits to multiple IRWM regions as well as help meet federal and State-wide water management and environmental goals. Phase 2 Expansion is complementary to the many local and regional projects supported by IRWM such as conservation, recycled water, regional interties, desalination, groundwater replenishment and remediation, environmental restoration, and infrastructure improvements. Decisions on whether and how to proceed with any of the action alternatives presented in this Supplement are not tied to the outcome of any IRWM Plans.

1.3.4 Bay Area Regional Reliability

In 2014, the San Francisco Bay Area's largest public water agencies agreed to work together toward regional solutions to improve the water supply reliability for the more than 6 million residents and thousands of businesses and industries in the area. The objective of the Bay Area Regional Reliability (BARR) Partnership is to enable Bay Area agencies to work cooperatively to address regional water supply reliability concerns and drought preparedness on a mutually beneficial basis.

Together ACWD, BAWSA, CCWD, EBMUD, Marin Municipal Water District (MMWD), SFPUC, SCVWD, and Zone 7, secured a grant from Reclamation to develop a BARR Drought Contingency Plan. The plan will incorporate response actions to drought and other emergencies as well as more permanent mitigation actions, including such projects as interconnections, new supply sources, water transfers and exchanges, and other projects to advance a joint approach to regional reliability. The BARR Drought Contingency Plan will be finalized in August 2017.

In 2017, the BARR agencies applied for two different grants from Reclamation to develop a Bay Area Regional Water Market (Exchange/Transfer) Program. In February, the BARR agencies applied for a grant under the WaterSmart Drought Response Program, and in April, the BARR agencies applied for an additional grant under the WaterSmart Water Marketing Strategy Program. The Bay Area Regional Water Market Program would support the BARR agencies in building a framework for long-term, regional resilience and reducing the need for emergency response actions in times of drought and other water supply shortages. If funded by Reclamation, the BARR agencies would begin program development at the time the grant is awarded (estimated timing of Fall 2017) and complete water exchanges and transfers within three years of the grant award (estimated timing of August 2020).

1.3.5 California Water Commission - Water Storage Investment Program

On November 4, 2014, California voters approved Proposition 1, the Water Quality, Supply, and Infrastructure Improvement Act of 2014. Chapter 8 of Proposition 1 provides \$2.7 billion for public benefits associated with water storage projects that improve the operation of the state water system, are cost effective, and provide a net improvement in ecosystem and water quality conditions, in accordance with provisions contained in Chapter 8 (California Water Code section 79750 (b)). Through a competitive public process, the CWC will award funding through the Water Storage Investment Program. The CWC is accepting application for funding from March 14, 2017 through August 14, 2017. Initial funding decisions are anticipated by June 2018. The Phase 2 Expansion Project is eligible for funding through the Water Storage Investment Program.

1.3.6 ACWA Integration Study

In 2016, the Association of California Water Agencies (ACWA), with funding provided by CCWD, Metropolitan Water District of Southern California, Nevada Irrigation District, Friant Water Authority, Irvine Ranch Water District, and Sites Joint Powers Authority, undertook a technical study to evaluate the operations of the following proposed surface and groundwater

storage projects in California: American River Conjunctive Management, Centennial Reservoir, Los Vaqueros Reservoir Expansion, Rosedale-Rio Bravo Water Storage District/Irvine Ranch Water District Surface and Groundwater Integration, San Luis Reservoir Expansion, Sites Reservoir, Temperance Flat Reservoir, and Tulare Lake Storage and Floodwater Protection. The objective of the study was to evaluate the potential benefits of integrated operations of the identified storage projects with current and proposed storage and conveyance infrastructure. The report, released in June 2017 (ACWA, 2017), illustrated the potential to capture and store significantly more water in the Bay-Delta watershed. Integrating new storage projects into the system would increase flexibility and improve the timing and coordination of storage releases to improve the ability to meet the coequal goals of improving water supply and restoring the Delta ecosystem. Such integration also would provide enhanced opportunities for groundwater replenishment in furtherance of the Sustainable Groundwater Management Act.

1.3.7 Water Conservation Act of 2009

The State of California enacted Senate Bill X7-7 (SBX7-7) as the Water Conservation Act of 2009, requiring all water suppliers to increase water use efficiency. For urban retail water agencies, the legislation set an overall goal of reducing per capita urban water use by 20 percent by December 31, 2020, colloquially referred to as 20% by 2020, with an incremental goal of reducing per capita water use by at least 10 percent by December 31, 2015. SBX7-7 specifies that urban retail water suppliers who do not meet the established water conservation requirements are not eligible for state water grants or loans.

As described in CCWD's 2015 Urban Water Management Plan, CCWD is in compliance with the water conservation requirements of SBX7-7. Due to the success of CCWD's past and current water use efficiency efforts, the actual per capita water use in 2015 in both CCWD's retail treated water service area and wholesale municipal service area met the interim 2015 target and demonstrated that CCWD is on track to meet the 2020 conservation target. The urban Local Agency Partners for Phase 2 Expansion are also all in compliance with SBX7-7, as described in each of their 2015 Urban Water Management Plans.

1.3.8 2014 Drought State of Emergency

Following a dry year in 2013 and continued dry hydrology into the beginning of the 2014 water year, California Governor Edmund G. Brown Jr. proclaimed a drought State of Emergency in January 2014, directing local water suppliers to immediately implement water shortage contingency plans and requesting a voluntary 20 percent urban water conservation. With the historically unprecedented drought continuing into the 2015 water year, in April 2015, the Governor issued an Executive Order mandating a 25 percent reduction in potable urban water usage. The State Water Resources Control Board set conservation targets for urban water agencies based on their 2013 average per capita water use and curtailed senior water rights holders, including those with both pre- and post-1914 rights, from diverting water. Central Valley Project and State Water Project contract allocations were low throughout the period, and Delta water quality objectives required by State Water Resources Control Board Decision 1641 for the

Central Valley Project and State Water Project operations were relaxed through a series of Temporary Urgency Change Petitions for much of the drought.

Although the State of Emergency was lifted in April 2017, long-term water conservation measures intended to make conservation a way of life in California remain in effect. The recent drought highlighted the need for improved regional water supply reliability.

1.3.9 State Water Project Delivery Capability Report 2015

In July 2015, the California Department of Water Resources released the State Water Project Delivery Capability Report 2015 (DWR, 2015). This report estimated the current existing (2015) and future (2035) State Water Project delivery capability and the allocation of the estimated overall deliveries to each of the State Water Project contractors. This report was an update of the State Water Project Delivery Reliability Report 2013. The report incorporated regulatory requirements for State Water Project operations in and upstream of the Delta and made assumptions about water use in the upstream watersheds and by the State Water Project contractors. Estimates of future delivery capability also factored in potential impacts of climate change and sea level rise. Increasing variability in hydrological conditions and new regulations governing State Water Project and CVP exports from the Delta have served to reduce water supply reliability from the State Water Project (SWP).

1.3.10 Reinitiation of Consultation on Coordinated Long-Term Operation of the Central Valley Project and State Water Project

In August 2016, Reclamation and the California Department of Water Resources requested reinitiation of consultation with USFWS and NMFS under Section 7 of the Endangered Species Act on the Coordinated Long-term Operation of the CVP and SWP, based on new information related to multiple years of drought and recent data demonstrating low delta smelt populations, and new information available and expected to become available as a result of ongoing work through collaborative science processes. The Collaborative Science and Adaptive Management Program (CSAMP) and Collaborative Adaptive Management Team (CAMT) processes will also be used to provide input to the consultation, as will the Delta Science Program and its processes. The consultation is expected to update the system-wide operating criteria and to review the existing Reasonable and Prudent Alternatives included in the 2008 USFWS and 2009 NMFS Biological Opinions on the Long-Term Operational Criteria and Plan for the coordination of the Central Valley Project and State Water Project, to determine the continued substance and efficacy in meeting the requirements of Section 7 of the Endangered Species Act. This process will result in the preparation of new biological assessments and biological opinions.

1.3.11 Bay Delta Conservation Plan/California WaterFix

The Bay Delta Conservation Plan (BDCP) has been under development since 2006 and was initially intended to serve as a habitat conservation plan and natural communities conservation plan under the federal Endangered Species Act and the California Endangered Species Act,

respectively, to provide 50-year permits of CVP and SWP operations in the Delta. The BDCP included two major elements: new diversion facilities in the north Delta and new tunnel conveyance and ancillary facilities to improve water supply reliability for south-of-Delta water users, and large-scale ecosystem restoration projects to improve species conservation. In 2015, the California DWR and Reclamation separated these two elements into California WaterFix for the new conveyance facilities and California EcoRestore for habitat restoration independent of the mitigation that would be needed for California WaterFix. A Final EIR/EIS for California WaterFix was issued in December 2016.

An Agreement for Mitigation of Impacts to Contra Costa Water District from Construction and Operation of the Bay Delta Conservation Plan/California WaterFix between CCWD and DWR was executed on March 24, 2016, and remains in effect as long as California WaterFix is under consideration or in operation. The agreement states that if California WaterFix is approved, (1) DWR would ensure construction activities do not adversely affect CCWD facilities and operations, and (2) to protect against California WaterFix-caused water quality degradation at CCWD's Delta intakes, DWR would convey a portion of CCWD's existing water supply from an alternate high-quality source. This water could be conveyed, in coordination and under agreement with EBMUD and the Sacramento County Water Agency, from the Freeport Regional Water Authority's Freeport Intake on the Sacramento River through the EBMUD-CCWD Intertie to CCWD's service area, or it could be conveyed from the California WaterFix north Delta intakes through a new interconnection with CCWD's system. DWR would bear all costs of constructing the new interconnection facilities and conveying the water to CCWD. The amount of water to be conveyed to CCWD each year would be determined by actual California WaterFix operations based on criteria specified in the agreement. In exchange, CCWD agreed to withdraw its protest of the California WaterFix water right petitions. Further, so long as California WaterFix meets a defined set of conditions that are intended to minimize impacts to Delta water quality, CCWD agreed not to bring a legal challenge to the California WaterFix environmental documents and not to take a formal position opposing the California WaterFix. CCWD is neither a customer of nor a proponent of California WaterFix.

Appendix B of this Supplement contains analysis and discussion of Phase 2 Expansion operations in conjunction with California WaterFix, including the terms of the settlement agreement to mitigate impacts of California WaterFix on CCWD operations.

1.3.12 Long-Term Water Transfers

The Long-Term Water Transfers Draft and Final EIS/EIR, prepared by Reclamation and SLDMWA, evaluated the potential impacts of water transfer over a 10-year period, 2015 through 2024, to help address CVP water supply shortages during dry hydrologic years. Reclamation issued a Record of Decision (Reclamation, 2015) and SLDMWA filed a Notice of Determination (SLDMWA, 2015) on the Long-Term Water Transfers EIS/R in 2015 (Reclamation and SLDMWA, 2015). The alternatives evaluated include transfers of CVP and non-CVP water or transfers from north of the Delta to CVP contractors south of the Delta and in the San Francisco Bay Area that require the use of CVP and SWP facilities. The south-of-Delta CVP contractors identified as potential buyers of transfer water include members of SLDMWA, including BBID and SCVWD, and other CVP water contractors in the San Francisco Bay Area (CCWD and

EBMUD). A number of entities upstream from the Sacramento-San Joaquin Delta have expressed interest in transferring water to reduce the effects of CVP shortages to these agencies. Water would be made available for transfer through groundwater substitution, cropland idling, crop shifting, reservoir release, and conservation.

1.3.13 Value Planning Report

In July 2016, Reclamation completed a Final Value Planning Report (Reclamation, 2016) for the Phase 2 Expansion project, pursuant to Reclamation policy. The goal of value planning effort was to convene a group of subject matter experts, known as the Value Study Team, for a one week intensive work session with the goal of developing ideas to achieve the most appropriate and highest value solutions for the Phase 2 Expansion project. The report includes a summary of recommendations developed by the Value Study Team to provide improvements to the overall project. Several of the recommendations included in the report have been incorporated into the Project Description described in Chapter 2. The most significant recommendation included in report was to modify the Eastside Option for the Transfer-Bethany Pipeline to shorten the length of the pipeline and eliminate the tunnel section. An additional recommendation described phasing construction activities to complete the Transfer-Bethany Pipeline before the dam enlargement in order to provide benefits to Project Partners as early as possible. The report also summarizes the advantages of operating the Phase 2 Expansion to increase water supply to the Refuges.

1.3.14 Water Infrastructure Improvements for the Nation Act

The Water Infrastructure Improvements for the Nation (WIIN) Act (P.L. 114-612 [2016]) is federal legislation to address the needs of the nation's harbors, locks, dams, flood protection, and other water resources infrastructure critical to the economic growth, health, and competitiveness (S.612 (114th)). The WIIN Act authorizes \$335 million of appropriations for federal funding for the final design and construction of water storage projects.

1.4 Additions to the Final EIS/EIR

This Supplement contains several analyses that are in addition to the analyses done in the Final EIS/EIR.

1. A quantitative analysis of the potential impacts and benefits of the Phase 2 Expansion project under climate change conditions. Phase 2 Expansion is evaluated under the 2030 and 2070 climate change conditions set out by the CWC. Results of the 2030 analysis are discussed in Chapters 3 and 4, and 2070 results are discussed in Chapter 5.
2. A sensitivity study of potential impacts and benefits of the Phase 2 Expansion project with California WaterFix is included in Appendix B.
3. A sensitivity study of project impacts and benefits with the Phase 2 Expansion project used to facilitate north-to-south transfers is included in Appendix C.

1.5 CEQA and NEPA Processes for the Los Vaqueros Reservoir Expansion

Because the proposed Phase 2 Expansion project would either match or closely resemble the Timing Variant to Alternative 1 that was analyzed in the Final EIS/EIR, an entirely new EIS/EIR is not required and a supplement is sufficient. The prior Final EIS/EIR retains relevance in that many of the environmental impacts of the Phase 2 Expansion project were considered in the Final EIS/EIR. This section defines the triggers for a Supplement to the Final EIS/EIR under NEPA and CEQA.

The Phase 2 Expansion project meets the requirements/triggers for preparation of a Supplement to the Final EIS/EIR pursuant to NEPA and CEQA Guidelines. Per the Guidelines, any supplement need only analyze changes in environmental impacts that would result in impacts from a) changes in the Timing Variant to Alternative 1; and b) the implementation of that Alternative in light of changed surrounding circumstances and new information. For example, most footprint impacts would not change and therefore would not require a new discussion. However, because of the changes to conditions surrounding the project as listed above, the only Final EIS/EIR chapter that does not have conditions that warrant new analysis is Indian Trust Assets. All of the other chapters in the Final EIS/EIR are supplemented in this document.

Both the federal Council on Environmental Quality and the California Governor's Office of Planning and Research, which promulgate NEPA and CEQA regulations, respectively, have recently taken the position that the two laws' supplementation triggers are "similar enough" that federal and state lead agencies should act alike:

The two laws' requirements for recirculating/supplementing environmental documents are similar enough that agencies presented with new information or project changes should generally treat that information the same way (i.e., by supplementing or substantiating their determination not to). NEPA and CEQA: Integrating Federal and State Environmental Reviews (CEQ/OPR, Feb. 2014), page 37.

1.5.1 CCWD Decision Making Process

Following lead agency (Reclamation and CCWD) consideration of all comments received during the public review of the Draft Supplement to the Final EIS/EIR and circulation of a Final Supplement, the CCWD Board of Directors will hold a public meeting to consider certification of the Final Supplement and to decide whether to approve the Proposed Action or an alternative. A Notice of Determination documenting the decision will then be issued. To support a decision on the project, the CCWD Board of Directors must prepare and adopt written findings of fact for each significant environmental impact identified in the Final EIS/EIR and Final Supplement; a Statement of Overriding Considerations, if needed; and a Mitigation Monitoring and Reporting Program to ensure implementation of the mitigation measures and project revisions, if any, identified in the Final EIS/EIR and Final Supplement.

The Final EIS/EIR and this Supplement to the EIS/EIR are intended to be used by the CCWD Board of Directors when considering approval of the project.

1.5.2 Federal Decision Making Process

Federal decision making will be based on the information contained in the Federal Feasibility Report, in compliance with the Federal Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and information analyzed in compliance with NEPA. These documents will present the results of the feasibility study.

Integral to the federal decision process are other legally required processes and information, such as biological opinions from the Federal Endangered Species Act consultation process and permits required by federal, state, and local laws. The federal decision process also includes consideration of input from other federal, state, and local agencies, concerned stakeholders, tribes, and the general public.

The federal action on the project will be, at a minimum, the revision of the 2011 Coordinated Operations Agreement between Reclamation and CCWD. Additional federal actions, if any, will be determined by the outcome of the federal feasibility process that is currently in process. The final federal decision is documented in a ROD. The ROD will address the decision and the alternatives considered, whether or not all practicable means to avoid or minimize environmental harm for the alternative selected have been adopted, and if not, why; any monitoring and enforcement program established to ensure identified mitigation measures are accomplished; and any significant comments received on the Final Supplement.

Reclamation, as the federal lead agency, is responsible for the preparation and processing of the Federal Feasibility Report and EIS. For efficiency, the EIS has been combined with an EIR, prepared by CCWD for compliance with CEQA.

While the NEPA compliance process is a subset of the federal feasibility study process, there are important distinctions to make. The purpose of the NEPA process is to analyze and disclose the impacts of a range of alternatives, and to provide an opportunity for public review and comment prior to the final federal decision. The purpose of a Federal Feasibility Report is to address engineering, economic, environmental, and financial aspects of alternatives, determine the potential benefits and costs, and determine if there is a federal interest in the implementation of a project.

Upon completion of the Final Federal Feasibility Report and the Final Supplement to the Final EIS/EIR, Reclamation's Mid-Pacific Regional Director will make a recommendation that will be submitted to the Commissioner of Reclamation for consideration. Then the Commissioner will concur or modify the recommendation and forward the Final Federal Feasibility Report and Final Supplement to the Final EIS/EIR to the Secretary of the Interior. The Secretary will review the Federal Feasibility Report and, if he or she concurs with the recommendation, send the Final Federal Feasibility Report and Final Supplement EIS/EIR to the Office of Management and Budget for review.

In accordance with Executive Order 12322, the Office of Management and Budget will review the Federal Feasibility Report for consistency with the policy and programs of the President, the Federal Economic and Environmental Principles and Guidelines for Water and Related Land

Resources Implementation Studies, and other applicable laws regulations, and requirements relevant to the federal planning process.

Congress will review the information provided by the Secretary and the Office of Management and Budget, and then decide whether to authorize the recommended project. Congress is responsible for authorizing projects for construction and providing appropriations to construct projects.

1.6 Summary of Impacts and Mitigation Measures

While the project alternatives are designed to provide benefits in the areas of fishery protection in the Delta, Bay Area water supply reliability and Bay Area drinking water quality, as described above, these alternatives also would result in some short-term and long-term impacts to the environment. **Chapter 6, Summary of Impacts**, summarizes the environmental impacts associated with each of the project alternatives. For impacts determined to be significant, mitigation measures are presented and the impact significance after mitigation is shown.

1.7 Organization and Format of the Supplement

This Supplement is organized as follows:

Chapter 1, Introduction and Summary, describes the purpose, content and organization of the Supplement, and includes a summary of past Los Vaqueros Expansion Project analyses and changes in conditions since the Final EIS/EIR.

Chapter 2, Project Description, describes the Phase 2 Expansion alternatives, and the project facility refinements, operational updates, and updates to permits and approvals since the Final EIS/EIR.

Chapter 3, Project Benefits, describes water supply reliability in drought, non-drought, and supplemental water supply scenarios under Phase 2 Expansion, and a summary of benefits under Phase 2 Expansion alternatives regarding ecosystem and water quality improvements, the integration of the state-wide and regional water systems, and recreation.

Chapter 4, Affected Environment, Environmental Consequences, and Mitigation, is organized by environmental resource category and provides an integrated discussion of the affected environment (including regulatory and environmental settings) and environmental consequences (including direct, indirect, and cumulative impacts and mitigation measures) associated with implementation of the Phase 2 Expansion alternatives. Each section also identifies the impacts of the Total Project, and compares those impacts of the Timing Variant.

Chapter 5, Climate Change, provides an overview of the climate change scenarios in terms of the potential changes to California's water resources and water management, and how climate change may alter the impacts and benefits of the Phase 2 Expansion.

Chapter 6, Summary of Impacts, provides a comparison of the environmental effects of the Phase 2 Expansion alternatives and the No Project/No Action Alternative per environmental resource category.

Chapter 7, Environmental Review and Agency Consultation/Coordination, describes the process of coordinating with responsible agencies, permitting agencies, and other stakeholders.

Chapter 8, References, includes the references to documents used to support the Supplement.

Chapter 9, List of Preparers, provides the names and qualifications of document authors and reviewers.

Chapter 10, Glossary, defines technical terms used throughout the document.

Appendix A describes EBMUD facilities, operations, and water rights.

Appendix B provides the California WaterFix Sensitivity Study.

Appendix C provides the Sensitivity Study for Partner Benefits with Water Transfers.

Appendix D provides NEPA context and intensity statements for the CEQA/NEPA impact determinations of Chapter 4.

Appendix E consists of a draft mitigation monitoring and reporting program.