

# Proposed General Waste Discharge Requirements for Discharges from Irrigated Lands (Agricultural Order)

## Final Environmental Impact Report

### Volume 1 – Main Body

*Prepared by:* Horizon Water and Environment, LLC

SCH #2018021050

April 2021



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California Regional Water Quality Control Board, Central Coast Region

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### **Volume 1 – Main Body**

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## Acronyms and Abbreviations

µg/m <sup>3</sup>	micrograms per cubic meter
µg/L	micrograms per liter
<b>A</b>	
(A)	nitrogen applied
AB	Assembly Bill
ACF	annual compliance form
af/yr	acre-feet per year
ATCM	airborne toxic control measure
<b>B</b>	
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Water Quality Control Plan
BMP	best management practice
<b>C</b>	
C	commercial
CAA	federal Clean Air Act
CAC	county agricultural commissioner
CAAQS	California Ambient Air Quality Standards
CalAm	California American Water Company
CalEEMod	California Emissions Estimator Model
Cal EMA	California Emergency Management Agency
Cal/EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Governor's Office of Emergency Services
Cal Poly	California Polytechnic University, San Luis Obispo
Cal/OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	climate action plan
CARB	California Air Resources Board

CASGEM	California Statewide Groundwater Elevation Monitoring
CCA	community choice aggregator
CCAA	California Clean Air Act
CCAMP	Central Coast Ambient Monitoring Program
CCCMP	Central Coast Cooperative Monitoring Program for Agriculture
CCGC	Central Coast Groundwater Coalition
CCR	California Code of Regulations
CCWB	Central Coast Regional Water Quality Control Board
CCWQP	Central Coast Water Quality Preservation, Inc.
CDC	Centers for Disease Control
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CDPR	California Department of Pesticide Regulation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulation
cfs	cubic feet per second
CGS	California Geological Survey
CH <sub>4</sub>	methane
CHRIS	California Historical Resources Information System
CIDRAP	Center for Infectious Disease Research and Policy
CMP	cooperative monitoring program or Central Coast Cooperative Monitoring Program for Agriculture
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNNPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalents
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California rare plant rank
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
<b>D</b>	
DAO 4.0	Draft Agricultural Order 4.0
dB	decibel
dBA	A-weighted decibel
DCA	District Court of Appeal
FEIR	draft environmental impact report

DWR	California Department of Water Resources
<b>E</b>	
EHEC	Enterohemorrhagic <i>e. coli</i>
EIR	environmental impact report
eNOI	electronic notice of intent
EQIP	USDA Environmental Quality Incentives Program
ESA	Endangered Species Act
(Phase 1) ESA	Phase 1 environmental site assessment
ESJ Order	Eastern San Joaquin Order
<b>F</b>	
FDA	U.S. Food and Drug Administration
FE	federally endangered
FEIR	final environmental impact report
F&G Code	California Fish and Game Code
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FMMP	Farmland Mapping and Monitoring Program
FP	federal proposed
FR	Federal Register
FSMA	Food Safety Modernization Act
FT	federally threatened
FTA	Federal Transit Administration
<b>G</b>	
GAMA	Groundwater Ambient Monitoring and Assessment Program
GAMAQI	<i>Guidance for Assessing and Mitigating Air Quality Impacts</i>
GDE	groundwater dependent ecosystem
GHG	greenhouse gas
GIS	geographic information systems
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
<b>H</b>	
H <sub>2</sub> S	hydrogen sulfide
HAP	hazardous air pollutant
HCP	habitat conservation plan
Hz	Hertz
<b>I</b>	
IERP	Integrated Energy Policy Report
ILP	Irrigated Lands Program
in/sec	inches per second
INMP	irrigation and nutrient management plan
IPM	integrated pest management
IPCC	Intergovernmental Panel on Climate Change
<b>L</b>	
LCFS	low carbon fuel standard

$L_{dn}$	day-night sound level
$L_{eq}$	equivalent steady-state sound level
$L_{max}$	maximum sound level
$L_{min}$	minimum sound level
LGMA	California Leafy Greens Products Handling Marketing Agreement
$L_{xx}$	percentile-exceeded sound level

**M**

MBARD	Monterey Bay Air Resources District
MCL	maximum contaminant level
MCWRA	Monterey County Water Resource Agency
MBTA	Migratory Bird Treaty Act
MEP	maximum extent practicable
mgd	million gallons per day
mg/L	milligrams per liter
MLD	most likely descendent
MMRP	mitigation monitoring and reporting plan
MRP	monitoring and reporting plan
MS4	municipal separate storm sewer system
MTBE	methyl tert-butyl ether
MT CO <sub>2</sub> e	million tons of carbon dioxide equivalents

**N**

N <sub>2</sub> O	nitrous oxide
NAA	nonattainment area
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NASA	National Aeronautics and Space Administration
NCCP	natural community conservation plan
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO <sub>2</sub>	nitrogen dioxide
NOA	notice of availability
NOAA	National Oceanic and Atmospheric Administration
NOC	notice of completion
NOD	notice of determination
NOP	notice of preparation
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	non-point source
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTR	National Toxics Rule

**O**

O <sub>2</sub>	oxygen
O <sub>3</sub>	ozone
OEHHA	California Office of Environmental Health Hazard Assessment

OSHA	(federal) Occupational Safety and Health Administration
<b>P</b>	
PAO 4.0	Proposed Agricultural Order 4.0
PCA	pest control advisor
PERP	Portable Equipment Registration Program
PG&E	Pacific Gas and Electric Company
PM <sub>2.5</sub>	particulate matter of aerodynamic radius of 2.5 micrometers or less
PM <sub>10</sub>	particulate matter of aerodynamic radius of 10 micrometers or less
PPE	personal protective equipment
ppm	parts per million
PPV	peak particle velocity
Proposed Project	Agricultural Order for Discharges from Irrigated Lands (Agricultural Order 4.0)
PRC	Public Resources Code
PVC	polyvinyl chloride
<b>Q</b>	
QAPP	quality assurance project plan
<b>R</b>	
(R)	nitrogen removed
RAO 4.0	Revised Draft Agricultural Order 4.0
RCRA	Resource Conservation and Recovery Act of 1976
ROG	reactive organic gases
RPS	renewable portfolio standard
RWQCB	Regional Water Quality Control Board
<b>S</b>	
SAP	sampling and analysis plan
SARA	Superfund Amendments and Reauthorization Act of 1986
SB	Senate Bill
SBAPCD	Santa Barbara Air Pollution Control District
SC (Endangered)	state candidate for listing as endangered
SCE	Southern California Edison
SDWA	Safe Drinking Water Act
SE	state endangered
SGMA	Sustainable Groundwater Management Act
SIP	state implementation plan
SJAPCD	San Joaquin County Air Pollution Control District
SLOCAPCD	San Luis Obispo County Air Pollution Control District
SO <sub>2</sub>	sulfur dioxide
SRA	State Responsibility Area
SSC	state species of special concern
ST	state threatened
SWAMP	Surface Water Ambient Monitoring Program
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
<b>T</b>	
TAC	toxic air contaminant

TAP	technical assistance provider
TCR	tribal cultural resource
TMDL	total maximum daily load
TNA	total nitrogen applied
<b>U</b>	
U.C.	University of California
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USEIA	U.S. Energy Information Administration
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
<b>V</b>	
VCAPCD	Ventura County Air Pollution Control District
VdB	vibration velocity in decibels
VOC	volatile organic compound
<b>W</b>	
WBWG	western bat working group
WDR	waste discharge requirement
WQBP	water quality buffer plan
WQO	water quality objective

## Definitions

**Aquatic Habitat.** The physical, chemical, and biological components and functions of streams and lakes, including riparian areas and wetlands and their buffer zones.

**Contamination.** An impairment of the quality of the waters of the state by waste to a degree which causes a hazard to the public health through poisoning or through the spread of disease. Contamination includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.

**Discharge.** A release of a waste to waters of the state, either directly to surface waters or through percolation to groundwater. Wastes from irrigated agriculture include but are not limited to earthen materials (soil, silt, sand, clay, and rock), inorganic materials (metals, plastics, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.) and organic materials such as pesticides. Discharges from irrigated lands regulated by Agricultural Order 4.0 include discharges of waste to surface water and groundwater, such as irrigation return flows, percolation, tailwater, tile drain water, stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, and runoff resulting from frost control or operational spills. These discharges can contain wastes that could affect the quality of waters of the state and impair beneficial uses.

Discharger. The owner or operator of irrigated lands that discharges or has the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater. See also Enrollee, Landowner, Operator, Permittee, and Responsible Party.

Discharges of Waste from Irrigated Lands. Surface water and groundwater discharges, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills containing waste.

Enrollee. A Discharger enrolled in the Agricultural Order. See also Discharger, Landowner, Operator, Permittee, and Responsible Party.

Erosion. The gradual destruction of land surface by wind or water, intensified by land-clearing practices related to farming, residential or industrial development, road building, or logging.

Farm. See Ranch.

Groundwater. The supply of water found beneath the Earth's surface, usually in aquifers, which can supply wells and springs.

Grower. An individual or entity conducting irrigated agriculture in the central coast region. Grower may at times be used interchangeably with Enrollee, Permittee, Landowner, Operator, Responsible Party, and Discharger, and generally refers to someone that is subject to the requirements of Agricultural Order 4.0.

HUC-8 and HUC-12 Watersheds. Derived from Watershed Boundary Dataset (WBD) maps developed by the U.S. Department of Agriculture, Natural Resources Conservation Service to define and compare true watersheds and hydrologic units and their applications for watershed assessment<sup>1</sup>. The WBD maps the full areal extent of surface water drainage for the United States, using a hierarchical system of nesting hydrologic units at various scales, each with an assigned hydrologic unit code (HUC). HUC-8 maps the subbasin level, analogous to medium-sized river basins. HUC-12 is a more local sub-watershed level that captures tributary systems.

Integrated Pest Management Program (IPM). A pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as encouraging biological control, use of resistant varieties, or adoption of alternative cultivating, pruning, or fertilizing practices or modification of habitat to make it incompatible with pest development. Pesticides are used only when careful field monitoring indicates they are needed according to pre-established guidelines or treatment thresholds.

Irrigated Lands. For the purpose of Agricultural Order 4.0 and this EIR, irrigated lands include lands where water is applied for the purpose of producing commercial crops and include, but

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<sup>1</sup> <https://enviroatlas.epa.gov/enviroatlas/DataFactSheets/pdf/Supplemental/HUC.pdf>

are not limited to, land planted to row, vineyard, field and tree crops as well as commercial nurseries, nursery stock production and greenhouse operations with soil floors, that do not have point-source type discharges, and are not currently operating under individual Waste Discharge Requirements (WDRs). Lands that are planted with commercial crops that are not yet marketable, such as vineyards and tree crops, must also obtain coverage under Agricultural Order 4.0.

Irrigation. Applying water to land areas to supply the water and nutrient needs of plants.

Irrigation Runoff or Return Flow. Surface and subsurface water that leaves the field following application of irrigation water. See also, Tailwater.

Landowner. An individual or entity who has legal ownership of a parcel(s) of land. For the purposes of Agricultural Order 4.0 and this EIR, the landowner is responsible for ensuring compliance with the Order and for any discharge of waste occurring on or from the property. See also Discharger, Enrollee, Operator, Permittee, and Responsible Party.

Management Practice. Any number of actions, facilities, or practices that growers may undertake, construct/install, or implement to reduce their discharges of pollutants. Examples include conservation tillage, sediment basins, or nutrient management programs. The term may be used interchangeably with “conservation practices,” as defined and used by the U.S. Department of Agriculture.

Method of Compliance. Synonymous with management practice for the purposes of this EIR.

Nonpoint Source (NPS) Pollution. Diffuse pollution sources that are generally not subject to NPDES permitting. The wastes are generally carried off the land by runoff. Common nonpoint sources are activities associated with agriculture, timber harvest, certain mining, dams, and saltwater intrusion.

Operator. Person responsible for or otherwise directing farming operations in decisions that may result in a discharge of waste to surface water or groundwater, including, but not limited to, a farm/ranch manager, lessee, or sub-lessee. The operator is responsible for ensuring compliance with Agricultural Order 4.0 and for any discharge of waste occurring on or from the operation. See also Discharger, Enrollee, Landowner, Permittee, and Responsible Party.

Operation. A distinct farming business, generally characterized by the form of business organization, such as a sole proprietorship, partnership, corporation, and/or cooperative. A farming operation may be associated with one to many individual farms/ranches.

Order. An action taken by the California Regional Water Quality Control Board, Central Coast Region (CCWB) using its authority under the California Water Code and Porter-Cologne Water Quality Control Act. Commonly an order is issued to establish a general permit or waste discharge requirements.

Permit. A conditional authorization to discharge waste or conduct other activities. Agricultural Order 4.0 is an example of a permit with requirements that must be met to receive authorization to discharge waste from irrigated lands.



Permittee. A Discharger enrolled in the Agricultural Order. See also Discharger, Enrollee, Operator, Landowner, and Responsible Party.

Pesticide. Any substance intended to control, destroy, repel, or otherwise mitigate a pest. The term pesticide is inclusive of all pest and disease management products, including insecticides, herbicides, fungicides, nematicides, rodenticides, algicides, etc.

Pollutant. The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, including dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Pollution. Any alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either of the following: a) the waters for beneficial uses, b) facilities which serve these beneficial uses. Pollution may include contamination.

Ranch. For the purposes of Agricultural Order 4.0 and this EIR, the term “ranch” is inclusive of both ranches and farms. A ranch is a tract of land where commercial crops are produced or normally would have been produced. Individual ranches typically have a similar ranch manager, operator, or landowner, and are categorized by geographic location.

Responsible Party. The landowner or operator of irrigated lands that discharge or have the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater. See also Discharger, Enrollee, Landowner, Operator, and Permittee.

Riparian Rapid Assessment Method (RipRAM). A rapid assessment tool to assess the condition of riparian resources along a stream reach. RipRAM yields an overall score for each assessed area based on the component scores of eight metrics.

Riparian. The ecosystem that transitions between the aquatic ecosystem and the adjacent terrestrial ecosystem and is identified by unique soil characteristics and distinctive vegetation communities that require free and unbound water.

Riparian Areas. Areas adjacent to rivers, streams, creeks, washes, arroyos, and other waterbodies or channels having banks and bed through which waters flow at least periodically. These areas are subject to periodic flooding and are generally characterized or distinguished by a difference in plant species composition or an increase in the size and density of vegetation as compared to upland areas. For the purposes of Agricultural Order 4.0, Riparian Areas include Wetland Areas.

Sedimentation. The deposition of sediment carried from surface runoff, which can occur when the velocity of water is not great enough to keep the sediment in suspension.

Sediment Basin. A constructed basin to capture and detain surface runoff for a sufficient length of time to allow sediment to settle.

Stormwater. Stormwater runoff, snow melt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26(b)(13).

Stormwater Runoff. Precipitation water in excess of what can infiltrate the soil surface and be stored in small surface depressions.

Surface Runoff. Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions; a major transporter of non-point source wastes in rivers, streams, and lakes.

Tailwater. Runoff of irrigation water from the lower end of an irrigated field. See also, Irrigation Runoff or Return Flow.

Total Maximum Daily Load (TMDL). The calculation of the maximum amount of a particular material that a waterbody can assimilate on a regular basis and still support beneficial uses designated for that waterbody.

Total Nitrogen Applied (TNA). Total nitrogen applied includes nitrogen in any product, form, or concentration including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, extracts, nitrogen present in the soil, and nitrate in irrigation water; it is reported in units of pounds of nitrogen per crop, per acre for each farm/ranch or nitrate loading risk unit.

Waste. “Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal” as defined in the California Water Code Sec. 13050(d). “Waste” includes irrigation return flows and drainage water from agricultural operations containing materials not present prior to use. Waste from irrigated agriculture includes *earthen materials* (such as soil, silt, sand, clay, rock), *inorganic materials* (such as metals, salts, boron, selenium, potassium, nitrogen, phosphorus), and *organic materials* such as pesticides.

Waste Discharge Requirements (WDRs). A type of permit issued by CCWB to regulate discharges to waters of the State. For example, the proposed Agricultural Order 4.0 would establish general waste discharge requirements for irrigated agriculture in the central coast region.

Waters of the State. “Any surface water or groundwater, including saline waters, within the boundaries of the state” as defined in the California Water Code Sec. 13050(e), including all waters within the boundaries of the state, whether private or public, in natural or artificial channels, and waters in an irrigation system. “Waters of the state” includes all “waters of the U.S.”<sup>2</sup>

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<sup>2</sup> Therefore, wetlands that meet the current definition, or any historic definition, of waters of the U.S. are waters of the state. In 2000, the State Water Resources Control Board determined that all waters of the U.S. are also waters

Water Quality Objectives. “Limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specified area,” as defined in Sec. 13050(h) of the California Water Code. Water Quality Objectives may be either numerical or narrative and serve as Water Quality Criteria for purposes of Section 303 of the Clean Water Act.

Waterbody. Areas where there is any significant accumulation of water (e.g., wetlands, estuaries, marshes, swamps, lakes, ponds, vernal pools, rivers, streams, creeks, springs, artesian wells, drainages, canals, and all other waterbodies (natural or artificial) with defined banks and water at least a portion of a year). These areas are typically shown on U.S. Geological Survey topographic maps.

Wetland. Defined in the State Wetland Definition and Procedures for Discharges of Dredged or Fill Materials to Waters of the State as “[a]n area . . . if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation. The following wetlands are waters of the state:

- a. Natural wetlands,
- b. Wetlands created by modification of a surface water of the state,<sup>3</sup> and
- c. Artificial wetlands<sup>4</sup> that meet any of the following criteria:
  - i. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
  - ii. Specifically identified in a water quality control plan as a wetland or other water of the state;

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of the state by regulation, prior to any regulatory or judicial limitations on the federal definition of waters of the U.S. (California Code of Regulations title 23, section 3831(w).) This regulation has remained in effect despite subsequent changes to the federal definition. Therefore, waters of the state includes features that have been determined by the U.S. Environmental Protection Agency (U.S. EPA) or the U.S. Army Corps of Engineers (Corps) to be “waters of the U.S.” in an approved jurisdictional determination; “waters of the U.S.” identified in an aquatic resource report verified by the Corps upon which a permitting decision was based; and features that are consistent with any current or historic final judicial interpretation of “waters of the U.S.” or any current or historic federal regulation defining “waters of the U.S.” under the federal Clean Water Act.

<sup>3</sup> “Created by modification of a surface water of the state” means that the wetland that is being evaluated was created by modifying an area that was a surface water of the state at the time of such modification. It does not include a wetland that is created in a location where a water of the state had existed historically but had already been completely eliminated at some time prior to the creation of the wetland. The wetland being evaluated does not become a water of the state due solely to a diversion of water from a different water of the state.

<sup>4</sup> Artificial wetlands are wetlands that result from human activity

- iii. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
- iv. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):
  - i. Industrial or municipal wastewater treatment or disposal,
  - ii. Settling of sediment,
  - iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
  - iv. Agricultural crop irrigation or stock watering,
  - v. Fire suppression,
  - vi. Industrial processing or cooling,
  - vii. Active surface mining – even if the site is managed for interim wetland functions and values,
  - viii. Log storage,
  - ix. Treatment, storage, or distribution of recycled water,
  - x. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits), or
  - xi. Fields flooded for rice growing.

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state.

Wildlife Habitat. Beneficial use of water that supports terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

# Executive Summary

The California Regional Water Quality Control Board, Central Coast Region (CCWB) is responsible for the protection of water quality in California's central coast region, which includes approximately 538,940 acres of irrigated farmland in nine counties. CCWB currently regulates discharges from irrigated agriculture under its Irrigated Lands Program using a permit called a conditional waiver of Waste Discharge Requirements (WDRs). CCWB intends to replace the current permit regulating discharges from irrigated lands in the central coast region (commonly referred to as "Agricultural Order 3.0"), thereby establishing "Agricultural Order 4.0" or the Proposed Project. The new permit established under Agricultural Order 4.0 would be WDRs rather than a waiver of WDRs and thus would not be subject to a time limit.

CCWB has prepared this final environmental impact report (FEIR) to provide an up-to-date, transparent, and comprehensive evaluation of the environmental effects that could occur from implementing Agricultural Order 4.0. The FEIR has been prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the CEQA Guidelines (Title 14, California Code of Regulations Section 15000 et seq.).

## ES.1 Overview of the Proposed Project

### Purpose and Objectives

The purpose of Agricultural Order 4.0 is to:

1. Protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan for commercial irrigated agricultural areas in the central coast region by:
  - a. Minimizing nitrate discharges to groundwater;
  - b. Minimizing nutrient discharges to surface water;
  - c. Minimizing toxicity in surface water from pesticide discharges;
  - d. Protecting ~~and restoring~~ riparian and wetland habitat, and
  - e. Minimizing sediment discharges to surface water.
2. Effectively track and quantify achievement of 1.a. through e. over a specific, defined time schedule.
3. Comply with the State Nonpoint Source Pollution Control Program (NPS Policy), the State Antidegradation Policy, relevant court decisions such as those pertaining to

Coastkeeper *et al* lawsuits, the precedential language in the Eastern San Joaquin Agricultural Order, and other relevant statutes and water quality plans and policies, including Total Maximum Daily Loads in the central coast region.

## ES.2 Project Area

The Proposed Project would be implemented throughout CCWB's jurisdictional area, which is shown on **Figure ES-1**. The central coast region includes a wide diversity of landscapes, climatic conditions, and land use types. The region includes urban areas such as the Monterey Peninsula and the Santa Barbara coastal plain; prime agricultural lands such as the Salinas, Santa Maria, Pajaro, and Lompoc Valleys; National Forest lands; extremely wet areas like the Santa Cruz Mountains; and arid areas like the Carrizo Plain. Although Agricultural Order 4.0 would be in effect throughout the region, most management practices/activities that would occur as a result of Agricultural Order 4.0 would be concentrated in areas of existing irrigated agricultural production (see Figure ES-1).



C:\Users\GIS\Documents\ArcGIS\PROJECTS\18016\_DGS\_AgOrder\mxd\Fig\_2-1\_ProjectArea.mxd 6/27/2018 PG

BaseMap Sources: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp.,

Central Coast Water Board Jurisdictional Boundary

Counties

### Land Use

Prime Farmland

Farmland of Statewide Importance

Unique Farmland



0 20 40  
Miles



Source: Farmland Mapping and Monitoring Program, 2014 and 2016 and Central Coast Water Board Boundary 2014

**Figure ES-1.**  
Proposed Project Area

Central Coast Water Board  
Agricultural Order 4.0  
Final Environmental Impact Report

## ES.3 Summary of the Proposed Project

The Proposed Project would involve adoption of Agricultural Order 4.0, which would continue the regulatory program and establish WDRs for irrigated agriculture in the central coast region. The key elements of Agricultural Order 4.0 include phasing or prioritization, quantifiable milestones in the form of numeric limits, time schedules, monitoring and reporting requirements, and incentives for five key areas for water quality protection, as follows:

- Irrigation and Nutrient Management for Groundwater Protection
- Irrigation and Nutrient Management for Surface Water Protection
- Pesticide Management for Surface Water and Groundwater Protection
- Riparian Habitat Management for Water Quality Protection
- Sediment and Erosion Management for Surface Water Protection

### ***Primary New or Expanded Requirements***

The details of the proposed Agricultural Order 4.0 are described in Chapter 2, *Project Description*, and the proposed Agricultural Order 4.0 is provided in Appendix A. The primary new or expanded requirements under Agricultural Order 4.0, as compared to Agricultural Order 3.0, are shown in **Table ES-1**.



**Table ES-1.** Primary New or Expanded Requirements under Agricultural Order 4.0 as Compared to Agricultural Order 3.0

New or Expanded Requirement in Agricultural Order 4.0	Relevant Existing Requirement in Agricultural Order 3.0
<ul style="list-style-type: none"> <li>All enrollees must implement management practices and submit an Annual Compliance Form (ACF) describing the management practices. All enrollees must comply with application <u>targets and limits</u>, discharge <u>targets and limits</u>, and receiving water limits, in accordance with time schedules, to prevent discharges of waste from causing or contributing to the exceedance of water quality objectives or the loss or degradation of beneficial uses.</li> </ul>	<ul style="list-style-type: none"> <li>Tier 2 and 3 enrollees must submit an ACF describing management practices they are implementing. All enrollees are required to implement improved or additional management practices as necessary to prevent discharges of waste from causing or contributing to the exceedance of water quality objectives or the loss or degradation of beneficial uses; however, there are no application limits, discharge limits, receiving water, or time schedules in Agricultural Order 3.0.</li> </ul>
<ul style="list-style-type: none"> <li><del>All enrollees with waterbodies on or adjacent to their ranch must establish an operational setback (1.5 times the width of the waterbody). Enrollees in prioritized areas with waterbodies on or adjacent to their ranch must establish a more robust riparian setback following one of four compliance pathways (the on-farm setback compliance pathway requires riparian setbacks ranging from 50 to 250 feet, depending on the waterbody).</del></li> </ul>	<ul style="list-style-type: none"> <li><del>A subset of Tier 3 enrollees must implement a 30-foot riparian buffer or the functional equivalent.</del></li> </ul>
<ul style="list-style-type: none"> <li>All enrollees must submit an Irrigation and Nutrient Management Plan (INMP) Summary report, which includes monitoring and reporting of nitrogen applied/removed, crop evapotranspiration, and irrigation discharge to surface water and groundwater.</li> </ul>	<ul style="list-style-type: none"> <li>A subset of Tier 3 enrollees must submit an INMP Effectiveness Report, including monitoring and reporting of nitrogen applied/removed and crop nitrogen uptake.</li> </ul>
<ul style="list-style-type: none"> <li>Enrollees whose ranches exceed the numeric discharge limits per the time schedule for groundwater protection may be required to perform ranch-level groundwater discharge monitoring, including monitoring of irrigation discharge to groundwater nitrate concentration and irrigation discharge to groundwater volume.</li> </ul>	<ul style="list-style-type: none"> <li>There are no discharge limits or time schedules for groundwater discharges and ranch-level discharge to groundwater monitoring and reporting is not required.</li> </ul>
<ul style="list-style-type: none"> <li>All irrigation wells and all domestic wells on enrolled parcels must be monitored annually.</li> </ul>	<ul style="list-style-type: none"> <li>The primary irrigation well and all domestic wells on enrolled parcels must be monitored twice during the term of Agricultural Order 3.0.</li> </ul>

New or Expanded Requirement in Agricultural Order 4.0	Relevant Existing Requirement in Agricultural Order 3.0
<ul style="list-style-type: none"> <li>All enrollees are required to conduct groundwater quality trend monitoring, either individually or through a <del>cooperative</del> <u>third-party</u> program.</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater quality trend monitoring and reporting is not required.</li> </ul>
<ul style="list-style-type: none"> <li>Enrollees have the option of becoming a member in the <u>third-party alternative compliance pathway to develop a workplan that identifies groundwater protection areas, formulas, values, targets, and a groundwater effectiveness evaluation.</u></li> </ul>	<ul style="list-style-type: none"> <li><u>Groundwater protection areas, formulas, values, targets, or a groundwater effectiveness evaluation is not required.</u></li> </ul>
<ul style="list-style-type: none"> <li>A follow-up surface receiving water implementation work plan (individual or <del>cooperative</del> <u>third-party</u>) will be required for ranches in prioritized areas that exceed the numeric limits prior to the compliance date in the time schedules for surface water protection.</li> </ul>	<ul style="list-style-type: none"> <li>Follow-up surface receiving water monitoring is not required.</li> </ul>
<ul style="list-style-type: none"> <li>Enrollees in areas that exceed the numeric surface receiving water limits for surface water protection may be required to perform ranch-level surface discharge monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>A subset of Tier 3 enrollees must perform ranch-level surface discharge monitoring and reporting.</li> </ul>
<ul style="list-style-type: none"> <li><del>Enrollees whose ranches have impermeable surfaces during winter on slopes equal to or greater than 5 percent must have a Sediment &amp; Erosion Management Plan designed by a qualified professional.</del></li> </ul>	<ul style="list-style-type: none"> <li><del>No such requirement in Agricultural Order 3.0.</del></li> </ul>

Note: Some requirements, including surface receiving water trend monitoring and development of a Farm Plan that includes sections on irrigation, nutrient, pesticide, sediment, erosion, stormwater, and aquatic habitat management, were required through Agricultural Order 3.0 and therefore are not new or expanded requirements in Agricultural Order 4.0 shown in this table.

### ***Discharge, Receiving Water, and Application Targets and Limits and Setback Requirements***

Numeric limits in Agricultural Order 4.0 would be in the form of discharge, receiving water, and application limits and ~~setback requirements~~, and would be established for each of the five key areas for water quality protection. Many of the final targets and limits would be phased in over time (e.g., nitrogen discharge limits would reduce the amount of permitted waste discharge over time) and multiple compliance pathways are available for some limits (~~e.g., riparian setbacks; see discussion below~~). The proposed Agricultural Order 4.0 would ~~incorporate~~ establish surface receiving water limits and time schedules from applicable Basin Plan water quality objectives and TMDLs within the central coast region.

## ***Management Practices***

Agricultural Order 4.0 enrollees would be required to implement management practices to reduce their discharges of waste; however, they would not be mandated to implement *specific* management practices. Rather, individual enrollees would have the option to implement the practices that best suit their specific situation. Refer to Table 2-9 in Chapter 2, *Project Description* for a comprehensive list of the reasonably foreseeable management practices that may be implemented under the Proposed Project. The reasonably foreseeable management practices with the greatest potential for environmental impacts (i.e., those involving ground disturbance during construction/installation) include the following:

- **Efficient irrigation systems:** This includes drip irrigation, micro-irrigation, and other similar types of irrigation systems. Construction/installation of these systems may include excavation and/or trenching, transport and delivery of irrigation system materials, and potentially off-haul of soil or construction waste materials. Operation of efficient irrigation systems may use energy, while maintenance activities may include periodic replacement of filters and/or drip lines, including disposal of used materials.
- **Runoff management features:** This includes buffer strips, vegetated filter strips, or swales. Construction/installation of these features may include light disking, use of a “no till” or grass drill for seeding the proposed vegetated area, and associated transport of materials and equipment. Minor excavation and off-haul of soils may be required for construction of swales. Maintenance of runoff management features may include general vegetation management (e.g., mowing, weeding, etc.).
- **Sediment basins:** This includes basins constructed from an embankment or excavation to capture and retain sediment-laden runoff. Construction of sediment basins requires use of heavy equipment, such as dozers, hydraulic excavators, trenchers, dump trucks, scrapers, etc. Engineered fill material may need to be imported to the site for construction of the embankment and/or excavated material may need to be hauled off from the site and disposed of at a landfill. Maintenance activities may include periodic inspections of the basin, removal of accumulated sediment, removal of debris/trash, replacement of damaged parts, and vegetation management.
- **Bioreactors:** This refers to passive filtration systems that remove nitrate in water drainages (e.g., tile drains) through the process of denitrification. Bioreactors typically include a pit filled with organic material (e.g., wood chips, biochar, corn cobs, etc.). Construction/installation of the bioreactor involves excavation of the pit, installation of water control structures/piping, and importation and placement of the wood chips or other carbon material. Equipment used in the construction process may include excavators, skidsteer loaders, dump trucks, and trenchers. Maintenance may include replacement of the fill material approximately every 10 years.
- **Riparian buffer areas:** These are communities of perennial vegetation including trees, shrubs, and grasses adjacent to a body of water that provide important habitat and water quality functions. Construction of the riparian buffer area may include removal of existing crops/vegetation (if the area is currently used for crop production), light disking, and broadcast seeding or plug planting of riparian vegetation species. Equipment used

during construction could include a “no till” or grass drill, skidsteer loader, and trucks for transport of materials. Riparian buffer areas may require some watering, particularly in the early plant stages to ensure survival, while maintenance activities may include periodic inspections of streambank stability/evidence of erosion, exclusion of livestock, and general vegetation management.

### ***Setback Requirements***

As noted above in Table ES-1, one of the primary expanded requirements in Agricultural Order 4.0 relative to Agricultural Order 3.0 is related to setback requirements. All enrollees with waterbodies on or adjacent to their ranch are required to establish an operational setback that is 1.5 times the width of the waterbody. Enrollees in prioritized areas (see Figure 2-2 in Chapter 2, *Project Description*) with waterbodies on or adjacent to their ranch must establish a more robust riparian setback following one of four compliance pathways, as follows:

1. ~~**Cooperative Approach:** Dischargers who select the Cooperative Approach compliance pathway must form or identify a third-party organization to develop a Cooperative Watershed Restoration Plan (CWRP) within the watershed where the ranch is located.~~
2. ~~**On-Farm Setback:** Dischargers who select the On-Farm Setback compliance pathway whose on-farm setbacks and vegetation do not meet the minimum riparian and/or wetland setback distance and vegetation requirements (see Tables C.5-1 and C.5-2 in Appendix A) must modify their Riparian Area Management Plan (RAMP) such as to meet the minimum requirements.~~
3. ~~**Rapid Assessment Method:** Dischargers who select the Rapid Assessment Method compliance pathway must have a rapid assessment (Riparian Rapid Assessment Method [RipRAM]) performed for the existing riparian areas on their farm. Dischargers whose RipRAM score does not achieve the reference site score in the Monitoring & Reporting Program (MRP) (see Attachment B to Appendix A) must modify their RAMP such as to achieve RipRAM score of the reference site on their ranch.~~
4. ~~**Alternative Proposal:** Dischargers who select the Alternative Proposal must submit an Alternative Proposal for approval by the Executive Officer, which quantitatively demonstrates that the proposed alternative does not cause or contribute to degradation of water quality and protects all beneficial uses for inland surface waters, enclosed bays, and estuaries, as outlined in section 3.3.2 of the Basin Plan, and must result in the riparian areas providing all the functions described in the RAMP requirements. Dischargers who select this pathway must also perform ranch-level surface discharge monitoring and reporting to confirm that water quality objectives are being achieved and beneficial uses are being protected.~~

Depending on a given ranch’s specific situation and the compliance pathway chosen, some existing cropped areas may need to be converted to riparian vegetation. This could involve use of mechanized equipment to remove crops and associated infrastructure (e.g., supporting wires/trestles, irrigation lines, etc.) and disposal of waste materials at an off-site location. Vegetation planted within setback areas may require irrigation in the initial stages.

### ***Monitoring and Reporting***

Agricultural Order 4.0 would include a number of new or expanded monitoring and reporting requirements relative to Agricultural Order 3.0. In some cases, the Proposed Project would expand the number of ranches subject to existing requirements (e.g., all ranches would have to prepare an INMP and submit an INMP Summary report whereas currently only Tier 3 ranches are required to submit INMP Effectiveness reports). In other cases, the Proposed Project would establish entirely new requirements (e.g., requirement for all enrollees to participate in groundwater trend monitoring). Generally, monitoring and reporting activities would be limited to vehicle trips to monitoring locations, sampling of surface water or groundwater or soil using non-mechanized equipment, transport of samples to laboratories, taking readings of well or irrigation equipment, and related activities.

It is also possible that some new groundwater monitoring wells would need to be drilled in support of the groundwater quality trend monitoring requirements. While many existing wells (e.g., domestic wells on agricultural and non-agricultural properties, small water system wells, irrigation wells on agricultural properties, potentially municipal supply wells, as well as existing monitoring wells) may be suitable for use in the monitoring effort, some new wells may need to be developed. Construction activities associated with new monitoring wells may include mobilization and de-mobilization of the contracted drilling crew and rig, drilling of the well to the desired depth, installing the well casing and screen, and management and disposal of drilling fluid.

## **ES.4 Nature of the Discretionary Action Considered in the EIR**

This EIR is intended to provide CEQA compliance for the adoption of WDRs for irrigated agriculture in the central coast region. To achieve this, it considers future reasonably foreseeable activities that could occur as a result of the proposed Agricultural Order 4.0, as described in Chapter 2, *Project Description*. CCWB will use the EIR in deciding whether to approve, approve with modifications, or deny the Proposed Project.

## **ES.5 Public Involvement Process**

CEQA mandates two periods during the EIR process when public and agency comments on the environmental analysis of a proposed project are to be solicited: during the scoping comment period and during the review period for the DEIR. CEQA and the State CEQA Guidelines also allow for lead agencies to hold public outreach meetings or hearings to obtain scoping comments and review both the draft and final versions of an EIR. Brief descriptions of these milestones, as they apply to this document, are provided below; for a more complete description, please refer to Chapter 1, *Introduction*.

## Notice of Preparation, Initial Study, and Initial Scoping Notice and Comment Period

A notice of preparation (NOP) of an EIR was prepared for the Proposed Project in accordance with State CEQA Guidelines Section 15082, and was submitted to the State Clearinghouse on February 16, 2018. Submittal of the NOP marked the beginning of the scoping comment period, which lasted for 73 days, ending on April 30, 2018.

At the same time that the NOP was submitted to the State Clearinghouse, an initial study and scoping notice were circulated to the public and posted on CCWB's website. The initial study considered the potential environmental impacts of Agricultural Order 4.0 and reasonably foreseeable methods of compliance/management practices that could be implemented as a result of the order. The initial study also described baseline environmental conditions for the resource topics considered in Appendix G of the State CEQA Guidelines. The scoping notice invited interested persons to attend one of several public scoping meetings and solicited input on the potential environmental impacts of the Proposed Project, as well as information regarding the types of management practices that growers might use to control, monitor, and/or treat discharges of waste from agricultural operations, as well as potential project alternatives.

A total of approximately 51 individuals attended the scoping meetings, split across the four locations (Salinas, Watsonville, Santa Maria, and San Luis Obispo). The meetings provided an opportunity for the public to provide oral comments and ask questions, and CCWB staff took notes during these meetings. During the initial scoping comment period, CCWB received three written comment letters. Refer to Table 1-1 in Chapter 1, *Introduction* for a summary of the scoping comments received.

## Public Comment Periods for the Conceptual Regulatory Requirement Options Tables and Updated Option Table

Subsequent to the initial scoping comment period, CCWB circulated additional information regarding the content and components of Agricultural Order 4.0 and allowed for additional public comment. On November 16, 2018, CCWB released conceptual regulatory requirement options for Agricultural Order 4.0, which were presented in table format and included basic approaches to phasing/prioritization, numeric limits, time schedules, monitoring and reporting requirements, and incentives for the five key areas for water quality protection.

The public review and comment period for the conceptual regulatory requirement options tables lasted until January 22, 2019, during which time CCWB received 97 comments, including those from individual farming operations, agricultural and environmental organizations, and unaffiliated members of the public. The comments largely focused on the specific components/requirements of the conceptual options, although some comments discussed potential environmental impacts and alternatives to the Proposed Project.

Following the review and comment period for the conceptual regulatory requirement options tables, in March 2019 CCWB published updated options tables describing more specifically the proposed requirements of Agricultural Order 4.0. Whereas the original conceptual options tables provided a basic framework for phasing/prioritization, numeric limits, time schedules, monitoring and reporting requirements, and incentives for the five key areas for water quality protection; the updated options tables added specific numeric limits and time schedules, and revised several requirements based on public comments received on the conceptual regulatory requirement options.

The updated options tables were discussed at the March 20 – 22, 2019 and May 15 – 17, 2019 CCWB public board meetings, during which time stakeholders were invited to give presentations and provide oral comments on the proposed requirements.

## **Draft Environmental Impact Report and Draft Agricultural Order 4.0 Public Review and Comment Period**

The CCWB issued a notice of availability (NOA) of an EIR to provide agencies and the public with formal notification that the DEIR was available for review beginning on February 21, 2020. The Draft Agricultural Order 4.0 (DAO 4.0) was circulated for review concurrently with the DEIR. The NOA was sent to all responsible and trustee agencies, any person or organization requesting a copy, and all nine county clerks' offices within CCWB's jurisdictional area (i.e., Kern, Monterey, San Benito, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Ventura) for posting. A legal notice was also published in a number of general-circulation newspapers. CCWB also submitted the NOA and a notice of completion (NOC) to the State Clearinghouse. The public review period for the DEIR and DAO 4.0 was extended due to the COVID-19 pandemic and ultimately concluded on June 22, 2020. The public review period lasted a total of 122 days.

CCWB staff hosted three public stakeholder workshops remotely, due to the COVID-19 pandemic, after release of the DEIR and DAO 4.0. The purpose of public circulation and the public workshops was to provide public agencies, other stakeholders, and interested individuals with opportunities to ask questions to assist in understanding the contents of the DEIR and DAO 4.0.

CCWB received a total of 3,746 comment letters during the public review period for the DEIR and DAO 4.0, of which 3,533 were identical form letters generally expressing support for the DAO 4.0 and urging CCWB to adopt strong water quality protection measures. Out of the 3,746 total letters, 213 were unique (i.e., non-form) letters. These letters were submitted by federal, state, and local agencies; other stakeholders, such as farming organizations and environmental groups; and individual members of the public. Volume 3 of this FEIR provides written responses to the comments submitted on the DEIR and DAO 4.0. Changes to the DEIR made in response to comments and to reflect revisions to DAO 4.0 (see below) are incorporated in Volume 1 of this FEIR.

## Revised Agricultural Order 4.0 Review and Comment Period

On January 26, 2021, CCWB released a Revised Agricultural Order 4.0 (RAO 4.0) for public review and comment. The review and comment period lasted for 30 days and concluded on February 25, 2021. The DAO 4.0 was revised based on CCWB discussion and in consideration of public comments on the DAO 4.0. The revisions incorporated into the RAO 4.0 were as follows:

- Addition of discount factor for organic fertilizers
- Addition of nitrogen scavenging credit for cover crops and high carbon amendments
- Addition of third-party alternative compliance pathway for groundwater protection
- Addition of third-party program priority areas and follow-up implementation work plan due dates for surface water protection
- Streamlined total nitrogen applied (TNA) and INMP summary reporting section
- Streamlined surface water protection requirements section
- Removal of slope and certified sediment and erosion control plan requirements for impermeable surfaces
- Removal of some riparian area management requirements (i.e., riparian area management plan, and operational and riparian setbacks), but with continued and modified requirements to document and maintain existing riparian areas

The CCWB received a total of 34 comment letters during the RAO 4.0 review period from a variety of stakeholders and individual members of the public. The comments ranged from support of or opposition to various components of RAO 4.0 to detailed suggestions for additional changes or refinements. Refer to the “Revised Draft Agricultural Order 4.0, Master Response to Comments” document (April 2021), available through the project website<sup>1</sup>, for a detailed summary of the comments on RAO 4.0 and the CCWB’s responses to those comments. The comments received during the RAO 4.0 review period are not considered CEQA comments, since the RAO 4.0 review period was conducted outside of CEQA (i.e., as part of the Order development process), and those comments are not responded to in Volume 3 of this FEIR.

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<sup>1</sup> All documents related to Agricultural Order 4.0 can be accessed via this link:  
[https://www.waterboards.ca.gov/centralcoast/water\\_issues/programs/ag\\_waivers/ag\\_order4\\_renewal.html](https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/ag_order4_renewal.html)



## Preparation of the Final Environmental Impact Report

CEQA requires the lead agency to prepare a FEIR, which addresses all substantive comments received on the DEIR, before approving a project. The FEIR must include a list of all individuals, organizations, and agencies that provided comments on the DEIR and must contain copies of all comments received during the public review period along with the lead agency's responses.

As discussed above, Volume 3 of this FEIR includes copies of the written comments received on the DEIR and DAO 4.0 and provides written responses to those comments. Volume 3 also includes a list of the individuals, organizations, and agencies that provided comments on the DEIR. Volume 1 of this FEIR incorporates the changes to the DEIR text made in response to public comments and based on CCWB discussion. The PAO 4.0 is included as Appendix A to this FEIR (see Volume 2). The FEIR (when certified by the CCWB) will inform the CCWB's exercise of its discretion as a lead agency under CEQA in deciding whether to approve, approve with modifications, or deny the Proposed Project.

With the changes to the DAO 4.0 (e.g., removal of the riparian and operational setback requirements), no significant and unavoidable impacts have been identified for the Proposed Project. Therefore, a statement of overriding considerations is not required to be included in the record of project approval and mentioned in the notice of determination (NOD). If the Proposed Project is approved, the NOD will be filed with the California Governor's Office of Planning and Research (State CEQA Guidelines Section 15093[c]).

## ES.6 Areas of Known Controversy

Section 15123(b)(2) of the State CEQA Guidelines requires that the summary of an EIR identify areas of controversy known to the lead agency, including issues raised by agencies and the public. Several aspects of the Proposed Project and its potential effects are expected to be controversial, including:

- Inclusion of ~~setbacks~~, numeric limits, and time schedules in Agricultural Order 4.0.
- Interpretation of the NPS Policy, including as it relates to lawsuits filed by Coastkeeper *et al.* against Agricultural Order 2.0 and 3.0 (see Chapter 2 for further discussion) and the current lawsuits on the Eastern San Joaquin Agricultural Order.
- ~~Potential conversion of agricultural land as a result of the proposed setback requirements.~~
- Increased costs of compliance for growers from Agricultural Order 4.0.
- Potential reductions in flow in adjacent streams and other waterbodies that could occur as a result of the Proposed Project (e.g., from growers implementing efficient irrigation systems thereby resulting in reduced runoff).

## ES.7 Issues to Be Resolved

Section 15123(b) of the CEQA Guidelines requires that an EIR summary identify issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects of a proposed project. No issues were identified which require resolution.

## ES.8 Overview of Environmental Topics Evaluated in the FEIR

This FEIR evaluates the potential for the Proposed Project to affect the following resource topics:

- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Economics
- Energy
- Greenhouse Gas (GHG) Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Tribal Cultural Resources
- Wildfire

Remaining resource topics in the State CEQA Guidelines Appendix G were dismissed from detailed consideration in the FEIR due to the Proposed Project's lack of potential to adversely affect these resources, as described in Section 3.0, *Introduction to the Environmental Analysis*. Table ES-2 at the end of this Executive Summary summarizes the impacts analysis and significance determinations for the Proposed Project.

No ~~significant and unavoidable impacts were identified for the Proposed Project conversion of agricultural land to non-agricultural uses and conflicts with existing zoning for agricultural use and Williamson Act contracts due to the proposed setback requirements.~~ Other ~~All~~ potentially significant effects identified for the Proposed Project (largely related to construction-related effects during construction/installation of management practices) could be reduced to less than significant with implementation of mitigation measures.

## ES.9 Alternatives Considered

The purpose of the alternatives analysis in an EIR is to describe a reasonable range of potentially feasible alternatives to a proposed project that could attain most of the objectives of the proposed project while reducing or eliminating one or more of the proposed project's significant effects. The No Project Alternative was considered in the alternatives analysis in this FEIR since that is required by statute, even though the No Project Alternative in this instance would be legally infeasible. Additionally, the following alternatives were evaluated for their potential feasibility and their ability to achieve most of the Proposed Project objectives while avoiding or reducing significant impacts originally identified for the Proposed Project:

- Ag Organization Alternative

- Environmental Advocate Alternative

## ES.10 No Project Alternative

Under the No Project Alternative, CCWB would not implement Agricultural Order 4.0. In this scenario, Agricultural Order 3.0 would continue to govern as it did at the time when the NOP was issued. Existing law establishes that when a project involves revision of an existing plan, policy, or ongoing operation, the no project alternative should reflect continuation of the existing plan, policy, or operation (14 CCR Section 15126.6[e][3][A]).

As Agricultural Order 4.0 would not be adopted under the No Project Alternative, none of the new or expanded requirements described in Table ES-1 would go into effect. Dischargers to irrigated lands in the central coast region would not be subject to the discharge and receiving water limits or application limits envisioned under Agricultural Order 4.0, nor would they be required to complete the additional or expanded monitoring and reporting requirements. ~~Under the No Project Alternative, the expanded setback requirements described in ES.1 also would not go into effect.~~

It is important to note that the No Project Alternative is legally infeasible since the Sacramento County Superior Court has issued a peremptory writ of mandate compelling CCWB to adopt a new agricultural order to replace Agricultural Order 3.0 by January 31, 2021. The court subsequently granted a 75-day extension, such that Agricultural Order 3.0 will now expire in April 2021. See Chapter 4, *Alternatives Analysis* for further discussion.

## ES.11 Ag Organization Alternative

The Ag Organization Alternative was submitted by a coalition of agricultural organizations<sup>2</sup> during the public comment period on the conceptual regulatory requirement options tables. This alternative would be based on management practice implementation in prioritized watersheds and scoring of management practice effectiveness by CCWB. Monitoring and reporting (e.g., nitrogen applied and removed) would generally be simplified compared to the Proposed Project, and the Ag Organization Alternative would not include any numeric discharge, receiving water, or application limits for nutrients, pesticides, or sediment. The Ag Organization Alternative would generally not include defined time schedules, apart from incorporating applicable TMDL schedules, and would rely on more proximal quantifiable milestones, such as implementation of management practices, completion of reporting templates, reducing the number of outliers, etc.

Relative to the Proposed Project, the Ag Organization Alternative would likely result in less management practice implementation due to the lack of numeric limits and defined time schedules. ~~The Ag Organization Alternative also would not result in substantial conversion of agricultural land to non-agricultural uses, as it would not include setback requirements.~~ The

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<sup>2</sup> These organizations included Grower-Shipper Association of Central California, Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties, Monterey County Farm Bureau, Central Coast Groundwater Coalition, Western Growers, and California Farm Bureau Federation.

costs of implementing the Ag Organization Alternative (for growers and CCWB) may be somewhat elevated compared to existing conditions due to additional monitoring and reporting requirements in accordance with the precedential Eastern San Joaquin Agricultural Order; however, the costs of compliance would still be anticipated to be less than under the Proposed Project for most growers.

## ES.12 Environmental Advocate Alternative

The Environmental Advocate Alternative was submitted on behalf of The Otter Project and California Coastkeeper Alliance during the public review period for the conceptual regulatory requirement options tables. This alternative would be similar to the Proposed Project in that it would include numeric discharge and application limits, as well as defined time schedules. The Environmental Advocate Alternative would not include prioritization (apart from immediate prioritization that may occur based on exceedances of water quality limits or benchmarks) or phasing, such that all of the requirements would apply to all ranches concurrently. Although the monitoring and reporting requirements are presented somewhat differently in the Environmental Advocate Alternative, many of these requirements are the same as what is included in the Proposed Project. The Environmental Advocate Alternative would include a system of “triggers,” where exceedances may initiate an investigation of pollutant sources by CCWB and requirements for corrective action by growers identified as causes of the exceedances. The Environmental Advocate Alternative would require a minimum 30-foot riparian buffer, as measured from the top of bank, applicable to all enrollees with waterbodies on or adjacent to their ranch.

Relative to the Proposed Project, the Environmental Advocate Alternative would likely lead to similar overall levels of management practice implementation; however, due to the lack of prioritization/phasing, the Environmental Advocate Alternative may result in increased management practice implementation during the early years of the order. The riparian setback requirements in the Environmental Advocate Alternative would be less robust than the Proposed Project and thus would result in less potential conversion of agricultural land to non-agricultural uses. Costs of compliance for growers under the Environmental Advocate Alternative may be ~~elevated~~ reduced relative to the Proposed Project due to the reduced riparian setback requirements.

## ES.13 Environmentally Superior Alternative

The Proposed Project and the alternatives considered would each involve environmental tradeoffs, including environmental costs and benefits relative to baseline conditions. The No Project Alternative, while required by statute to be evaluated in the DEIR, is not legally feasible since ~~the an appeals~~ court has ruled that aspects of Agricultural Order 3.0 does not comply with the NPS Policy and that CCWB must adopt a new agricultural order to replace Agricultural Order 3.0. The No Project Alternative also is not sufficiently protective of water quality given the continued impairments in the central coast region that are being caused by irrigated agriculture; thus the No Project Alternative is not environmentally superior.

~~While the Ag Organization Alternative and Environmental Advocate Alternative could each reduce some potential impacts of the Proposed Project, they also would not achieve the same~~

level of water quality benefits. Notably, both the Ag Organization Alternative and Environmental Advocate Alternative could result in reduced conversion of agricultural land to non-crop uses compared to the Proposed Project due to the reduced setback requirements (or absence of setback requirements in the case of the Ag Organization Alternative); however, the setback requirements are anticipated to be one of the most efficacious components of the Proposed Project in terms of reducing waste discharges from irrigated lands and correcting the associated water quality and beneficial use impairments. The potential effects of the Proposed Project on agricultural lands should also be considered in light of the fact that substantial conversion of riparian habitat to bare ground areas or crops has occurred in the central coast region since 2006 due to buyer pressure regarding potential food safety risks (i.e., from wild animal intrusion) from having non-crop vegetation adjacent to cropped areas.

To the extent that the Ag Organization Alternative could result in reduced implementation of management practices, this also would not be beneficial for water quality over the long term (although it could avoid or reduce some short-term construction-related impacts). As such, neither the Ag Organization Alternative nor the Environmental Advocate Alternative are environmentally superior. While the Ag Organization Alternative could reduce some short-term construction-related environmental impacts relative to the Proposed Project (since the lack of numeric limits and time schedules may result in reduced management practice implementation), the Ag Organization Alternative would not be as beneficial for water quality over the long term. By contrast, the Environmental Advocate Alternative, in requiring a minimum 30-foot riparian buffer/setback for ranches with waterbodies on or adjacent to the ranch, would likely be very effective in curbing pollutant discharges from irrigated lands; however, this requirement would result in Important Farmland being converted to non-agricultural uses, which would be a significant impact under CEQA. Overall, tTaking into account all the relevant factors, the CCWB finds that the Proposed Project best accomplishes the water quality goals of CCWB, while minimizing environmental impacts to the extent possible.

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**Table ES-2.** Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<b><i>Agriculture and Forestry Resources</i></b>			
Impact AG-1: Convert prime farmland, unique farmland, or farmland of statewide importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use.	<u>LS</u>	<del>None feasible mitigation is available.</del>	<del>S</del> <u>LS</u>
Impact AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract.	<u>LS</u>	<del>None feasible mitigation is available.</del>	<del>S</del> <u>LS</u>
Impact AG-3: Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.	NI	None.	NI
Impact AG-4: Result in the loss of forest land or conversion of forest land to non-forest use.	NI	None.	NI
Impact AG-5: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.	LS	None.	LS
<b><i>Air Quality</i></b>			
Impact AQ-1: Conflict with or obstruct implementation of an applicable air quality plan, and/or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	LS	None.	LS

<b>Impact</b>	<b>Significance Before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance After Mitigation</b>
Impact AQ-2: Expose sensitive receptors to substantial pollutant concentrations.	LS	None.	LS
Impact AQ-3: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	LS	None.	LS
<b><i>Biological Resources</i></b>			
Impact BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure BIO-1:</b> Avoid and Minimize Impacts on Sensitive Biological Resources.</li> <li>▪ <b>Mitigation Measure HWQ-1:</b> Implement Construction Best Management Practices for Erosion Control.</li> <li>▪ <b>Mitigation Measure HAZ-1:</b> Hazardous Materials Spill Prevention, Control, and Counter-Measures for Land Disturbance Activities.</li> </ul>	LSM
Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure BIO-1:</b> Avoid and Minimize Impacts on Sensitive Biological Resources.</li> <li>▪ <b>Mitigation Measure HWQ-1:</b> Implement Construction Best Management Practices for Erosion Control.</li> <li>▪ <b>Mitigation Measure HAZ-1:</b> Hazardous Materials Spill Prevention, Control, and Counter-Measures for Land Disturbance Activities.</li> </ul>	LSM



<b>Impact</b>	<b>Significance Before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance After Mitigation</b>
Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure HWQ-1:</b> Implement Construction Best Management Practices for Erosion Control.</li> <li>▪ <b>Mitigation Measure HAZ-1:</b> Hazardous Materials Spill Prevention, Control, and Counter-Measures for Land Disturbance Activities.</li> </ul>	LSM
Impact BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure HWQ-1:</b> Implement Construction Best Management Practices for Erosion Control.</li> <li>▪ <b>Mitigation Measure HAZ-1:</b> Hazardous Materials Spill Prevention, Control, and Counter-Measures for Land Disturbance Activities.</li> </ul>	LSM
Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LS	None.	LS
Impact BIO-6: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure BIO-1:</b> Avoid and Minimize Impacts on Sensitive Biological Resources.</li> <li>▪ <b>Mitigation Measure HWQ-1:</b> Implement Construction Best Management Practices for Erosion Control.</li> <li>▪ <b>Mitigation Measure HAZ-1:</b> Hazardous Materials Spill Prevention, Control, and Counter-Measures for Land Disturbance Activities.</li> </ul>	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<b><i>Cultural Resources</i></b>			
Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5; or cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure CUL-1:</b> Cultural Resources Inventory, Evaluation of Resources for Significance, and Implementation of Avoidance and/or Minimization Measures.</li> </ul>	LSM
Impact CUL-2: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure CUL-2:</b> Comply with State Laws Pertaining to the Discovery of Paleontological Resources.</li> </ul>	LSM
Impact CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure CUL-1:</b> Cultural Resources Inventory, Evaluation of Resources for Significance, and Implementation of Avoidance and/or Minimization Measures.</li> <li>▪ <b>Mitigation Measure CUL-3:</b> Comply with State Laws Pertaining to the Discovery of Human Remains.</li> </ul>	LSM
<b><i>Economics</i></b>			
Impact ECON-1: Increase costs for growers to such a degree that it would cause or result in growers going out of business, such that agricultural lands would be converted to non-agricultural uses.	LS	None.	LS
Impact ECON-2: Disproportionately affect small farms or ranches due to increased implementation, monitoring, or reporting costs, such that these farms would be forced to go out of business, resulting in conversion of agricultural lands to non-agricultural uses.	LS	None.	LS

<b>Impact</b>	<b>Significance Before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance After Mitigation</b>
<b><i>Energy</i></b>			
Impact ENE-1: Result in a potential environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	LS	None.	LS
Impact ENE-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	LS	None.	LS
<b><i>Greenhouse Gas Emissions</i></b>			
Impact GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	LS	None.	LS
Impact GHG-2: Potential to conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of GHGs.	LS	None.	LS
<b><i>Hazards and Hazardous Materials</i></b>			
Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	LS	None.	LS
Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure HAZ-1:</b> Hazardous Materials Spill Prevention, Control, and Counter-Measures for Land Disturbance Activities.</li> </ul>	LSM
Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.	LS	None.	LS

<b>Impact</b>	<b>Significance Before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance After Mitigation</b>
Impact HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Section 65962.5 of the Government Code and, as a result, create a significant hazard to the public or the environment.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure HAZ-2:</b> Review Proximity to Existing Known Hazardous Materials Cleanup Sites and Conduct an Environmental Site Assessment if Proposed Activity is Located on or in Close Proximity to an Area of Hazardous Materials Contamination.</li> </ul>	LSM
Impact HAZ-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.	NI	None.	NI
Impact HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LS	None.	LS
Impact HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	LS	None.	LS
Impact HAZ-8: Increase potential for contamination of agricultural produce or crops, such as to expose people to a significant food safety hazard.	LS	None.	LS
<b><i>Hydrology and Water Quality</i></b>			
Impact HWQ-1: Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure HWQ-1:</b> Implement Construction Best Management Practices for Erosion Control.</li> <li>▪ <b>Mitigation Measure HAZ-1:</b> Hazardous Materials Spill Prevention, Control, and</li> </ul>	LSM

<b>Impact</b>	<b>Significance Before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance After Mitigation</b>
		Counter-Measures for Land Disturbance Activities.	
Impact HWQ-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	LS	None.	LS
Impact HWQ-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:			
i. Result in substantial erosion or siltation	S	▪ <b>Mitigation Measure HWQ-1:</b> Implement Construction Best Management Practices for Erosion Control.	LSM
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding	NI	None.	NI
iii. Create runoff which would exceed the capacity of existing or planned stormwater drainage system or provide additional sources of polluted runoff	LS	None.	LS
iv. Impede or redirect flows	LS	None	LS
Impact HWQ-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.	S	▪ <b>Mitigation Measure HWQ-2:</b> Place Management Practices that Involve Retention and/or Treatment of Surface Runoff Outside of 100-Year Floodplains or Tsunami or Seiche Inundation Zones.	LSM

<b>Impact</b>	<b>Significance Before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance After Mitigation</b>
Impact HWQ-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	NI	None.	NI
<b>Noise</b>			
Impact NOI-1: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed project in excess of standards established in a local general plan or noise ordinance or in the applicable standards of other agencies.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure NOI-1:</b> Reduce Noise Generated by Pumps or Other Stationary and Permanent Noise-Generating Equipment.</li> </ul>	LSM
Impact NOI-2: Generation of excessive ground-borne vibration or ground-borne noise levels.	LS	None.	LS
Impact NOI-3: Be located within the vicinity of a private airstrip or an airport land use plan area, or, where such a plan has not been adopted, be within 2 miles of a public airport or public-use airport, such that people residing or working in the project area are exposed to excessive noise levels.	LS	None.	LS
<b>Tribal Cultural Resources</b>			
Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource.	S	<ul style="list-style-type: none"> <li>▪ <b>Mitigation Measure CUL-1:</b> Cultural Resources Inventory, Evaluation of Resources for Significance, and Implementation of Avoidance and/or Minimization Measures.</li> <li>▪ <b>Mitigation Measure CUL-3:</b> Comply with State Laws Pertaining to the Discovery of Human Remains.</li> </ul>	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<b>Wildfire</b>			
Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.	LS	None.	LS
Impact WF-2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.	LS	None.	LS
Impact WF-3: Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.	LS	None.	LS
Impact WF-4: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.	LS	None.	LS

NI = no impact; LS = less than significant; S = significant; LSM = less than significant with mitigation incorporated; SU = significant and unavoidable.

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# Chapter 1

## Introduction

The California Regional Water Quality Control Board, Central Coast Region (CCWB) has prepared this final environmental impact report (FEIR) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the proposed Waste Discharge Requirements for Discharges from Irrigated Lands (Proposed Project or “Agricultural Order 4.0”).

The Proposed Project involves adoption of a permit governing the discharge of waste to surface waters and groundwaters associated with irrigated agriculture in the central coast region. The Proposed Project would replace the current permit, which is commonly known as Agricultural Order 3.0, by establishing Agricultural Order 4.0. In accordance with CCWB’s authority and mandates under the California Water Code, the purpose of the Proposed Project is to improve water quality conditions and protect and restore beneficial uses in the region by addressing discharges from irrigated agricultural lands.

This FEIR has been prepared in compliance with the California Environmental Quality Act of 1970 (CEQA) (as amended; California Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Regulations [CCR], Section 15000 et seq.). The primary purpose of this FEIR is to provide comprehensive and transparent discussion and analysis of the Proposed Project’s environmental impacts.

### 1.1 General Overview

California Water Code Section 13260 requires a person discharging waste or proposing to discharge waste that could affect the quality of waters of the state to file a report of waste discharge with the Regional Water Board. Based on review of the report of waste discharge, the Regional Water Board prescribes waste discharge requirements (WDRs) for the protection of water quality (California Water Code Section 13263) that implement applicable water quality control plans (e.g., Basin Plans) and take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose, and the need to prevent nuisance. In certain circumstances, a Regional Water Board may waive the requirement to file a report of waste discharge or waive the prescription of WDRs. The State or Regional Water Boards may issue WDRs or a waiver of WDRs to individual dischargers in an individual permit. The State or Regional Water Boards may also adopt general orders to authorize certain types of similar discharges from many dischargers, based on the proposed discharge meeting certain criteria and conditions. The issuance of WDRs or a waiver of WDRs through either an individual or general order is considered a permit action.

CCWB has regulated discharges from irrigated lands through a general order that was a waiver of WDRs since 2004. This first order (Agricultural Order 1.0) included requirements to monitor

surface water quality conditions (either individually or through a cooperative monitoring program), participate in a farm water quality education program, develop Farm Water Quality Management Plans, and implement management practices to reduce agricultural pollutant discharges. Agricultural Order 1.0 was subsequently replaced by Agricultural Order 2.0, which included new and more robust requirements (e.g., groundwater monitoring requirements). Agricultural Order 2.0 was then replaced by Agricultural 3.0, which is currently in effect.

The Proposed Project is needed to address documented impairments in water quality conditions in the central coast region that are caused by waste discharges from irrigated agricultural operations. Impairments include nitrate pollution of drinking water, widespread toxicity in many surface waters, and elevated levels of turbidity, sedimentation, erosion, temperature, and salts. These impairments not only threaten human health, but also adversely affect aquatic life and achievement of other beneficial uses.

Evidence suggests that the requirements included in Agricultural Order 3.0 and its predecessors have not been sufficient in effectively addressing the discharges causing the impairments; in spite of implementation of agricultural orders since 2004, undesirable water quality conditions persist. Therefore, increased protections for surface waters and groundwaters are needed, and are proposed for inclusion in the Proposed Project.

## 1.2 Overview of Activities That Could Be Conducted Under the Proposed Project

The key elements of Agricultural Order 4.0 include phasing or prioritization, quantifiable milestones in the form of numeric targets and limits, time schedules, monitoring and reporting requirements, and incentives for five key areas for water quality protection, as follows:

- Irrigation and Nutrient Management for Groundwater Protection
- Irrigation and Nutrient Management for Surface Water Protection
- Pesticide Management for Surface Water and Groundwater Protection
- Riparian Habitat Management for Water Quality Protection
- Sediment and Erosion Management for Surface Water Protection

Refer to Appendix A for the proposed Agricultural Order 4.0.

The Proposed Project would not require specific management practices<sup>1</sup> to correct water quality conditions, but rather would allow ranches the flexibility to implement practices that are appropriate for their specific situation to comply with the application targets and limits, discharge targets and limits, and receiving water, and application limits in accordance with the time schedules. Refer to Chapter 2, *Project Description*, for discussion of the reasonably foreseeable management practices that may be implemented in compliance with Agricultural Order 4.0.

## 1.3 Overview of CEQA Requirements

CEQA's basic purposes are to:

- Inform governmental decision-makers and the public about the potential significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or substantially reduced;
- Prevent significant, avoidable damage to the environment by requiring the implementation of feasible mitigation measures or alternatives that would substantially lessen any significant effects that a project would have on the environment; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

As described in the State CEQA Guidelines (Section 15121[a]), an environmental impact report (EIR) is an informational document that assesses potential environmental effects of a proposed project and identifies mitigation measures and alternatives to the project that could reduce or avoid potentially significant environmental impacts. Other key CEQA requirements include developing a plan for implementing and monitoring the success of the identified mitigation measures and carrying out specific public notice and distribution steps to facilitate public involvement in the environmental review process. As an informational document, an EIR is not intended to recommend either approval or denial of a project. An EIR does not expand or otherwise provide independent authority for the lead agency to impose mitigation measures or avoid project-related significant environmental impacts beyond the authority already within the lead agency's jurisdiction.

CCWB is the lead agency under CEQA for preparation of this EIR for adopting Agricultural Order 4.0.

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<sup>1</sup> For the purposes of this document, "management practices" refer to any number of actions, facilities, or practices that growers may undertake, construct/install, or implement to reduce their discharges. Examples include conservation tillage, sediment basins, or nutrient management programs. The term may be used interchangeably with "conservation practices," as defined and used by the U.S. Department of Agriculture.

## 1.4 Scope and Intent of this Document

CCWB's proposed permit requirements under Agricultural Order 4.0 are described in Chapter 2, *Project Description*, of this DEIR. Grower activities/management practices as they would likely be implemented in the future pursuant to the proposed Agricultural Order 4.0 are also described in Chapter 2.

Adoption of a permit constitutes a "project" subject to CEQA (see State CEQA Guidelines Section 15378[a][3]). CCWB will use the analysis presented in this FEIR, public and regulatory agency comments received on the draft environmental impact report (DEIR), and the entire administrative record to evaluate the Proposed Project's environmental impacts, as well as to inform and support CCWB's further modifications, approval, or denial of the Proposed Project.

## 1.5 Public Involvement Process

CEQA mandates two periods during the EIR process when public and agency comments on the environmental analysis of a proposed project are to be solicited: during the scoping comment period and during the review period for the DEIR. CEQA and the State CEQA Guidelines also allow for lead agencies to hold public outreach meetings or hearings to obtain scoping comments and review both the draft and final versions of an EIR. Brief descriptions of these milestones, and other opportunities for public involvement/input afforded by CCWB, are provided below, as they apply to this document.

### 1.5.1 Notice of Preparation, Initial Study, and Initial Scoping Notice & Meetings

A notice of preparation (NOP) of an EIR was prepared for the Proposed Project in accordance with State CEQA Guidelines Section 15082, and was submitted to the State Clearinghouse on February 16, 2018. Submittal of the NOP marked the beginning of the scoping comment period, which lasted for 73 days, ending on April 30, 2018.

At the same time that the NOP was submitted to the State Clearinghouse, an initial study and scoping notice were circulated to the public and posted on CCWB's website. The initial study considered the potential environmental impacts of the new Agricultural Order 4.0 and reasonably foreseeable methods of compliance/management practices that could be implemented as a result of the Order. The initial study also described baseline environmental conditions for the resource topics considered in Appendix G of the State CEQA Guidelines.

The scoping notice invited interested persons to attend one of three scoping meetings that would be held to solicit input on the proposed Agricultural Order 4.0. In addition to soliciting input regarding potential environmental impacts, the scoping notice also sought additional information regarding the types of management practices that growers might feasibly use to control, monitor, and/or treat discharges of waste from agricultural operations, as well as potential project alternatives. The scoping notice also provided links to the initial study and instructions on how to submit oral or written comments.

Subsequent to the original scoping notice, a fourth scoping meeting was added. The scoping meetings for the Proposed Project were held as follows:

- **Meeting #1 – Salinas**  
**Date:** March 20, 2018  
**Time:** 10 a.m. – 12 p.m.  
**Location:** Agricultural Center, 1432 Abbott Street, Salinas, CA 93901
- **Meeting #2 – Watsonville**  
**Date:** March 26, 2018  
**Time:** 10:30 a.m. – 12:30 p.m.  
**Location:** Watsonville Public Library, Library Meeting Room, 275 Main Street, Suite 100, Watsonville, CA 95076
- **Meeting #3 – Santa Maria**  
**Date:** March 27, 2018  
**Time:** 2 p.m. – 4 p.m.  
**Location:** City of Santa Maria Public Library, Shepard Hall Meeting Room, 421 South McClelland Street, Santa Maria, CA 93454
- **Meeting #4 – San Luis Obispo**  
**Date:** March 29, 2018  
**Time:** 10 a.m. – 12 p.m.  
**Location:** San Luis Obispo County Farm Bureau, Community Room, 4875 Morabito Place, San Luis Obispo, CA 93401

The format of the scoping meetings consisted of a presentation by CCWB staff providing an overview of the Agricultural Order 4.0 development and CEQA compliance process, followed by an interactive discussion, with meeting attendees providing comments and CCWB staff taking live notes. The meeting attendance was as follows:

- Approximately 25 individuals attended Meeting #1 (Salinas);
- Approximately 12 individuals attended Meeting #2 (Watsonville);
- Approximately 7 individuals attended Meeting #3 (Santa Maria);
- Approximately 7 individuals attended Meeting #4 (San Luis Obispo).

During the scoping period, three written comment letters were received from the following entities:

- California Department of Fish and Wildlife (CDFW)
- California Farm Bureau Federation
- Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties, Grower-Shipper Association of Central California, Western Growers Association, San Luis Obispo

County Farm Bureau, California Strawberry Commission, and Central Coast  
Groundwater Coalition (Grower-Shipper et al.)

**Table 1-1** summarizes primary comments and concerns expressed in written scoping comment letters and during the public outreach meetings.

**Table 1-1. Summary of Scoping Comments Relevant to the Environmental Analysis**

- 
- Evaluate potential impacts on in-stream water resources and special status species from reduced flow (CDFW).
  - Analyze potential conflicts with the Santa Clara Valley Habitat Plan (CDFW).
  - Include specific measures to avoid special status species and their habitat (CDFW).
  - Indicate that growers using certain compliance methods may need to consult and obtain permits from CDFW (CDFW).
  - Fully evaluate potential impacts on agricultural resources, which are part of the environment (California Farm Bureau Federation).
  - Ensure that the proposed WDRs and any project alternatives are feasible (California Farm Bureau Federation; Grower-Shipper et al.).
  - Use the “reasonableness standard” in developing Agricultural Order 4.0 (California Farm Bureau Federation).
  - Make clear that CCWB and Agricultural Order 4.0 cannot dictate which management practices are utilized by growers (California Farm Bureau Federation).
  - Include in the EIR a description of SWRCB’s Eastern San Joaquin Agricultural Order precedential requirements and how such requirements will impact agricultural lands (California Farm Bureau Federation).
  - Accurately and completely describe existing agricultural lands and include the acreage of farmland that will be converted from the Proposed Project (California Farm Bureau Federation).
  - Properly and completely analyze impacts to agricultural lands and other resources, including direct, indirect, and reasonably foreseeable cumulative impacts (California Farm Bureau Federation; Grower-Shipper et al.).
  - Identify and examine a full range of feasible alternatives to the Proposed Project (California Farm Bureau Federation; Grower-Shipper et al.; member of public at Santa Maria meeting).
  - Include feasible mitigation for impacts to agricultural resources (California Farm Bureau Federation).
  - Evaluate potential social and economic impacts (California Farm Bureau Federation; Grower-Shipper et al.), particularly as it relates to the cost of compliance and potential loss of farmland (California Farm Bureau Federation).
  - Analyze potential conflicts with the California Leafy Greens Products Handler Marketing Agreement, the Food Safety Modernization Act, and other local, state, and federal laws and regulations (California Farm Bureau Federation; Grower-Shipper et al.; member of public).
  - A program EIR would be more appropriate than a project EIR (Grower-Shipper et al.; multiple members of public).
-

- 
- Include any water quality improvements that have been achieved since the first irrigated regulatory lands program in the discussion of baseline (Grower-Shipper et al.; member of public).
  - Refrain from proposing mitigation measures that would be infeasible to implement (Grower-Shipper et al.).
  - Consider effects on individual agricultural farms/ranches and operations (Grower-Shipper et al.).
  - Increased monitoring requirements means increased mileage on trucks to collect samples (member of public).
  - Switching crops is often not a feasible option and if required by the Proposed Project, should be considered a significant impact (multiple members of the public).
  - Include an agriculturally superior alternative that is most protective of agricultural resources (member of public).
  - Consider that increased monitoring could result in increased electricity consumption (member of public).
  - Consider changes to irrigated land wildfire fuel breaks that could result from the Proposed Project (member of public).
- 

### **1.5.2 Public Comment on Conceptual Regulatory Requirement Options**

On November 16, 2018, subsequent to the initial scoping comment period and scoping meetings, CCWB released conceptual regulatory requirement options for Agricultural Order 4.0 for public review and comment. The review and comment period lasted until January 22, 2019. The conceptual options were presented in table format and included basic approaches to phasing/prioritization, numeric limits, time schedules, monitoring and reporting requirements, and incentives for the five key areas for water quality protection. The notice of the public comment opportunity requested input on the conceptual options generally as well as for input on potential environmental impacts pursuant to CEQA, management practice and regulatory requirement costs, and potential alternatives.

CCWB received 97 comments on the conceptual regulatory requirement options tables, including those from individual farming operations, agricultural and environmental organizations, and unaffiliated members of the public. The comments largely focused on the specific components/requirements of the conceptual options, although some comments discussed potential environmental impacts and alternatives to the Proposed Project.

### **1.5.3 Public Comment on Updated Option Tables**

In March 2019, CCWB published updated option tables describing the proposed requirements of Agricultural Order 4.0. Whereas the conceptual regulatory requirement options tables provided a basic framework for phasing/prioritization, numeric limits, time schedules, monitoring and reporting requirements, and incentives for the five key areas for water quality protection; the updated option tables added specific numeric limits and time schedules, and revised several requirements based on public comments received on the conceptual regulatory requirement options.

The updated option tables were discussed at the March 20–22, 2019, and May 15–17, 2019 public board meetings of the CCWB, during which time stakeholders were invited to give presentations and provide oral comments on the proposed requirements.

#### **1.5.4 Draft Environmental Impact Report and Draft Agricultural Order 4.0 Public Review and Comment Period**

The CCWB issued a notice of availability (NOA) of an EIR to provide agencies and the public with formal notification that the DEIR was available for review beginning on February 21, 2020. The Draft Agricultural Order 4.0 (DAO 4.0) was circulated for review concurrently with the DEIR. The NOA was sent to all responsible and trustee agencies, any person or organization requesting a copy, and to the county clerks' offices for all nine counties within CCWB's jurisdictional area (i.e., Kern, Monterey, San Benito, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Ventura) for posting. A legal notice was also published in a number of general-circulation newspapers. CCWB also submitted the NOA and a notice of completion (NOC) to the State Clearinghouse. The public review period for the DEIR and DAO 4.0 was extended due to the COVID-19 pandemic and ultimately concluded on June 22, 2020. The public review period lasted a total of 122 days.

CCWB staff hosted several public outreach meetings, held remotely due to the COVID-19 pandemic. The purpose of the public circulation and the public outreach meetings was to provide public agencies, other stakeholders, and interested individuals with opportunities to ask questions to assist in understanding the contents of the DEIR and DAO 4.0.

CCWB received a total of 3,746 comment letters during the public review period for the DEIR and DAO 4.0, of which 3,533 were identical form letters generally expressing support for the DAO 4.0 and urging CCWB to adopt strong water quality protection measures. Out of the 3,746 total letters, 213 were unique (i.e., non-form) letters. These letters were submitted by federal, state, and local agencies; other stakeholders, such as farming organizations and environmental groups; and individual members of the public.

Volume 3 of this FEIR provides written responses to the comments submitted on the DEIR and DAO 4.0. Changes to the DEIR made in response to comments and to reflect the revisions to the DAO 4.0 (see below) are incorporated in Volume 1 of this FEIR.

#### **1.5.5 Revised Agricultural Order 4.0 Review and Comment Period**

On January 26, 2021, CCWB released a Revised Agricultural Order 4.0 (RAO 4.0) for public review and comment. The review and comment period lasted for 30 days and concluded on February 25, 2021. The DAO 4.0 was revised based on CCWB discussion (e.g., to remove the riparian and operational setback component of the Order) and in consideration of public comments on the DAO 4.0. The revisions incorporated into the RAO 4.0 were as follows:

- Addition of discount factor for organic fertilizers
- Addition of nitrogen scavenging credit for cover crops and high carbon amendments



- Addition of third-party alternative compliance pathway for groundwater protection
- Addition of third-party program priority areas and follow-up implementation and work plan due dates for surface water protection
- Streamlined total nitrogen applied (TNA) and irrigation and nutrient management plan (INMP) summary reporting section
- Streamlined surface water protection requirements section
- Removal of slope and certified sediment and erosion control plan requirements for impermeable surfaces
- Removal of some riparian area management requirements (i.e., riparian area management plan, and operational and riparian setbacks), but with continued and modified requirements to document and maintain existing riparian areas

The CCWB received a total of 34 comment letters during the RAO 4.0 review period from a variety of stakeholders and individual members of the public. The comments ranged from support of or opposition to various components of RAO 4.0 to detailed suggestions for additional changes or refinements. Refer to the “Revised Draft Agricultural Order 4.0, Master Response to Comments” document (April 2021), available through the project website<sup>2</sup>, for a detailed summary of the comments on RAO 4.0 and the CCWB’s responses to those comments. The comments received during the RAO 4.0 review period are not considered CEQA comments, since the RAO 4.0 review period was conducted outside of CEQA (i.e., as part of the Order development process), and those comments are not responded to in Volume 3 of this FEIR.

Based on the comments received during the RAO 4.0 review period, the CCWB made additional changes to RAO 4.0 in creating the Proposed Agricultural Order 4.0 (PAO 4.0). These changes are described in detail in Volume 3 of this FEIR (see Volume 3, Chapter 5). From a CEQA standpoint, these changes were not substantive and did not affect the environmental analysis in Volumes 1 and 2 of this FEIR.

### 1.5.6 Preparation of the Final Environmental Impact Report

CEQA requires the lead agency to prepare a FEIR, which addresses all substantive comments received on the DEIR, before approving a project. The FEIR must include a list of all individuals, organizations, and agencies that provided comments on the DEIR and must contain copies of all comments received during the public review period along with the lead agency’s responses.

As discussed above, Volume 3 of this FEIR includes copies of the written comments received on the DEIR and DAO 4.0 and provides written responses to those comments. Volume 3 also includes a list of all the individuals, organizations, and agencies that provided comments on the DEIR. Volume 1 of this FEIR incorporates the changes to the DEIR text made in response to

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<sup>2</sup> All documents related to Agricultural Order 4.0 can be accessed via this link:  
[https://www.waterboards.ca.gov/centralcoast/water\\_issues/programs/ag\\_waivers/ag\\_order4\\_renewal.html](https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/ag_order4_renewal.html)

public comments and based on CCWB discussion. The PAO 4.0 is included as Appendix A to this FEIR (see Volume 2). The FEIR (when certified by CCWB) will inform CCWB's exercise of its discretion as a lead agency under CEQA in deciding whether to approve, approve with modifications, or deny the Proposed Project.

With the changes to the DAO 4.0 (e.g., removal of the riparian and operational setback requirements), no significant and unavoidable impacts have been identified for the Proposed Project. Therefore, a statement of overriding considerations is not required to be included in the record of project approval and mentioned in the notice of determination (NOD). If the Proposed Project is approved, the NOD will be filed with the California Governor's Office of Planning and Research (State CEQA Guidelines Section 15093[c]).

## 1.6 Organization of this FEIR

### Volume 1 – Main Body

**Executive Summary.** This chapter provides a summary of Agricultural Order 4.0, a description of the issues of concern, a discussion of the project alternatives, and a summary of significant environmental impacts and mitigation measures associated with the Proposed Project.

**Chapter 1, Introduction.** This chapter provides an introduction to the Proposed Project; discusses the relevant CEQA requirements, the public outreach and review process, and the purpose and organization of the FEIR.

**Chapter 2, Project Description.** This chapter describes the Proposed Project, including the location, purpose, and Project objectives; the proposed Agricultural Order 4.0 requirements; the reasonably foreseeable management practices that could be implemented under Agricultural Order 4.0; and the intended uses of the EIR.

**Chapter 3, Environmental Analysis.** This chapter begins with an *Introduction to the Environmental Analysis* (Section 3.0), which is an introductory section containing an overview of the methodology used to assess the environmental impacts of the Proposed Project. This introductory section also includes a description of the resource topics for which the Proposed Project would not have the potential for significant impacts, which were dismissed from detailed analysis in the EIR. The chapter then goes on to present separate sections for each resource topic carried forward for analysis, as follows:

*Section 3.1, Agriculture and Forestry Resources*

*Section 3.2, Air Quality*

*Section 3.3, Biological Resources*

*Section 3.4, Cultural Resources*

*Section 3.5, Economics*

*Section 3.6, Energy**Section 3.7, Greenhouse Gas Emissions**Section 3.8, Hazards and Hazardous Materials**Section 3.9, Hydrology and Water Quality**Section 3.10, Noise**Section 3.11, Tribal Cultural Resources**Section 3.12, Wildfire*

**Chapter 4, Alternatives.** This chapter describes the process by which alternatives to the Proposed Project were developed and screened; describes the alternatives that were carried forward for full analysis in the FEIR, as well as those that were considered but not carried forward for full analysis; presents an impact analysis and conclusions for alternatives carried forward; and discusses the environmentally superior alternative.

**Chapter 5, Other Statutory Considerations.** This chapter describes significant and unavoidable impacts of the Proposed Project; cumulative effects of the Proposed Project when combined with those of other past, present, and probable future projects; and the potential for the Proposed Project to result in growth-inducing impacts.

**Chapter 6, Report Preparation.** This chapter lists the individuals involved in preparing the FEIR.

**Chapter 7, References.** This chapter provides a bibliography of printed references, websites, and personal communications used in preparing the FEIR.

## **Volume 2 – Appendices**

**Appendix A, Proposed Agricultural Order 4.0.** This appendix includes the PAO 4.0.

**Appendix B, County General Plan Goals and Policies.** This appendix presents goals and policies from general plans for counties within CCWB's jurisdiction that are relevant to the Proposed Project. Goals and policies are listed for each resource topic considered in detail in the FEIR.

**Appendix C, Special-Status Species Tables.** This appendix provides tables listing the special-status plant and animal species in the central coast region and discusses their potential to occur in areas potentially affected by the Proposed Project. Appendix C supports the analysis in Volume 1, Section 3.3, *Biological Resources*.

**Appendix D, Mitigation Monitoring and Reporting Program.** This appendix contains the text of all of the mitigation measures included in the FEIR and describes the steps that need to be taken by responsible parties to ensure full compliance with those mitigation measures.

## **Volume 3 – Comments and Responses to Comments on the Draft Environmental Impact Report and Draft Agricultural Order 4.0**

**Chapter 1, Introduction.** This chapter describes the organization of the Comments and Responses to Comments document and its organization. The chapter also contains information on the public review period for the DEIR and DAO 4.0, and the FEIR certification process.

**Chapter 2, Master Responses.** This chapter contains the master responses prepared in response to comments received on the DEIR and DAO 4.0. Many of the letters received raised similar concerns. As such, master responses were prepared to eliminate repetitiveness in responding to comments and to address the shared concerns and comments expressed in a number of letters received during the public review period.

**Chapter 3, Individual Responses to Comments.** This chapter contains copies of unique comment letters received on the DEIR and DAO 4.0 and provides responses to the individual comments contained in each unique letter. In many cases, responses to individual comments within the comment letters refer the reader to the applicable master response(s), which are contained in Chapter 2. Chapter 3 contains a list of the persons, agencies, and organizations that provided unique comment letters on the DEIR and/or DAO 4.0.

**Chapter 4, Form Letters.** This chapter contains copies of the form letters that were received during the public review period for the DEIR and DAO 4.0. The chapter provides responses to the comments in the form letters and a list of the individuals that submitted each letter.

**Chapter 5, Revisions to the Draft Environmental Impact Report and Draft Agricultural Order 4.0.** This chapter describes the revisions made to the DEIR and DAO 4.0 following the public review period, which are shown/reflected in Volume 1.

**Chapter 6, Report Preparation.** This chapter lists the individuals who assisted in the preparation of Volume 3 of the FEIR.

**Chapter 7, References.** This chapter lists the references cited to in Volume 3 of the FEIR.

# Chapter 2

## Project Description

### 2.1 Introduction

The California Regional Water Quality Control Board, Central Coast Region (CCWB) is responsible for the protection of water quality in the central coast region. This region includes approximately 538,940 acres of irrigated farmland in nine counties, representing one of the most productive agricultural regions in the state and the country. CCWB currently regulates discharges from irrigated agriculture under its Irrigated Lands Program, using a permit called a Conditional Waiver of Waste Discharge Requirements (WDRs) that applies to owners and operators of irrigated land throughout the region used for commercial crop production.

The Proposed Project would include the issuance of a permit regulating discharges from irrigated lands and the activities that would result from compliance with such a permit. As described further below, the Proposed Project would replace the existing permit governing agricultural discharges that are established under Agricultural Order 3.0. The Proposed Project would establish Agricultural Order 4.0.

### 2.2 Background and Need for the Proposed Project

#### 2.2.1 Water Quality Conditions and Past Agricultural Orders

Since the early 2000s, CCWB has compiled substantial empirical data demonstrating that water quality conditions in the agricultural areas of the region are impaired as a result of waste discharges from irrigated agricultural operations. Impairments include nitrate pollution of drinking water, widespread toxicity in many surface waters, and elevated levels of turbidity, sedimentation, erosion, and salts. In addition to posing a risk to human health, these water quality conditions threaten aquatic life and other beneficial uses.

To correct the impairments being caused by irrigated agricultural discharges, CCWB implemented its first agricultural order, Resolution No. R3-2004-0117 (Agricultural Order 1.0) in 2004. This order, and its successors, did not pertain to a specific project site, but rather was a general waiver of WDRs in which owners and operators could enroll. The order included requirements to monitor surface water quality conditions (either individually or through a cooperative monitoring program), participate in a farm water quality education program, develop farm water quality management plans, and implement management practices to reduce agricultural pollutant discharges. The order was a waiver of WDRs, which may not exceed 5 years in duration. CCWB renewed Agricultural Order 1.0 several times between 2009 and 2012 on a temporary/short-term basis.

In 2012, CCWB adopted its second agricultural order, Order No. R3-2012-0011 (Agricultural Order 2.0), which replaced Agricultural Order 1.0 and included more robust and additional requirements, such as groundwater monitoring and total nitrogen applied reporting. Agricultural Order 2.0 also included conditions that allowed for determining individual compliance with water quality standards (e.g., individual discharge monitoring) and for evaluating the level of effectiveness of actions taken to protect water quality. The order was petitioned to the State Water Resources Control Board (SWRCB). SWRCB spent roughly a year reviewing Agricultural Order 2.0 and ultimately adopted an order modifying some of the requirements in Agricultural Order 2.0, SWRCB Order WQ 2013-0101. The Regional Board incorporated the SWRCB amendments into a modified Agricultural Order 2.0. The SWRCB order on Agricultural Order 2.0 was subsequently litigated, as described further in Section 2.2.2 below.

In 2017, CCWB adopted its third agricultural order, Order No. R3-2017-0002 (Agricultural Order 3.0), but this order only had a 3-year life span and, as adopted, would expire in 2020. In many respects, Agricultural Order 3.0 is similar to its predecessor and does not include substantially different or new requirements. The specific requirements of Agricultural Order 3.0 are described in Section 2.5. Agricultural Order 3.0 was also challenged in court, as described in Section 2.2.2. In 2019, the Sacramento Superior Court ordered that the expiration date of Agricultural Order 3.0 be extended by an additional 10 months, and Agricultural Order 3.0 will now expire in January 2021.<sup>1</sup> The court subsequently granted a 75-day extension, such that Agricultural Order 3.0 will now expire in April 2021.

Despite the previous and current agricultural orders, water quality conditions continue to be poor in many areas of the central coast region, and agricultural discharges continue to be a major cause of the water quality impairments. As a result, the Proposed Project (i.e., Agricultural Order 4.0) is needed both to continue permit coverage established through the previous Agricultural Order 3.0 that is set to expire in 2021, as well as strengthen the existing protections afforded to water quality.

## 2.2.2 Relevant Court Decisions, Policies, and Orders

### *Court Decisions*

As noted above, the SWRCB's order modifying Agricultural Order 2.0 was challenged in court by Monterey Coastkeeper and others, with the Sacramento County Superior Court issuing a peremptory writ of mandate<sup>2</sup> in 2015. In the Ruling on Submitted Matter, the judge found that the modified Agricultural Order 2.0 did not "meet the requirements of the Nonpoint Source

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<sup>1</sup> *Monterey Coastkeeper et al. v. Central Coast Regional Water Quality Control Board, et al.*, No. 34-2017-80002655, Order [Superior Ct., Sacramento County, Sept. 27, 2019]

<sup>2</sup> A peremptory writ of mandate is a court order to any governmental body, government official, or a lower court requiring that the body, official, or court perform an act the court finds is an official duty required by law. In this case, the peremptory writ of mandate issued by the Sacramento County Superior Court required SWRCB to set aside and reformulate its agricultural order such that it complied with the Nonpoint Source (NPS) Pollution Control Policy.

(NPS) [Pollution]<sup>3</sup> Control Policy [NPS Policy] because the order lacked adequate monitoring and reporting to verify compliance with requirements and measure progress over time; specific time schedules designed to measure progress toward reaching quantifiable milestones; and a description of the action(s) to be taken if verification/feedback mechanisms indicate or demonstrate management practices are failing to achieve the stated objectives.” (*Monterey Coastkeeper v. SWRCB*, No. 34-2012-80001324 [Superior Ct., Sacramento County, Aug. 10, 2015].) The peremptory writ compelled SWRCB to set aside its order modifying Agricultural Order 2.0 and reconsider the requirements of Agricultural Order 2.0 and the related monitoring and reporting program, although the Court allowed for the modified Agricultural Order 2.0 to remain in effect on an interim basis while the SWRCB reformulated the order.

The 2015 Sacramento County Superior Court ruling was appealed by SWRCB to the Third District Court of Appeal (DCA). While the Third DCA, in a 2018 decision, disagreed with the Sacramento County Superior Court’s ruling in several respects, the Third DCA did uphold the holding that the SWRCB’s order modifying Agricultural Order 2.0 did not comply with the NPS Policy. Specifically, the Third DCA found that the Sacramento County Superior Court did not err in finding that the modified Agricultural Order 2.0 did not comply with the NPS Policy due to the absence of “specific time schedules designed to measure progress toward reaching quantifiable milestones.” (*Monterey Coastkeeper v. SWRCB*, No. C080530 [Cal. App. 3d, 2018].) The Third DCA did not invalidate the water quality buffer or riparian requirements in Agricultural Order 2.0.

After the CCWB’s adoption of Agricultural Order 3.0 in 2017, a group consisting of Monterey Coastkeeper and other environmental organizations petitioned the SWRCB to review the order, and upon the SWRCB’s dismissal of the petition without review, the group challenged Agricultural Order 3.0 in court. Among other claims against both the CCWB and SWRCB, the group alleged that Agricultural Order 3.0, which was substantively identical to its predecessor, did not comply with the Water Code and NPS Policy. In September 2019, the parties resolved by stipulated judgment the legal claims challenging the compliance of Agricultural Order 3.0 with the Water Code and NPS Policy.

### ***Policies and Orders***

Several existing policies and orders govern the Proposed Project. As described above, court decisions have established some of the elements required in an agricultural order to ensure that it demonstrates progress towards control of NPS pollution, in accordance with the NPS Policy. CCWB is also bound by the precedential findings of SWRCB Order WQ 2018-0002 (Eastern San Joaquin Agricultural Order), which established certain elements that must be included in irrigated lands regulatory programs throughout the state. Additionally, the CCWB must comply with the State’s Antidegradation Policy and implement established Total Maximum Daily Loads (TMDLs), in developing its Agricultural Order 4.0.

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<sup>3</sup> NPS pollution is pollution that does not originate from regulated point sources (e.g., outfalls, distinct discharge points) but rather comes from many diffuse sources (SWRCB 2019). NPS pollution occurs when irrigation return flows and rainfall flow off the land, roads, buildings, agricultural fields, and other features of the landscape. This diffuse runoff carries pollutants into drainage ditches, lakes, rivers, wetlands, bays, and aquifers.

### *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program*

The federal Clean Water Act (CWA) (see Section 3.9, *Hydrology and Water Quality* for further discussion) requires states to develop a program to protect the quality of water resources from the adverse effects of NPS water pollution (SWRCB 2019). The NPS Policy is the California SWRCB's framework for addressing NPS pollution, and requires each of the nine RWQCBs to regulate NPS pollution, including agricultural discharges. The NPS Policy states that RWQCB implementation programs for NPS pollution control must include five key elements (SWRCB 2004), as follows:

- Key Element 1: An NPS control implementation program's ultimate purpose shall be explicitly stated. Implementation programs must, at a minimum, address NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable antidegradation requirements.
- Key Element 2: An NPS control implementation program shall include a description of the MPs [management practices] and other program elements that are expected to be implemented to ensure attainment of the implementation program's stated purpose(s), the process to be used to select or develop MPs, and the process to be used to ensure and verify proper MP implementation. The RWQCB must be able to determine that there is a high likelihood that the program will attain water quality requirements. This will include consideration of the management practices to be used and the process for ensuring their proper implementation.
- Key Element 3: Where the RWQCB determines it is necessary to allow time to achieve water quality requirements the NPS control implementation program shall include a specific time schedule, and corresponding quantifiable milestones designed to measure progress toward reaching the specified requirements.
- Key Element 4: An NPS control implementation program shall include sufficient feedback mechanisms so that the RWQCB, dischargers, and the public can determine whether the program is achieving its stated purpose(s) or whether additional or different MPs or other actions are required.
- Key Element 5: Each RWQCB shall make clear, in advance, the potential consequences for failure to achieve an NPS control implementation program's stated purposes.

### *Eastern San Joaquin Agricultural Order Precedential Requirements*

The California Regional Water Quality Control Board, Central Valley Region (CVWB) adopted WDRs for agricultural discharges in the eastern San Joaquin River watershed in 2012. SWRCB reviewed CVWB's WDRs and subsequently adopted its own order modifying the CVWB-adopted WDRs in February 2018. The SWRCB order (WQ 2018-0002) is referred to as the Eastern San Joaquin Order, or ESJ Order. The SWRCB designated portions of the ESJ Order as "precedential" and directed the RWQCBs to revise their irrigated lands regulatory programs within the next 5 years to be consistent with the precedential direction in the ESJ Order (CCWB 2019a). Key elements of the ESJ Order deemed precedential are listed in **Table 2-1**.



**Table 2-1. Precedential Language in the Eastern San Joaquin River Watershed Agricultural Order**

<b>Topic / Element</b>	<b>Precedential Language</b>	<b>Page No.</b>
Outreach	"The requirement for participation by all growers in outreach events shall be precedential for irrigated lands regulatory programs statewide."	28
Management Practice Reporting	"The requirement for submission by all growers of management practice implementation information shall be precedential for irrigated lands regulatory programs statewide..."	29
Field Level Management Practice Implementation Data	"The requirement to submit grower-specific field-level management practice implementation data to the regional water board shall be precedential statewide."	32
	Individual field-level data will support analyses to identify "effective and ineffective management practices."	32
Sediment and Erosion Control Practices	"The requirement for implementation of sediment and erosion control practices by growers with the potential to cause erosion and discharge sediment that may degrade surface waters shall be precedential for irrigated lands regulatory programs statewide..."	32
Irrigation Management	"The requirement for incorporation of irrigation management elements into nitrogen management planning shall be precedential for irrigated lands regulatory programs statewide."	35
	"The requirement for all growers to submit summary data from the plans shall be precedential statewide."	36
Nitrogen Applied and Nitrogen Removed Reporting	"The requirement for field-level AR data submission to the regional water board consistent with the data sets and analysis of those data sets described in this section shall be precedential for irrigated lands regulatory programs statewide."	51
	"The requirement for calculation of annual and multi-year [nitrogen applied] A / [nitrogen removed] R ratio and A-R difference parameters for each grower by field shall be precedential for irrigated lands regulatory programs statewide..."	40
Removal Coefficients	"The requirement for use of coefficients for conversion of yield to nitrogen removed values shall be precedential for irrigated lands regulatory programs statewide."	42
AR Outlier Follow Up	"The requirement for the third party to follow up with and provide training for AR data outliers and for identification of repeated outliers as set out above shall be precedential for irrigated lands regulatory programs statewide..."	53

Topic / Element	Precedential Language	Page No.
Exemption from Nutrient Management Requirements	“We recognize that there may be categories of uniquely-situated growers for whom the specific nitrogen management requirements made precedential in the following sections of this order are unnecessary because applied nitrogen is not expected to seep below the root zone in amounts that could impact groundwater and is further not expected to discharge to surface water. Any category of Members (such as growers of a particular crop or growers in a particular area) seeking to be exempted from the precedential nitrogen management requirements in the following sections of this order shall make a demonstration, for approval by the relevant regional water board, that nitrogen applied to the fields does not percolate below the root zone in an amount that could impact groundwater and does not migrate to surface water through discharges, including drainage, runoff, or sediment erosion. These criteria for determining categories of growers that may be exempted from the nitrogen management requirements shall also be precedential statewide.”	34-35
Recordkeeping	“This recordkeeping requirement [for third-party programs to maintain required reports and records for ten years and to back up certain information in a secure offsite location managed by an independent entity] shall be precedential statewide for all third-party irrigated lands regulatory programs.”	53
Drinking Water Well Sampling	“The requirement for on-farm drinking water supply well monitoring, in accordance with the provisions described above, shall be precedential for irrigated lands regulatory programs statewide.”	62
Groundwater Trend Monitoring	“The requirement for groundwater quality trend monitoring shall be precedential for irrigated lands regulatory programs statewide...”	64
Groundwater Protection Formula, Values and Targets	“The development of the Groundwater Protection Formula, Values, and Targets shall be precedential for the third parties that proposed the methodology. Even if the programs do not require [groundwater quality monitoring plans], all of the regional water boards shall apply this methodology or a similar methodology, designed to determine targets for nitrogen loading within high priority townships or other geographic areas, for the remaining irrigated lands regulatory programs in the state.”	66
	“The Groundwater Protection Formula, Values, and Targets are subject to Executive Officer approval following public review and comment.”	66

*Source: CCWB 2019a*

Generally, RWQCBs are afforded discretion in developing the specific form and frequency of submittals and specific documentation procedures pertaining to the topics/elements described in **Table 2-1**, but the general elements described in the precedential language are required to be included in irrigated lands regulatory programs.

### *Antidegradation Policy*

The Antidegradation Policy (SWRCB Resolution No. 68-16) requires that the RWQCBs maintain high quality waters of the state unless they determine that any authorized degradation is (a) consistent with maximum benefit to the people of the state, (b) will not unreasonably affect present and anticipated beneficial uses, and (c) will not result in water quality less than that prescribed in state and regional policies (CCWB 2019b). Agricultural Order 4.0 must be consistent with the Antidegradation Policy.

### *Total Maximum Daily Loads*

A TMDL is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. TMDLs are established in accordance with Section 303(d) of the federal CWA, which requires states to identify waters not attaining applicable water quality standards, establish a priority ranking for identified impaired waters, and establish the TMDL for priority-ranked impaired waters (CCWB 2019c).

CCWB and other RWQCBs in the state comply with Section 303(d) by periodically assessing the condition of rivers, lakes, and bays within their jurisdiction and identifying the waterbodies as “impaired” if they do not meet water quality standards. These waters, and the pollutant or condition causing the impairment, are placed on the 303(d) List of Impaired Waters, and ranked according to factors such as the severity of the problem, potential to restore beneficial uses, availability of data, etc. TMDLs are then developed based on a schedule that accounts for priority ranking, availability of resources, and other considerations (CCWB 2019c). Once adopted by CCWB and approved by SWRCB and Office of Administrative Law as appropriate, and the U.S. Environmental Protection Agency (USEPA), TMDLs establish:

1. an allowable amount of a pollutant to a waterbody;
2. proportional responsibility for controlling the pollutant;
3. numeric indicators of water quality; and
4. implementation to achieve the allowable amount of pollutant loading.

CCWB has established dozens of TMDLs for numerous pollutant and waterbody combinations within its jurisdiction. Refer to Figure 3.9-3 in Section 3.9, *Hydrology and Water Quality*, for a map of 303(d)-listed waterbody segments for target pollutants in the central coast region.

The Irrigated Lands Program is one of the mechanisms by which CCWB addresses TMDL pollutants. Where a TMDL provides that it will be implemented by the agricultural order, Agricultural Order 4.0 must be consistent with that TMDL.

## 2.3 Project Location

The Proposed Project would be implemented throughout CCWB's jurisdictional area, which is shown in Figure 2-1. The central coast region includes a wide diversity of landscapes, climatic conditions, and land use types. The region includes urban areas such as the Monterey Peninsula and the Santa Barbara coastal plain; prime agricultural lands such as the Salinas, Santa Maria, Pajaro, and Lompoc Valleys; National Forest lands; extremely wet areas like the Santa Cruz Mountains; and arid areas like the Carrizo Plain. Although Agricultural Order 4.0 would be in effect throughout the region, most management practices/activities that would occur as a result of the Order would be concentrated in areas of existing irrigated agricultural production (see Figure 2-1).



C:\Users\GIS\Documents\ArcGIS\PROJECTS\18016\_DGS\_AgOrder\mxd\Fig\_2-1\_ProjectArea.mxd 6/27/2018 PG

Basemap Sources: Esri, HERE, DeLorme, Intermap, increment P Corp.,

Central Coast Water Board Jurisdictional Boundary

Counties

### Land Use

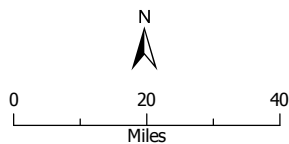
Prime Farmland

Farmland of Statewide Importance

Unique Farmland

Source: CDOC 2014; CDOC 2016

**Figure 2-1.**  
Proposed Project Area



Central Coast Water Board  
Agricultural Order 4.0  
Final Environmental Impact Report

## 2.4 Project Purpose & Objectives

The purpose of Agricultural Order 4.0 is to:

1. Protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan for commercial irrigated agricultural areas in the central coast region by:
  - a. Minimizing nitrate discharges to groundwater;
  - b. Minimizing nutrient discharges to surface water;
  - c. Minimizing toxicity in surface water from pesticide discharges;
  - d. Protecting ~~and restoring~~ riparian and wetland habitat, and
  - e. Minimizing sediment discharges to surface water.
2. Effectively track and quantify achievement of 1.a. through e. over a specific, defined time schedule.
3. Comply with the State Nonpoint Source Pollution Control Program, the State Antidegradation Policy, relevant court decisions such as those pertaining to Coastkeeper *et al* lawsuits, the precedential language in the Eastern San Joaquin Agricultural Order, and other relevant statutes and water quality plans and policies, including Total Maximum Daily Loads in the central coast region.

## 2.5 Current Requirements under Agricultural Order 3.0

All commercially irrigated acreage in the central coast region is required to be electronically enrolled in CCWB's system to obtain regulatory coverage under Agricultural Order 3.0 (i.e., existing conditions). Both operators and landowners are responsible for ensuring that their land is enrolled in the order and that the information reported in the electronic notice of intent (eNOI) is accurate and up-to-date. Annual permit fees apply to all ranches and are based on acres of irrigated land.

Once enrolled in the order, ranches are assigned a tier based on their relative threat to water quality, including proximity to impaired surface waterbodies, proximity to impaired public supply wells, specific chemical usage, crop types grown, and ranch size. Based on the tiering structure of Agricultural Order 3.0, Tier 1 ranches represent the lowest threat to water quality and, therefore, have fewer monitoring and reporting requirements than Tier 2 or Tier 3 ranches. Tier 3 ranches represent the highest threat to water quality and, therefore, have the most monitoring and reporting requirements.

All ranches are required to monitor groundwater of the primary irrigation well and all domestic wells located on enrolled parcels. Ranches have the option of joining a cooperative groundwater monitoring program to assist in their groundwater monitoring requirements or performing the monitoring individually. There are currently two groundwater monitoring cooperatives that ranches can join: the Santa Rosa Creek Valley cooperative that is specific to the Santa Rosa Creek groundwater basin, and the regionwide Central Coast Groundwater Coalition.

All ranches are also required to perform surface receiving water monitoring, which includes monitoring surface streams, rivers, and lakes for impacts from agricultural discharges. Ranches have the choice of joining a cooperative surface receiving water monitoring effort or performing the monitoring individually. The Cooperative Monitoring Program (CMP) performs regional surface receiving water monitoring on behalf of the majority of central coast ranches.

Tier 2 and Tier 3 ranches are required to submit an Annual Compliance Form (ACF) that provides more detailed information about irrigation, tile drain, and stormwater discharge, water containment structures, as well as management practices that they are implementing to manage their irrigation water, nutrients, pesticides, and sediment discharges. Ranches are required to assess the effectiveness of their management practices, implement improved or additional management practices as necessary, and report on the water quality-related outcomes of their management practice implementation. Tier 2 and 3 ranches with high risk crops<sup>4</sup> are required to submit an annual Total Nitrogen Applied Report Form. This report includes the total amount of nitrogen applied to their crops from all materials including fertilizer, compost, amendments, other nitrogen-containing materials, and irrigation water, as well as the nitrogen present in the soil.

Additional requirements apply to Tier 3 ranches depending on their site-specific characteristics. Some Tier 3 ranches are required to perform individual surface discharge monitoring, also known as edge-of-field monitoring. Some ranches are required to develop and implement an Irrigation and Nutrient Management Plan (INMP) and submit a report on the effectiveness of their plan at reducing nutrient loading to surface water and groundwater. Some ranches are also required to develop and implement a water quality buffer plan and submit an associated report on their plan.

As shown in **Table 2-2**, a total of 414,093 acres of irrigated farmland are enrolled under Agricultural Order 3.0, as reported in the eNOI. Of these total enrolled acres, 76 percent (314,904 acres) are reported on annually in the ACF. Note that Tier 1 ranches are not required to submit the ACF, however a number of these ranches have submitted the report.

**Table 2-2.** Summary of Agricultural Order 3.0 Enrollment Data, as of March 22, 2018.

Tier	Annual Compliance Form Required?	Active Irrigated Acres Reported in Annual Compliance Form	Active Irrigated Acres Reported in Electronic Notice of Intent	Percentage of Enrolled Acres Reporting
1	No	64,984	156,212	42%
2	Yes	230,692	238,070	97%
3	Yes	19,228	19,811	97%
<b>Totals:</b>		<b>314,904</b>	<b>414,093</b>	<b>76%</b>

Source: SWRCB 2018

<sup>4</sup> Crops that present a high risk for loading nitrate to groundwater are: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (Napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), spinach, strawberry, pepper (fruiting), and parsley.

## 2.6 Summary of the Proposed Agricultural Order 4.0

The proposed Agricultural Order 4.0 would establish WDRs through a general order and include requirements (specifically, phasing or prioritization, quantifiable milestones in the form of numeric targets and limits, time schedules to achieve numeric targets and limits, monitoring and reporting, and incentives) for five key areas that generally represent the target water quality conditions listed in Project Objectives 1.a through 1.e:

- Irrigation and Nutrient Management for Groundwater Protection
- Irrigation and Nutrient Management for Surface Water Protection
- Pesticide Management for Surface Water and Groundwater Protection
- Riparian Habitat Management for Water Quality Protection
- Sediment and Erosion Management for Surface Water Protection

Compared to Agricultural Order 3.0, Agricultural Order 4.0 would differ primarily in that it would outline specific quantifiable milestones (in many cases, these would be numeric targets and limits for discharges) and time schedules for when agricultural discharges will not cause exceedances of water quality objectives. Agricultural Order 3.0 generally does not require achievement of numeric targets and limits or time schedules, although a subset of Tier 3 ranches are subject to riparian habitat buffer numeric requirements under Agricultural Order 3.0. Agricultural Order 4.0 also would require some additional monitoring and reporting actions, such as providing additional information on nitrogen removed and follow-up receiving water monitoring for ranches in prioritized areas that exceed receiving water quality objectives. Agricultural Order 4.0 also would expand the monitoring and reporting requirements related to sediment and erosion management (e.g., proper sizing, design, and maintenance of sediment and erosion control measures), and require pesticide monitoring of drinking water supply wells for a subset of wells. ~~Agricultural Order 4.0 also would expand riparian setback requirements in priority areas.~~ As WDRs instead of a waiver of WDRs, Agricultural Order 4.0 would not be subject to a maximum duration of 5 years.

The proposed Agricultural Order 4.0 requirements are shown in Appendix A. The locations of the relevant components of Agricultural Order 4.0 in Appendix A, as they pertain to each of the five key areas, are shown in **Table 2-3**. Figure 2-2 shows the proposed groundwater phases and priority areas, while Figure 2-1 shows the proposed surface water priority areas. **Table 2-4** shows the additional requirements that would be included under Agricultural Order 4.0, as compared to Agricultural Order 3.0.



**Table 2-3.** Location of Requirements in Proposed Agricultural Order 4.0 (Appendix A)

<b>Irrigation and Nutrient Management for Groundwater Protection</b>		
	<b><u>Ag Order 4.0 – Updated Option from March/May 2019</u></b>	<b>Location in Order</b>
<b>Phasing or Prioritization</b>	<b><u>Phasing</u></b>	Order Part 21, Section C.1B. <del>Phasing and Prioritization</del> <u>Groundwater Protection – Phasing</u> Order Table C.1-1 <u>Groundwater Phase Areas</u>
<b>Quantifiable Milestones* (Numeric Limits)</b>	<b><u>Discharge Targets and Limit</u></b>	<b><u>Discharge Targets and Discharge Limits</u></b> Order Part 2, Section C.1. <u>Groundwater Protection – Quantifiable Milestones and Time Schedules – Nitrogen Discharge Targets and Limits</u>
	<b><u>Application Limits</u></b>	<b><u>Application Limits</u></b> Order Part 2, Section C.1. <u>Groundwater Protection – Quantifiable Milestones and Time Schedules – Fertilizer Nitrogen Application Limits</u>
	<b><u>Third-Party Alternative Compliance Pathway</u></b>	<b><u>Application Targets</u></b> Order Part 2, Section C.2. <u>Third-Party Alternative Compliance Pathway for Groundwater Protection</u>  <b><u>Discharge Targets</u></b> Order Part 2, Section C.2. <u>Third-Party Alternative Compliance Pathway for Groundwater Protection</u>  <b><u>Groundwater Protection Targets</u></b> Order Part 2, Section C.2. <u>Third-Party Alternative Compliance Pathway for Groundwater Protection</u>

Irrigation and Nutrient Management for Groundwater Protection		
	<b><u>Ag Order 4.0 – Updated Option from March/May 2019</u></b>	<b>Location in Order</b>
<b>Time Schedule*</b>	<p><b><u>Discharge Target (lbs/ac/ranch/year)</u></b>  <math>A_{FER} + A_{IRR} - R</math>  <b>OR</b> <math>A_{FER} = R</math></p> <p><b><u>Discharge Limit (lbs/ac/ranch/year)</u></b>  <math>A_{FER} + A_{IRR} - R</math>  <b>OR</b> <math>A_{FER} = R</math></p> <p><b><u>Application Limit</u></b></p>	<p><b><u>Discharge Target</u></b>  Order Part 2, Section C.1. <u>Groundwater Protection – Quantifiable Milestones and Time Schedules</u>  Order Table C.1-23 <u>Compliance Dates</u><del>Time Schedule</del> for Nitrogen Discharge Targets and Limits</p> <p><b><u>Discharge Limit</u></b>  Order Part 2, Section C.1. <u>Groundwater Protection – Quantifiable Milestones and Time Schedules</u>  Order Table C.1-23 <u>Compliance Dates</u><del>Time Schedule</del> for Nitrogen Discharge Targets and Limits</p> <p><b><u>Application Limit</u></b>  Order Part 2, Section C.1. <u>Groundwater Protection – Quantifiable Milestones and Time Schedules</u>  Order Table C.1-24 <u>Compliance Dates</u><del>Time Schedule</del> for Fertilizer Nitrogen Application Limits</p>
<b>Monitoring and Reporting*</b>	<p><b><u>Irrigation &amp; Nutrient Management Plan Summary</u></b>  <i>Total Nitrogen Applied (TNA)</i></p> <p><b><u>Nitrogen Removal</u></b></p>	<p><b><u>Irrigation &amp; Nutrient Management Plan Summary</u></b>  <b><u>Total Nitrogen Applied (TNA)</u></b>  Order Part 2, Section C.1. <u>Groundwater Protection – Monitoring and Reporting - ACF, TNA, and INMP Summary</u>  MRP Section B. <del>Total Nitrogen Applied (TNA)</del> and Section C <u>Irrigation and Nutrient Management Plan (INMP) Monitoring and Reporting Requirements – Nitrogen Applied</u></p> <p><b><u>Nitrogen Removal</u></b>  Order Part 2, Section C.1. <u>Groundwater Protection – Monitoring and Reporting – ACF, TNA, and INMP Summary</u>  MRP Section <del>C</del> <u>B. Irrigation and Nutrient Management Plan (INMP) Monitoring and Reporting Requirements – Nitrogen Removed</u></p>

Irrigation and Nutrient Management for Groundwater Protection		
	<b><u>Ag Order 4.0 – Updated Option from March/May 2019</u></b>	<b>Location in Order</b>
	<i>Irrigation</i>	<b><i>Irrigation</i></b> Order Part 2, Section C.1. <u>Groundwater Protection – Monitoring and Reporting – ACF, TNA, and INMP Summary</u> MRP Section B. <del>Total Nitrogen Applied (TNA)</del> , MRP Section C. <u>Irrigation and Nutrient Management Plan (INMP) Monitoring and Reporting Requirements - Irrigation Water</u> , and MRP Section D. <u>Groundwater Monitoring and Reporting – Irrigation Wells Prior to the Start of Trend Monitoring</u>
	<i>Management Practices</i>	<b><i>Management Practices</i></b> Order Part 2, Section C.1. <u>Groundwater Protection – Irrigation and Nutrient Management Plan for Groundwater Protection</u> MRP Section F. <u>Annual Compliance Form (ACF)</u>
	<b><u>Individual Ranch-Level Groundwater Discharge to Groundwater</u></b> <i>Discharge volume and concentration</i>	<b><u>Ranch-Level Groundwater Individual Discharge to Groundwater</u></b> Order Part 2, Section C.1. <u>Groundwater Protection – Monitoring and Reporting – ACF, TNA, and INMP Summary</u> MRP Section D. <u>Groundwater Monitoring and Reporting – Ranch-Level Groundwater Discharge</u>
	<b><u>Drinking Water Supply Well</u></b>	<b><u>Drinking Water Supply Well</u></b> Order Part 2, Section C.1. <u>Groundwater Protection – Monitoring and Reporting – Groundwater Monitoring and Reporting</u> MRP, Section C. <u>Groundwater Monitoring and Reporting – On-Farm Domestic Wells</u>
	<b><u>Groundwater Quality Trends</u></b>	<b><u>Groundwater Quality Trends</u></b> Order Part 2, Section C.1. <u>Groundwater Protection – Monitoring and Reporting – Groundwater Monitoring and Reporting</u> MRP Section C. <u>Groundwater Monitoring and Reporting – Groundwater Quality Trends</u>

Irrigation and Nutrient Management for Groundwater Protection		
	<b>Ag Order 4.0 – Updated Option from March/May 2019</b>	<b>Location in Order</b>
<b>Incentives</b>	<ul style="list-style-type: none"> <li>- Pump &amp; fertilize</li> <li>- Compost nitrogen</li> <li>- Increasing nitrogen removal</li> <li>- Third-party programs</li> <li>- <u>Third-party Alternative Compliance Pathway</u></li> </ul>	<p><i>Pump &amp; fertilize, compost, and increasing nitrogen removal</i></p> <p>Order Part 2, Section C.1. <u>Groundwater Protection – Quantifiable Milestones and Time Schedules – Nitrogen Discharge Targets and Limits</u></p> <p>MRP Section B. <u>Total Nitrogen Applied (TNA) and Section C Irrigation and Nutrient Management Plan (INMP) Monitoring and Reporting Requirements</u></p> <p><u>Third-party programs</u></p> <p>Order Part 2, Section C.1. <u>Irrigation and Nutrient Management for Groundwater Protection – Nitrogen Discharge Targets and Limits</u></p> <p>Order Part 2, Section C.2. <u>Third-Party Cooperative Alternative Compliance Pathway for Groundwater Protection and Trend Monitoring</u></p> <p>MRP Section D. <u>Third-Party Cooperative Alternative Compliance Pathway for Groundwater Protection and Trend Monitoring</u></p> <p>Order Part 2, Section F. <u>Third Parties</u></p>
<b>Definitions</b>	<ul style="list-style-type: none"> <li>- <math>A_{FER}</math> is the amount of nitrogen applied in fertilizers, compost, and other amendments</li> <li>- <math>A_{IRR}</math> is the amount of nitrogen applied through the irrigation water based on the groundwater nitrate concentration</li> <li>- <math>A_{FER} + A_{IRR}</math> = the total amount of nitrogen applied</li> <li>- <math>R</math> is the amount of nitrogen removed through harvest, pruning, or other methods, plus nitrogen sequestered in permanent/semi-permanent crops</li> </ul> <p>* Required elements; other elements are included because they can help improve the effectiveness of the Order</p>	

Irrigation and Nutrient Management for Surface Water Protection		
	<b>Ag Order 4.0 - Updated Option</b>	<b>Location in Order</b>
<b>Phasing or Prioritization</b>	<u><b>Prioritization</b></u>	<p>Order Part 21, Section C.3B. <u>Surface Water Protection – Priority Areas</u></p> <p><u>Order Table C.3-1. Surface Water Priority Areas</u></p>

Irrigation and Nutrient Management for Surface Water Protection		
	Ag Order 4.0 - Updated Option	Location in Order
<b>Quantifiable Milestones* (Numeric Limits)</b>	<u>Receiving Water Limit and Discharge Limit</u> <i>Nitrate, as N; Ammonia (un-ionized), Orthophosphate, as P</i> <u>Application Limit</u>	<u>Receiving Water Limit and Discharge Limit</u> Order Part 2, Section C.23. <i>Surface Water Protection – Quantifiable Milestones and Time Schedules-</i> <u>Application Limit</u> Order Part 2, Section C.1. <i>Groundwater Protection – Fertilizer Nitrogen Application Limits</i>
<b>Time Schedule*</b>	<u>Receiving Water Limit and Discharge Limit</u> TMDL Areas Other Areas	<u>Receiving Water Limit and Discharge Limit (TMDL and Other Areas)</u> Order Part 2, Section C.32. <i>Surface Water Protection – Quantifiable Milestones and Time Schedules</i> Order Table C.32-12. <i>Time Schedule Compliance Dates for Nutrient Limits (TMDL areas)</i> Order Table C.32-32. <i>Time Schedule Compliance Dates for Nutrient Limits (Non-TMDL areas)</i>
<b>Monitoring and Reporting*</b>	<u>Irrigation Nutrient Management Plan &amp; Report</u> <i>Discharge characteristics, management practices</i>	<u>Irrigation Nutrient Management Plan &amp; Report</u> Order Part 2, Section C.23. <i>Surface Water Protection – Irrigation and Nutrient Management for Surface Water Protection</i> MRP Section B. <i>Total Nitrogen Applied (TNA) and Section C Irrigation and Nutrient Management Monitoring and Reporting Requirements Plan (INMP)</i> MRP Section F. <i>Annual Compliance Form</i>
	<u>Surface Receiving Water Quality Trends</u>	<u>Surface Water Quality Trends</u> Order Part 2, Section C.23. <i>Surface Water Protection – Monitoring and Reporting</i> MRP Section E. <i>Surface Water Monitoring and Reporting – Surface Receiving Water Quality Trends</i>

Irrigation and Nutrient Management for Surface Water Protection		
	Ag Order 4.0 - Updated Option	Location in Order
	<p><b><u>Follow-Up Surface Receiving Water Monitoring Implementation Work Plan</u></b></p> <p><b><u>Individual Ranch-Level Surface Discharge to Surface Water</u></b></p> <p><i>Discharge flow rate and volume, discharge nutrient concentrations</i></p>	<p><b><u>Follow-Up Surface Receiving Water Monitoring Implementation Work Plan</u></b></p> <p>Order Part 2, Section C.23. <u>Surface Water Protection – Monitoring and Reporting</u></p> <p>MRP Section E. <u>Surface Water Monitoring and Reporting – Follow-Up Surface Receiving Water</u></p> <p><b><u>Individual Ranch-Level Surface Discharge to Surface Water</u></b></p> <p>Order Part 2, Section C.23. <u>Surface Water Protection – Monitoring and Reporting</u></p> <p>MRP Section E. <u>Surface Water Monitoring and Reporting – Ranch-Level Surface Discharge</u></p>
<b>Incentives</b>	<i>Third-party programs</i>	<p><i>Third-party programs</i></p> <p>Order Part 2, Section C.32. <u>Surface Water Protection – Monitoring and Reporting</u></p> <p>Order Part 2, Section F. <u>Third Parties</u></p> <p>MRP Section E. <u>Follow-up Receiving Water; Ranch-Level Surface Discharge</u></p> <p><u>Surface Water Monitoring and Reporting</u></p>
<b>Definitions</b>	* Required elements; other elements are included because they can help improve the effectiveness of the Order	

Pesticide Management for Surface Water Protection		
	Ag Order 4.0 - Updated Option	Location in Order
Phasing or Prioritization	<b><u>Prioritization</u></b>	Order Part 24, Section BC.3. <u>Surface Water Protection – Priority Areas</u> <del>Phasing and Prioritization</del> Order Table C.3-1. <u>Surface Water Priority Areas</u>
Quantifiable Milestones* (Numeric Limits)	<b><u>Receiving Water Limit and Discharge Limit</u></b> <i>Pesticide concentrations, toxicity tests, and toxic units</i>	<b><u>Receiving Water Limit and Discharge Limit</u></b> Order Part 2, Section C.3. <u>Surface Water Protection – Quantifiable Milestones and Time Schedules</u>
Time Schedule*	<b><u>Receiving Water Limit and Discharge Limit</u></b> <u>TMDL Areas</u> <u>Other Areas</u>	<b><u>Receiving Water Limit and Discharge Limit</u></b> Order Part 2, Section C.3. <u>Surface Water Protection – Quantifiable Milestones and Time Schedules</u> Order Table C.3-14. <del>Time Schedule</del> <u>Compliance Dates for Pesticide and Toxicity Limits (TMDL areas)</u> Order Table C.3-25. <del>Time Schedule</del> <u>Compliance Dates for Pesticide and Toxicity Limits (Non-TMDL areas)</u>
Monitoring and Reporting*	<b><u>Pesticide Management Plan &amp; Report</u></b> <i>Application characteristics, discharge characteristics, management practices</i>  <b><u>Surface Receiving Water Quality Trends</u></b>   <b><u>Follow-Up Surface Receiving Water Monitoring Implementation Work Plan</u></b>	<b><u>Pesticide Management Plan &amp; Report</u></b> Order Part 2, Section C.32. <u>Surface Water Protection – Pesticide Management for Surface Water Protection</u> MRP Section F. <i>Annual Compliance Form</i>  <b><u>Surface Receiving Water Quality Trends</u></b> Order Part 2, Section C.23. <u>Surface Water Protection – Monitoring and Reporting</u> MRP Section E. <u>Surface Water Monitoring and Reporting – Surface Receiving Water Quality Trends</u>  <b><u>Follow-Up Surface Receiving Water Monitoring Implementation Work Plan</u></b> Order Part 2, Section C.32. <u>Surface Water Protection – Monitoring and Reporting</u>

	<p><b><u>Individual Ranch-Level Surface Discharge to Surface Water</u></b></p> <p><i>Discharge flow rate and volume, discharge pesticide concentrations, discharge toxicity</i></p> <p><b><u>Drinking Water Supply Well</u></b></p>	<p>MRP Section E. <u>Surface Water Monitoring and Reporting – Follow-Up Surface Receiving Water</u></p> <p><b><u>Individual Ranch-Level Surface Discharge to Surface Water</u></b></p> <p>Order Part 2, Section C.32. <u>Surface Water Protection – Monitoring and Reporting</u></p> <p>MRP Section E. <u>Surface Water Monitoring and Reporting – Ranch-Level Surface Discharge</u></p> <p><b><u>Drinking Water Supply Well</u></b></p> <p>Order Part 2, Section C.1. <u>Groundwater Protection – Monitoring and Reporting – Groundwater Monitoring and Reporting</u></p>
<b>Incentives</b>	<i>Third-party programs</i>	<p><i>Third-party programs</i></p> <p>Order Part 2, Section C.3. <u>Surface Water Protection – Monitoring and Reporting</u></p> <p>Order Part 2, Section F. <u>Third Parties</u></p> <p>MRP Section E. <u>Surface Water Monitoring and Reporting Follow-up Receiving Water; Ranch-Level Surface Discharge</u></p>
<b>Definitions</b>	<i>* Required elements; other elements are included because they can help improve the effectiveness of the Order</i>	

<b>Sediment and Erosion Management for Surface Water Protection</b>		
	<b>Ag Order 4.0 - Updated Option</b>	<b>Location in Order</b>
<b>Phasing or Prioritization</b>	<b><u>Prioritization</u></b>	<p>Order Part 21, Section C.3B. <u>Surface Water Protection – Priority Areas</u></p> <p><i>Phasing and Prioritization</i></p> <p>Order Table C.3-1. <u>Surface Water Priority Areas</u></p>
<b>Quantifiable Milestones* (Numeric Limits)</b>	<p><b><u>Receiving Water Limits and Discharge Limits</u></b></p> <p><i>Turbidity</i></p> <p><i>Impermeable surfaces</i></p>	<p><b><u>Receiving Water Limit and Discharge Limit</u></b></p> <p>Order Part 2, Section C.34. <u>Surface Water Protection – Quantifiable Milestones and Time Schedules</u></p> <p>Order Part 2, Section C.34. <u>Surface Water Protection – Sediment and Erosion Management – Impermeable Surfaces</u></p>

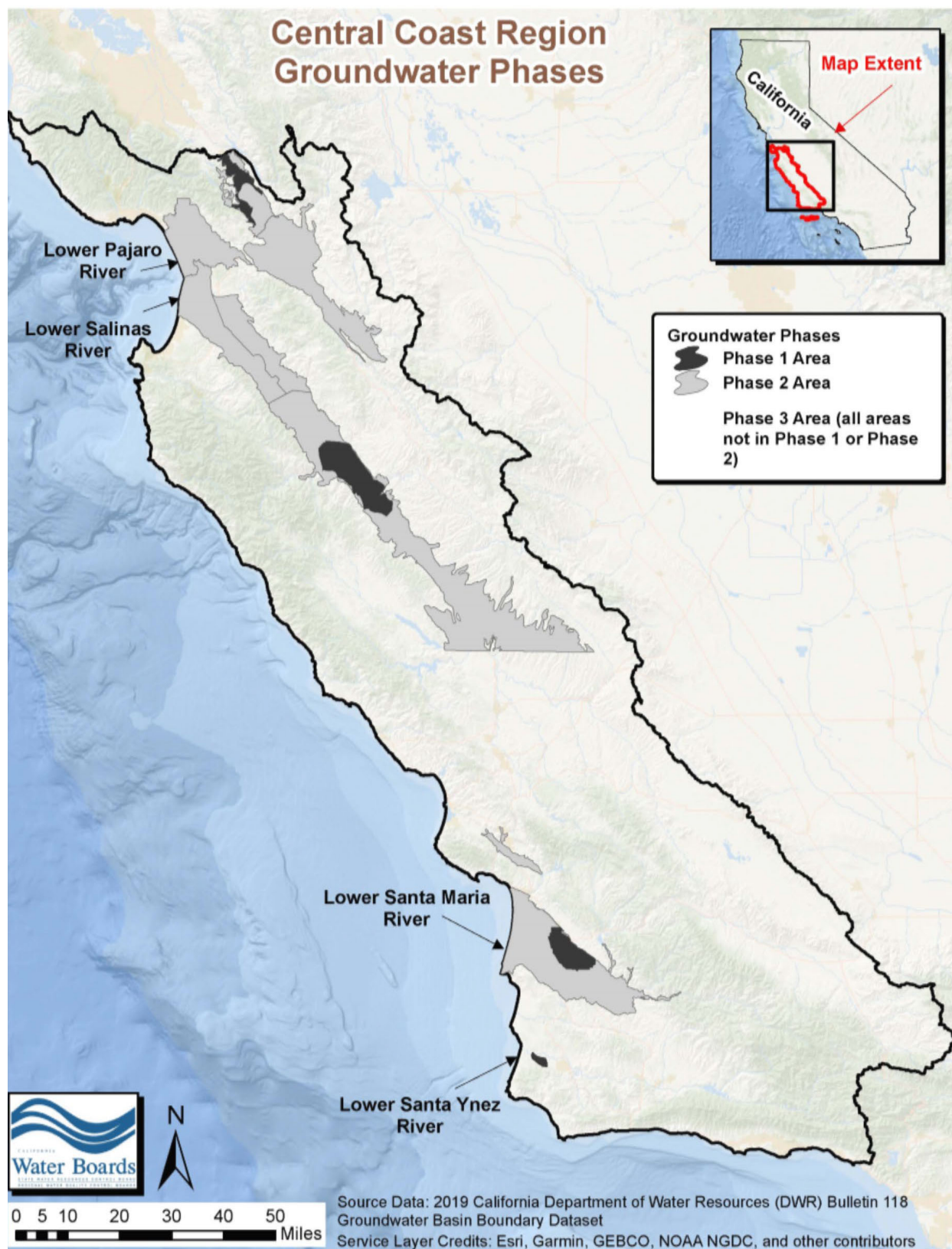


Sediment and Erosion Management for Surface Water Protection		
	Ag Order 4.0 - Updated Option	Location in Order
Time Schedule*	<u>Receiving Water Limit and Discharge Limit</u> TMDL Areas Other Areas	<u>Receiving Water Limit and Discharge Limit</u> Order Part 2, Section C.34. <u>Surface Water Protection – Quantifiable Milestones and Time Schedules</u> Order Table C.34-6.1 <u>Time Schedule Compliance Dates for Sediment Turbidity Limits (TMDL areas)</u> Order Table C.34-7.2 <u>Time Schedule Compliance Dates for Turbidity Limits (Non-TMDL areas)</u>
Monitoring and Reporting*	<u>Sediment &amp; Erosion Management Plan</u> <i>Discharge characteristics, management practices, stormwater management, sizing and design of control measures</i> <u>Surface Receiving Water Quality Trends</u>	<u>Sediment &amp; Erosion Management Plan</u> Order Part 2, Section C.32. <u>Surface Water Protection – Sediment and Erosion Management for Surface Water Protection</u> MRP Section F. <u>Annual Compliance Form</u> <u>Surface Receiving Water Quality Trends</u> Order Part 2, Section C.32. <u>Surface Water Protection – Monitoring and Reporting</u> MRP Section E. <u>Surface Water Monitoring and Reporting – Surface Receiving Water Quality Trends</u>
	<u>Follow-Up Surface Receiving Water Monitoring Implementation Work Plan</u>  <u>Individual Ranch-Level Surface Discharge to Surface Water</u> Discharge flow rate and volume, discharge turbidity	<u>Follow-Up Surface Receiving Water Monitoring Implementation Work Plan</u> Order Part 2, Section C.23. <u>Surface Water Protection – Monitoring and Reporting</u> MRP Section E. <u>Surface Water Monitoring and Reporting – Follow-Up Surface Receiving Water</u> <u>Ranch-Level Surface Individual Discharge to Surface Water</u> Order Part 2, Section C.32. <u>Surface Water Protection – Monitoring and Reporting</u> MRP Section E. <u>Surface Water Monitoring and Reporting – Ranch-Level Surface Discharge</u>

Sediment and Erosion Management for Surface Water Protection		
	Ag Order 4.0 - Updated Option	Location in Order
Incentives	<del>Third-parties-party programs</del>	<del>Third-parties-party programs</del> Order Part 2, Section C.34. <u>Surface Water Protection – Monitoring and Reporting</u> Order Part 2, Section F. <u>Third Parties</u> MRP Section E. <u>Surface Water Monitoring and Reporting</u> <del>Follow-up Receiving Water; Ranch-Level Surface Discharge</del>
Definitions	<p>- Impermeable surfaces include <u>plastic-covered surfaces that do not allow fluid to pass through</u>, <del>materials</del> such as plastic mulch and hoop houses; here, impermeable surfaces do not refer to soils</p> <p>* Required elements; other elements are included because they can help improve the effectiveness of the Order</p>	

Riparian Area Management for Water Quality Protection		
	Ag Order 4.0 – Updated Option	Location in Order
Phasing or Prioritization	<u>Prioritization</u>	Order Part 1, Section B. <del>Phasing and Prioritization</del> <u>n/a</u>
Quantifiable Milestones* (Numeric Limits)	<del><u>Setback Width and Native Vegetative Cover</u></del> <i>Priority Areas</i>	<del><u>Setback Width and Vegetative Cover</u></del> Order Part 2, Section C.5. <del>Quantifiable Milestones, Time Schedules, and Monitoring and Reporting for Ranches in <u>Riparian Priority Areas</u> (four compliance pathways available)</del> Order Table C.5-1, Table C.5-2
	<i>Non-Priority Areas</i>  <u>Prohibition</u> Removal or degradation of riparian vegetation is <u>prohibited</u> .	Order Part 2, Section C.5. <del>Quantifiable Milestones, Time Schedules, and Monitoring and Reporting for Ranches in <u>All Areas</u></del> <u>Additional Requirements and Prohibitions, Waste Discharge Control Prohibitions, and Additional Requirements</u>

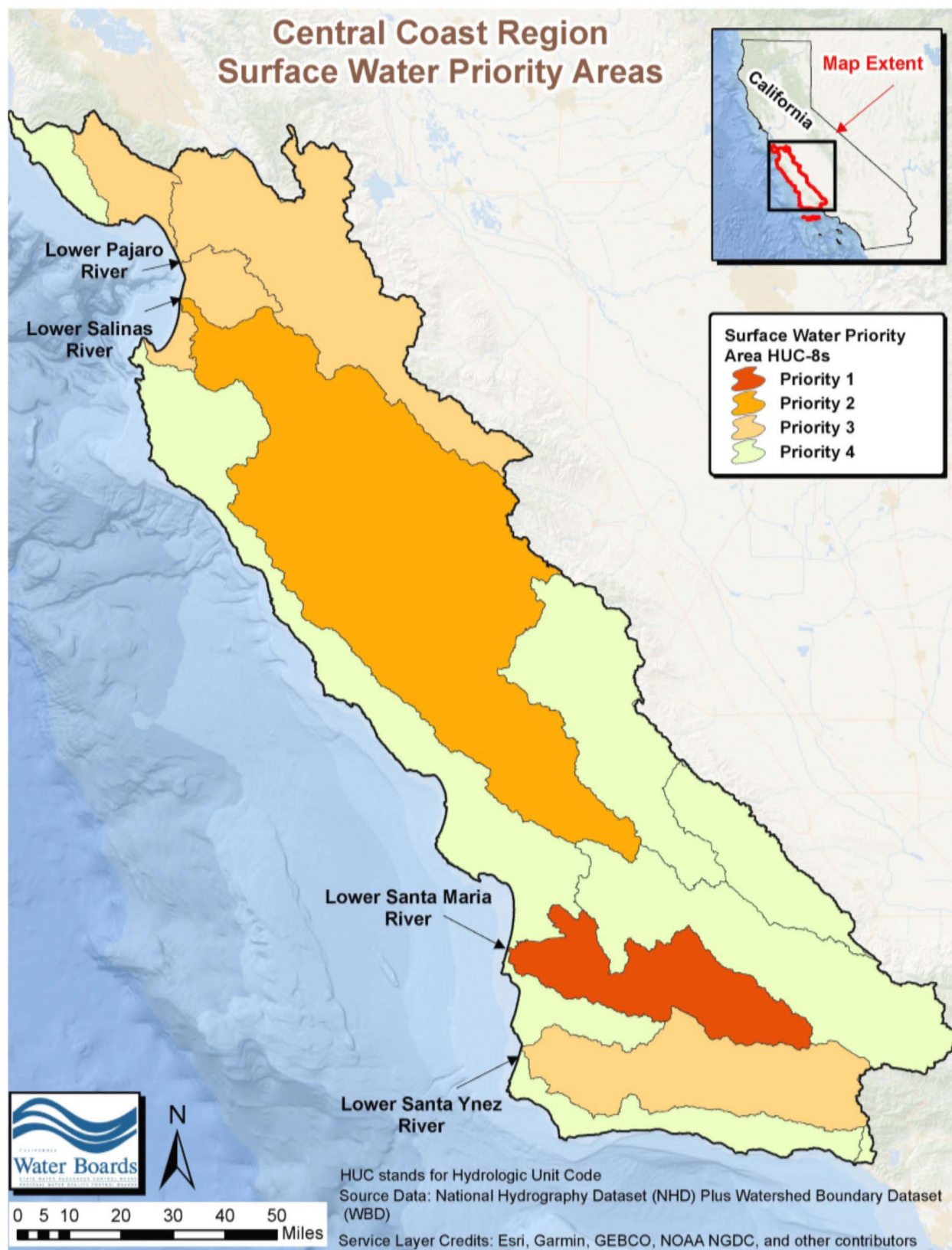
<b>Time Schedule*</b>	<p><b><u>Setback Width and Native Vegetative Cover Establishment</u></b>  <i>Priority Areas</i></p> <p><i>n/a</i></p> <p><b><u>Setback Width Establishment</u></b>  <i>Non-Priority Areas</i></p>	<p><b><u>Setback Width and Native Vegetative Cover Establishment</u></b>  Order Part 2, Section C.5. <i>Quantifiable Milestones, Time Schedules, and Monitoring and Reporting for Ranches in Riparian Priority Areas</i> (four compliance pathways available)  MRP Section F. <i>Annual Compliance Form</i></p> <p><b><u>Setback Width Establishment</u></b>  Order Part 2, Section C.5. <i>Quantifiable Milestones, Time Schedules, and Monitoring and Reporting for Ranches in All Areas</i></p>
<b>Monitoring and Reporting*</b>	<p><b><u>Riparian Management Reporting</u></b>  <i>Individual Approaches</i>  <i>Cooperative Approach</i>  <i>Measure and report current riparian area</i></p> <p><b><u>Surface Water Quality Trends</u></b>  <i>Bioassessment</i></p>	<p><b><u>Riparian Management Reporting</u></b>  Order Part 2, Section C.35. <i>Surface Water Protection, Monitoring and Reporting</i>  <del>Quantifiable Milestones, Time Schedules, and Monitoring and Reporting for Ranches in Riparian Priority Areas</del> (four compliance pathways available)  MRP, Section F. <i>Annual Compliance Form (ACF)</i> success criteria tables</p> <p><b><u>Surface Water Quality Trends</u></b>  MRP Section E. <i>Surface Water Quality Trends</i></p>
<b>Incentives</b>	<i>Cooperative Approach</i> <i>n/a</i>	Order Part 2, Section C.5. <del>Four compliance pathways available, including Cooperative Approach</del> <i>n/a</i>
<b>Definitions</b>	<p>- <i>Riparian is defined as vegetation, habitat, or ecosystems that are associated with bodies of water (creeks, streams, or lakes) or are dependent on the existence of perennial, intermittent, or ephemeral surface or subsurface water drainage</i></p> <p>* <i>Required elements; other elements are included because they can help improve the effectiveness of the Order</i></p>	



Source: CCWB 2021

**Figure 2-2.** Agricultural Order 4.0 Groundwater Phase Areas





Source: CCWB 2021

**Figure 2-3.** Agricultural Order 4.0 Surface Water Priority Areas

Prepared by:



Central Coast Water Board  
Agricultural Order  
Final Environmental Impact Report

**Table 2-4.** Primary New or Expanded Requirements under Agricultural Order 4.0 as Compared to Agricultural Order 3.0

<b>New or Expanded Requirement in Agricultural Order 4.0</b>	<b>Relevant Existing Requirement in Agricultural Order 3.0</b>
<ul style="list-style-type: none"> <li>All enrollees must implement management practices and submit an Annual Compliance Form (ACF) describing the management practices. All enrollees must comply with application <u>targets and</u> limits, discharge <u>targets and</u> limits, and receiving water limits, in accordance with time schedules, to prevent discharges of waste from causing or contributing to the exceedance of water quality objectives or the loss or degradation of beneficial uses.</li> </ul>	<ul style="list-style-type: none"> <li>Tier 2 and 3 enrollees must submit an ACF describing management practices they are implementing. All enrollees are required to implement improved or additional management practices as necessary to prevent discharges of waste from causing or contributing to the exceedance of water quality objectives or the loss or degradation of beneficial uses; however, there are no application limits, discharge limits, receiving water limits, or time schedules in Agricultural Order 3.0.</li> </ul>
<ul style="list-style-type: none"> <li><del>All enrollees with waterbodies on or adjacent to the ranch must establish an operational setback (1.5 times the width of the waterbody). Ranches in prioritized areas with waterbodies on or adjacent to the ranch must establish a more robust riparian setback following one of four compliance pathways (the on-farm setback compliance pathway requires riparian setbacks ranging from 50 to 250 feet, depending on the waterbody).</del></li> </ul>	<ul style="list-style-type: none"> <li><del>A subset of Tier 3 enrollees must implement a 30-foot riparian buffer or the functional equivalent.</del></li> </ul>
<ul style="list-style-type: none"> <li>All enrollees must submit an INMP, Summary report, which includes monitoring and reporting of nitrogen applied/removed, crop evapotranspiration, and irrigation discharge to surface water and groundwater.</li> </ul>	<ul style="list-style-type: none"> <li>A subset of Tier 3 enrollees must submit an INMP Effectiveness Report, including monitoring and reporting of nitrogen applied/removed and crop nitrogen uptake.</li> </ul>
<ul style="list-style-type: none"> <li>Enrollees whose ranches exceed the numeric discharge limits per the time schedule for groundwater protection may be required to perform ranch-level groundwater discharge monitoring, including monitoring of irrigation discharge to groundwater nitrate concentration and irrigation discharge to groundwater volume.</li> </ul>	<ul style="list-style-type: none"> <li>There are no discharge limits or time schedules for groundwater discharges and ranch-level discharge to groundwater monitoring and reporting is not required.</li> </ul>

<b>New or Expanded Requirement in Agricultural Order 4.0</b>	<b>Relevant Existing Requirement in Agricultural Order 3.0</b>
<ul style="list-style-type: none"> <li>All irrigation wells and all domestic wells on enrolled parcels must be monitored annually.</li> </ul>	<ul style="list-style-type: none"> <li>The primary irrigation well and all domestic wells on enrolled parcels must be monitored twice during the term of Agricultural Order 3.0.</li> </ul>
<ul style="list-style-type: none"> <li>All enrollees ranches are required to conduct groundwater quality trend monitoring, either individually or through a <del>cooperative</del> <u>third-party</u> program.</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater quality trend monitoring and reporting is not required.</li> </ul>
<ul style="list-style-type: none"> <li>Enrollees have the option of becoming <u>a member in the third-party alternative compliance pathway to develop a workplan that identifies groundwater protection areas, formulas, values, targets, and a groundwater effectiveness evaluation.</u></li> </ul>	<ul style="list-style-type: none"> <li><u>Groundwater protection areas, formulas, values, targets, or a groundwater effectiveness evaluation is not required.</u></li> </ul>
<ul style="list-style-type: none"> <li>A Follow-up surface receiving water work plan (individual or <del>cooperative</del> <u>third-party</u>) may be required for ranches in prioritized areas that exceed the numeric limits for surface water protection.</li> </ul>	<ul style="list-style-type: none"> <li>Follow-up surface receiving water monitoring is not required.</li> </ul>
<ul style="list-style-type: none"> <li>Enrollees in areas that exceed the numeric surface receiving water limits for surface water protection may be required to perform ranch-level surface discharge monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>A subset of Tier 3 enrollees must perform ranch-level surface discharge monitoring and reporting.</li> </ul>
<ul style="list-style-type: none"> <li><del>* Enrollees whose ranches have impermeable surfaces during winter on slopes greater than 5 percent must have a Sediment &amp; Erosion Management Plan designed by a qualified professional.</del></li> </ul>	<ul style="list-style-type: none"> <li><del>* No such requirement in Agricultural Order 3.0.</del></li> </ul>

**Note:** Some requirements, including surface receiving water trend monitoring and development of a Farm Plan that includes sections on irrigation, nutrient, pesticide, sediment, erosion, stormwater, and aquatic habitat management, were required through Agricultural Order 3.0 and therefore are not new or expanded requirements in Agricultural Order 4.0 shown in this table.

## 2.7 Activities that Could Occur Under Agricultural Order 4.0

Similar to Agricultural Order 3.0, Agricultural Order 4.0 would not specify or prescribe specific management practices that ranches must undertake to reduce discharges. Rather, the Order would require that ranches achieve the numeric limits or other quantifiable milestones in accordance with the time schedules, and implement the monitoring and reporting

requirements. Growers would have the flexibility to implement the management practices that are most suitable for their specific situation or otherwise choose how they would comply with the Order.

As such, for the purposes of this EIR, it is impossible to know precisely which growers may implement which type of management practices in which locations pursuant to Agricultural Order 4.0. Nevertheless, the reported management practices that have been implemented pursuant to Agricultural Order 3.0, as well as general agricultural management practices described in the literature, offer a good indication of the reasonably foreseeable types of management practices that may be implemented under Agricultural Order 4.0.

### **2.7.1 Management Practices Currently Being Implemented Under Agricultural Order 3.0**

Information regarding management practices that are currently being implemented under Agricultural Order 3.0 is found in ACF reporting by Tier 2 and 3 ranches. Although not required, some Tier 1 ranches also choose to report their management practices via the ACF. **Table 2-8** show management practices and monitoring actions currently implemented pursuant to Agricultural Order 3.0 for addressing nutrients, irrigation, pesticides, and sediment, as reported by growers. Information in **Table 2-5** through **Table 2-8** represents data available as of March 22, 2018.



Table 2-5. Management Practices and Monitoring Actions to Address Nutrients

Management Practice / Monitoring Action (March 2018)	Irrigated Acres				
	Tier 1 n: 64,984	Tier 2 n: 230,692	Tier 3 n: 19,228	Total Reporting n: 314,814	Percentage of Total Reporting
<b>Implementation</b>					
Evaluated how much fertilizer crop needs and timing of application.	60,095	211,864	16,435	288,394	92%
Scheduled fertilizer applications to match crop requirements.	56,611	205,198	19,226	281,035	89%
Measured nitrogen concentration in irrigation water and adjusted fertilizer nitrogen applications accordingly.	30,214	120,352	10,112	160,678	51%
Measured soil nitrate or soil solution nitrate and adjusted fertilizer nitrogen applications accordingly.	35,039	153,419	11,225	199,683	63%
Used precision techniques to place fertilizer in the root zone, to ensure crop uptake, with minimal runoff and deep percolation (e.g., fertigation).	43,546	180,038	18,695	242,279	77%
Measured nitrogen in plant tissue and adjusted fertilizer nitrogen applications.	46,777	76,141	5,370	128,289	41%
Measured phosphorous in soil and adjusted fertilizer phosphorous applications.	30,482	138,596	14,514	183,591	58%
Measured nitrogen and phosphorous content of applied manures and other organic amendments.	23,379	64,878	6,402	94,659	30%
Mixed and loaded fertilizers on low runoff hazard sites (e.g., away from creeks and wells).	37,874	181,289	18,090	237,253	75%
Used urease inhibitors and/or nitrification inhibitors.	1,618	10,871	4,679	17,168	5%
Modified crop rotation to use beneficial cover crops, deep rooted species, or perennials to utilize nitrogen.	16,466	118,644	10,740	145,850	46%
Used treatment systems to remove nitrogen from irrigation runoff or drainage water (e.g., wood and chip bioreactor).	667	2,069	661	3,397	1%
<b>Assessment</b>					
Compared amount of nitrogen applied in fertilizer and in irrigation water to crop need.	41,006	136,913	11,248	189,167	60%
Measured nitrate concentration below the root zone.	9,256	52,948	2,854	65,058	21%
Measured nitrate concentration in irrigation runoff.	352	2,856	1,617	4,825	2%
Estimated/measured nitrate load in irrigation runoff.	310	4,363	701	5,374	2%
Measured nitrate concentration in surface receiving water.	3,536	7,107	583	11,226	4%
Estimated/measured nitrate load in surface receiving water.	1,852	3,764	1,139	6,754	2%
Estimated/measured nitrate loading to groundwater.	3,052	26,261	700	30,013	10%
Measured nitrate concentration in groundwater.	24,933	100,992	8,534	134,459	43%
Modeled or studied nitrate in surface water or groundwater.	491	15,838	1,257	17,586	6%
Consulted with a qualified professional to assess practice implementation (e.g., CCA, PCA, UCCE Specialist, NRCS, RCD, agronomist or other).	38,692	174,308	15,166	228,166	72%
<b>Outcome(s)</b>					
Annual fertilizer nitrogen application reduced.	10,534	111,759	7,532	129,645	41%
Total nitrogen applied as fertilizer and in irrigation water matches crop need.	27,795	103,711	9,708	141,214	45%
Reduction in nitrate concentration or load, in irrigation runoff.	994	17,490	556	19,040	6%
Reduction in nitrate concentration or load, in surface receiving water.	405	5,273	556	6,234	2%
Reduction in nitrate loading to groundwater.	1,194	24,035	700	25,929	8%
Reduction in nitrate concentration in groundwater.	914	15,158	1,394	17,465	6%
Water quality standards achieved.	8,587	17,808	-	26,394	8%

Source: SWRCB 2018

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Table 2-6. Management Practices and Monitoring Actions to Address Irrigation

Management Practice / Monitoring Action (March 2018)	Irrigated Acres				
	Tier 1 n: 64,984	Tier 2 n: 230,692	Tier 3 n: 19,228	Total n: 314,814	Percent of Total Reporting
<b>Implementation</b>					
Determined amount of crop water uptake and applied irrigation.	49,679	161,341	14,058	225,078	71%
Installed more efficient irrigation system (e.g., microirrigation).	32,211	150,164	18,090	200,465	64%
Improved irrigation distribution uniformity based on results of mobile lab or similar assessment.	18,499	56,276	8,691	83,465	27%
Scheduled irrigation events using soil moisture measurements.	46,734	85,052	10,518	142,303	45%
Scheduled irrigation events using weather information (e.g., evapo-transpiration, crop coefficient).	50,436	109,617	12,792	172,846	55%
Maintained irrigation system to maximize efficiency and minimize losses (e.g., system components are replaced and/or flushed/cleaned).	44,082	199,971	19,228	263,281	84%
Selected sprinkler heads, nozzles, and drip tape/emitter with application rate(s) that match system layout, system pressure, and infiltration rates.	40,574	207,135	19,228	266,937	85%
Installed a variable speed pump and/or control system to improve irrigation distribution uniformity.	23,499	46,841	12,587	82,927	26%
Recycled or reused excess irrigation water.	1,779	17,720	4,581	24,079	8%
Contained and/or treated irrigation water runoff prior to discharge off the farm/ranch.	2,433	30,378	7,007	39,817	13%
<b>Assessment</b>					
Compared amount of nitrogen applied in fertilizer and in irrigation water to crop need.	34,551	178,140	18,555	231,247	73%
Measured nitrate concentration below the root zone.	50,357	121,927	8,643	180,926	57%
Measured nitrate concentration in irrigation runoff.	863	12,680	700	14,243	5%
Estimated/measured nitrate load in irrigation runoff.	18,935	39,320	3,011	61,266	19%
Measured nitrate concentration in surface receiving water.	1,203	18,476	2,958	22,636	7%
Estimated/measured nitrate load in surface receiving water.	382	1,876	-	2,258	1%
Estimated/measured nitrate loading to groundwater.	441	3,081	2,318	5,839	2%
Measured nitrate concentration in groundwater.	605	3,564	700	4,869	2%
Modeled or studied nitrate in surface water or groundwater.	860	9,386	1,394	11,640	4%
Consulted with a qualified professional to assess practice implementation (e.g., CCA, PCA, UCCE Specialist, NRCS, RCD, agronomist or other).	32,828	132,140	11,486	176,454	56%
<b>Outcome(s)</b>					
Volume of water applied matches crop needs.	50,836	137,827	12,480	201,144	64%
Annual volume of irrigation water applied reduced.	7,912	58,199	2,653	68,764	22%
Number of tailwater days/years reduced.	792	15,227	1,403	17,422	6%
Reduction in volume of irrigation runoff.	1,822	46,281	3,248	51,351	16%
Elimination of irrigation runoff.	13,892	43,837	1,746	59,475	19%
Reduction in volume of tile drain discharge.	622	7,133	2	7,757	2%
Reduction in water infiltration/percolation losses.	2,357	13,951	702	17,010	5%
Reduction in pollutant concentration in irrigation runoff and/or tile drain discharge.	818	5,994	702	7,514	2%
Water quality standards achieved.	8,500	21,026	788	30,313	10%

Source: SWRCB 2018

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Table 2-7. Management Practices and Monitoring Actions to Address Pesticides

Management Practice / Monitoring Action (March 2018)	Irrigated Acres				
	Tier 1 n: 64,984	Tier 2 n: 230,692	Tier 3 n: 19,228	Total n: 314,814	Percent of Total Reporting
<b>Implementation</b>					
Certified Organic	3,744	27,228	1,299	32,271	10%
Utilized Integrated Pest Management to reduce pesticide use (e.g., pest scouting, beneficial insects, other).	59,634	208,399	19,228	287,262	91%
Selected lower risk pesticides to minimize risk to water quality (e.g., based on toxicity, runoff potential, leaching potential).	46,477	180,380	15,862	242,719	77%
Followed specific label instructions and any local use restrictions.	50,885	216,224	19,228	286,338	91%
Avoided pesticide applications prior to rain events to prevent runoff.	52,413	195,075	16,179	263,668	84%
Avoided pesticide applications during windy conditions to prevent drift.	56,377	216,340	19,228	291,945	93%
Avoided pesticide application in areas adjacent to streams, creeks, or other surface water bodies.	38,347	159,689	15,327	213,363	68%
Eliminated or controlled irrigation runoff during and after pesticide applications.	29,465	164,323	15,830	209,618	67%
Eliminated or controlled sediment erosion and movement to avoid transport of pesticides.	28,396	145,048	12,307	185,752	59%
Treated irrigation runoff with enzymes or other products to break down pesticides.	557	1,399	2	1,957	1%
Used filter strips, vegetated treatment or other systems to remove pesticides and pollutants from irrigation runoff or tile drain water.	8,237	26,191	8,451	42,878	14%
Mixed and loaded pesticides on low runoff hazard sites (e.g., away from creeks and wells).	41,770	193,477	17,838	253,085	80%
<b>Assessment</b>					
Conducted field quick tests or used handheld meters to determine pesticide concentration or toxicity in irrigation runoff or tile drain water.	730	1,873	671	3,274	1%
Conducted laboratory analysis to determine pesticide concentrations or toxicity in irrigation runoff.	275	575	2,989	3,839	1%
Measured pesticide concentrations or toxicity in surface receiving water.	257	435	1,928	2,620	1%
Measured pesticide concentrations or toxicity in tile drain water.	-	61	1,617	1,678	1%
Modeled or studied pesticides or toxicity in surface water or groundwater.	979	5,530	1,257	7,766	2%
Conducted photo monitoring before and after practice implementation.	1,970	6,848	-	8,818	3%
Consulted with a qualified professional to assess practice implementation (e.g., CCA, PCA, UCCE Specialist, NRCS, RCD, agronomist, or other).	50,829	182,746	13,549	247,123	78%
<b>Outcome(s)</b>					
Annual pesticide application reduced.	24,909	86,254	2,019	113,182	36%
Reduction in pesticide concentration or toxicity in irrigation runoff.	2,419	12,175	702	15,296	5%
Reduction in pesticide concentration or toxicity in surface receiving water.	1,131	4,477	2	5,610	2%
Water quality standards achieved.	9,950	20,786	788	31,524	10%

Source: SWRCB 2018

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**Table 2-8.** Management Practices and Monitoring Actions to Address Sediment

Management Practice / Monitoring Action (March 2018)	Irrigated Acres				
	Tier 1 n: 64,984	Tier 2 n: 230,692	Tier 3 n: 19,228	Total n: 314,814	Percent of Total Reporting
<b>Implementation</b>					
Avoided disturbance of soils adjacent to streams, creeks, and other surface water bodies.	40,091	156,235	16,720	213,046	66%
Minimized presence of bare soil non-cropped areas.	41,909	91,713	13,300	146,921	47%
Minimized presence of bare soil in cropped areas.	39,573	102,604	10,584	152,761	49%
Minimized tillage to protect soil structure and cover soil.	33,125	127,989	15,403	176,517	56%
Used soil amendments to protect soil structure.	24,613	143,830	18,110	186,553	59%
Planted cover crops.	44,909	124,880	12,489	182,278	58%
Aligned rows for proper drainage and to reduce erosion.	32,254	169,477	18,535	220,266	70%
Diverted runoff and concentration flows to grassed areas.	14,336	32,785	6,218	53,338	17%
Controlled concentrated drainage on roads by grading to reduce erosion or installing culverts, rolling dips, underground outlet pipe(s).	25,306	149,812	18,087	193,205	61%
Installed filter strips, vegetated treatment or other systems to remove sediment and other pollutants from runoff.	13,310	30,793	9,873	53,976	17%
Installed sediment basin(s), pond(s), reservoir(s) or other sediment trapping structures to remove sediments from discharge.	6,104	57,121	9,732	72,957	23%
Applied Polyacrylamide (PAM) in irrigation water.	138	1,274	2	1,414	0%
<b>Assessment</b>					
Walked the perimeter of the property to verify erosion controls and that sediment doesn’t leave the ranch/farm during irrigation events and/or storm events.	45,108	167,281	19,226	231,615	74%
Conducted laboratory analysis, field quick tests or used handheld meters to measure turbidity in irrigation runoff.	235	1,826	5,474	7,535	2%
Estimated sediment load in irrigation and/or stormwater runoff.	51	134	4,918	5,103	2%
Conducted laboratory analysis, field quick tests or used handheld meters to measure turbidity in stormwater runoff.	754	7,925	3,300	11,979	4%
Modeled or studied sediment load in surface water.	559	1,421	700	2,680	1%
Conducted photo monitoring before and after practice implementation.	2,649	7,997	556	11,202	4%
Consulted with a qualified professional to assess practice implementation (e.g., CCA, PCA, UCCE Specialist, NRCS, RCD, agronomist, or other).	28,613	118,076	9,792	156,480	50%
<b>Outcome(s)</b>					
Soil coverage increased and amount of bare soil reduced.	19,966	71,488	3,998	95,452	30%
Reduction in turbidity or sediment load in irrigation runoff.	2,334	31,109	4,361	37,804	12%
Reduction in turbidity or sediment load in stormwater runoff.	4,080	21,657	3,576	29,313	9%
Reduction in turbidity or sediment load in surface receiving water.	797	3,599	2,175	6,571	2%
Reduction in stormwater flow and/or volume.	6,944	31,727	1,838	40,509	13%
Water quality standards achieved.	8,060	17,434	2	25,495	8%

Source: SWRCB 2018

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**Table 2-8**, a significant percentage of reporting ranches are already implementing some forms of management practices to address nutrients, irrigation, pesticides, and sediment. For example, growers representing 92 percent of the reporting acreage have evaluated how much fertilizer crops need and the timing of the fertilizer application, while 84 percent maintain their irrigation system to maximize efficiency and minimize losses. Likewise, 91 percent have implemented integrated pest management (IPM) to reduce pesticide use, while 93 percent have avoided applying pesticides during windy conditions to prevent drift.

However, for certain types of management practices, relatively few ranches/irrigated acres are currently implementing these practices under Agricultural Order 3.0. For example:

- Only 1 percent of total reporting acreage used treatment systems to remove nitrogen from irrigation runoff or drainage water (e.g., wood and chip bioreactor);
- Only 8 percent of total reporting acreage recycled or reused excess irrigation water;
- Only 13 percent of total reporting acreage contained and/or treated irrigation water runoff prior to discharge off the farm/ranch;
- Only 1 percent of total reporting acreage treated irrigation runoff with enzymes or other products to break down pesticides;
- Only 14 percent of total reporting acreage used filter strips, vegetated treatment or other systems to remove pesticides and pollutants from irrigation runoff or tile drain water;
- Only 17 percent of total reporting acreage installed filter strips, vegetated treatment or other systems to remove sediment and other pollutants from runoff, and
- Only 23 percent installed sediment basin(s), pond(s), reservoir(s) or other sediment trapping structures to remove sediments from discharge.

Naturally, the management practices that are less often implemented tend to be those practices that would require the most significant investment or change in practices from a ranch's existing operations. Pursuant to Agricultural Order 4.0, it may be necessary for more ranches to implement some of these more involved (as well as likely more efficacious) management practices. All of the management practices included in the ACF, as shown in **Table 2-5** through **Table 2-8**, are considered reasonably foreseeable under the Proposed Project.

### 2.7.2 Potential Management Practices As Determined from Available Literature

In addition to considering management practices currently implemented under Agricultural Order 3.0 or listed in the ACF, CCWB reviewed published sources to determine management practices that could be implemented under Agricultural Order 4.0. Reasonably foreseeable management practices, as determined from available literature, are shown in **Table 2-9** (note: many of these may overlap with management practices reported on in the ACF, and many management practices may address multiple water quality problems, but this full list is presented so as to be exhaustive).

**Table 2-9.** Reasonably Foreseeable Management Practices As Determined from Available Literature

Practices to Reduce Nutrient and Salt Loading to Surface Water and Groundwater	Practices to Reduce/Eliminate Pesticides from Entering Surface Water or Groundwater	Practices to Retain Sediment Onsite	Practices to Maintain Appropriate Stream Temperature
Reduce/eliminate irrigation discharge Reduce/eliminate storm water discharge Treat irrigation discharge Plant cover crops; use them and manage them appropriately (e.g., not applying fertilizer to them) Rotate crops <u>Fallowing</u> <u>Practices for soil health: soil armor, minimize soil disturbance, plant diversity, continued live plants/roots, livestock integration (USDA, NRCS)</u> Manage irrigation, examples include: <ul style="list-style-type: none"><li>– Irrigation distribution uniformity</li><li>– Reduce irrigation water applied</li><li>– Use micro-irrigation</li><li>– Maintain irrigation system; check for leaks and broken emitters, and fix/replace as needed</li></ul> Install buffer strip, vegetated filter strip, or swale Install constructed wetlands or other vegetated treatment system Install backflow prevention devices Install bioreactors Apply less fertilizer Test water in wells to determine nutrient concentration before irrigating and fertilizing and reduce fertilizer application based on irrigation water nutrient concentration and volume to be applied Install appropriate storage of fertilizers, if kept on site Develop a nutrient management plan <sup>1</sup> <ul style="list-style-type: none"><li>– Apply nutrients at rates necessary to achieve realistic crop yields</li><li>– Improve timing of nutrient application</li><li>– Use agronomic crop production technology to increase nutrient use efficiency</li></ul> Treat storm water discharge Avoid winter nitrogen applications Managed leaching (leach when nitrate content is low and electrical conductivity is high; do not leach during crop cycle) Minimize deep percolation Monitor the salinity level of the soil and only leach when necessary Plan timing of fertilizer application to avoid applying before predicted rainfall events	Reduce/eliminate irrigation discharge Reduce/eliminate stormwater discharge Treat irrigation discharge Plant cover crops; use them and manage them appropriately Rotate crops <u>Fallowing</u> <u>Practices for soil health: soil armor, minimize soil disturbance, plant diversity, continued live plants/roots, livestock integration (USDA, NRCS)</u> Manage irrigation, examples include: <ul style="list-style-type: none"><li>– Irrigation distribution uniformity</li><li>– Reduce irrigation water applied</li><li>– Use micro-irrigation</li><li>– Maintain irrigation system; check for leaks and broken emitters, and fix/replace as needed</li></ul> Install buffer strip, vegetated filter strip, or swale Install constructed wetlands or other vegetated treatment system Install backflow prevention devices Apply pesticide per labeling directions, e.g., <ul style="list-style-type: none"><li>– Do not apply during windy conditions</li><li>– Do not apply right before forecasted rain</li><li>– Do not irrigate directly after pesticide application</li><li>– Apply lowest dose</li><li>– Apply based on infestation thresholds</li></ul> Use an IPM strategy Install appropriate storage of chemicals, if kept on site Use Pesticide Analytical Manual (PAM) <sup>2</sup> or LanGuard <sup>TM3</sup> Install hedgerows Install treatment system such as granular activated carbon (GAC) Treat stormwater discharge Use beneficial insects to reduce pesticide applications Scout for pests prior to pesticide applications Minimize deep percolation Reduce pesticide applications No dormant spray Spot-treat infestations Rinse and dispose of chemical containers safely	Reduce/eliminate irrigation discharge Reduce/eliminate stormwater discharge Treat irrigation discharge Plant cover crops; use them and manage them appropriately Rotate crops <u>Fallowing</u> <u>Practices for soil health: soil armor, minimize soil disturbance, plant diversity, continued live plants/roots, livestock integration (USDA, NRCS)</u> Manage irrigation, examples include: <ul style="list-style-type: none"><li>– Irrigation distribution uniformity</li><li>– Reduce irrigation water applied</li><li>– Use micro-irrigation</li><li>– Maintain irrigation system; check for leaks and broken emitters, and fix/replace as needed</li></ul> Install buffer strip, vegetated filter strip, or swale Install constructed wetlands or other vegetated treatment system Minimize bare soil Limit movement of water to surface waters Minimize tillage Install and maintain sediment trapping measures Conservation tillage Conservation cover Critical area planting Mulching Contour farming or stripcropping Contour buffer strips Grassed waterway Terrace Maximize irrigation efficiency Avoid fall tillage Properly construct and maintain roads Out-slope roads	Re-establish (and/or preserve) riparian and wetland buffers appropriate for the waterbody on a ranch (e.g., Riparian Zone Estimator Tool [RipZET] <sup>4</sup> modeling or functional equivalent) Implement cooperative watershed-based riparian and wetland restoration projects in agricultural areas Develop cooperative treatment wetlands at the bottom of tributaries that flow to steelhead or salmonid streams instead of implementation at every farm along non-salmonid tributaries Expand riparian and wetland buffers <u>Fallowing</u> <u>Practices for soil health: soil armor, minimize soil disturbance, plant diversity, continued live plants/roots, livestock integration (USDA, NRCS)</u> Increase riparian and in-channel tree canopy for surface waters to support beneficial uses Avoid harvest actions in riparian areas to attain site-specific potential effective shade Establish native species (grasses, forbs, legumes, shrubs, and trees) near riparian areas Exclude people and vehicles from an area to protect, maintain, or improve the quantity and quality of riparian vegetation Plant native vegetation to increase shade in accordance with site-specific potential

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Practices to Reduce Nutrient and Salt Loading to Surface Water and Groundwater	Practices to Reduce/Eliminate Pesticides from Entering Surface Water or Groundwater	Practices to Retain Sediment Onsite	Practices to Maintain Appropriate Stream Temperature
Monitor the nutrient content of the soil to reduce fertilizer applications Account for nutrient content of unharvested plant material to reduce fertilizer applications Increase the amount of plant material removed from the field Rinse and dispose of chemical containers safely Implement the four rules of nutrient stewardship: <ul style="list-style-type: none"><li>– Right rate</li><li>– Right time</li><li>– Right place</li><li>– Right formation</li></ul> Manage soil health to improve water and nutrient retention and reduce leaching			

- Notes:
- 1. In accordance with U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Practice Standard 590: [www.aces.edu/departments/aawm/NutrientManagement/590.pdf](http://www.aces.edu/departments/aawm/NutrientManagement/590.pdf)
  - 2. The Pesticide Analytical Manual is published by the U.S. Food and Drug Administration (FDA) as a repository of analytical methods used in FDA laboratories to examine food for pesticide residues for regulatory purposes.
  - 3. LanGuard is an automated software system for meeting compliance regulations.
  - 4. The Riparian Zone Estimator Tool (RipZET) is a decision support tool developed by the San Francisco Estuary Institute and Aquatic Science Center for the California Riparian Habitat Joint Venture and the SWRCB. The tool is designed to assist in the visualization and characterization of riparian areas in the watershed context. RipZET works within a geographic information system (GIS) to estimate the likely extent of riparian areas based on the concept of “functional riparian width,” which stipulates that different riparian functions can extend different distances from their adjacent surface waters, depending on topographic slope, vegetation, land use, and position along a drainage network (San Francisco Estuary Institute 2019).

Sources: USEPA 1993; USEPA 2003; NRCS 2012; Washington State Department of Ecology No Date; University of Illinois Extension No Date

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### 2.7.3 Typical Construction, Operation, and Maintenance Processes for Selected Generalized Reasonably Foreseeable Management Practices

The number of reasonably foreseeable management practices listed in **Table 2-5** through **Table 2-8** and in **Table 2-9** is too great to provide detailed information regarding typical construction/installation, operation, and maintenance processes for each one. Additionally, many of the practices listed (e.g., apply less fertilizer, apply pesticides in accordance with label instructions, less tillage, etc.) would have limited potential to result in significant adverse environmental impacts (see Section 3.0, *Introduction to the Environmental Analysis*, for additional discussion). Therefore, a selected number of generalized reasonably foreseeable management practices with the greatest potential for environmental impacts associated with their construction, operation, and/or maintenance is presented here.

#### ***Efficient Irrigation Systems***

This generalized management practice category includes drip irrigation, micro-irrigation, or similar irrigation systems that are installed to increase efficiency and reduce irrigation runoff. Such irrigation systems typically include a delivery system (e.g., mainline and sub-mainline polyvinyl chloride [PVC] pipe, and smaller-diameter drip lines that may be polyethylene), filters (e.g., media, screen, and disk filters, or settling ponds), pressure regulators, valves or gauges, chemical injectors (if chemigation or fertigation is employed), and controllers (Pennsylvania State University Extension 2016; Maughan et al. 2017). Installation could include some excavation and/or trenching, transport and delivery of irrigation system materials, and potentially off-haul of soil or construction waste materials. Operation of the efficient irrigation system may use energy (i.e., electricity) for filtration systems and pressure regulation. Maintenance activities may include periodic replacement of filters and/or drip lines, including disposal of used materials.

#### ***Runoff Management Features (e.g., Buffer Strip, Vegetated Filter Strip, or Swale)***

Runoff management features may include buffer strips, vegetated filter strips, or swales, all of which serve to manage runoff through vegetation that absorbs and filters water and sediments. These features usually include sloped areas of planted vegetation positioned between a waterbody receiving runoff and pollutant source area (USEPA 2017). Construction/installation activities could include light disking, use of a “no till” or grass drill for seeding the proposed vegetated area, and associated transport of materials and equipment. Minor excavation and off-haul of soils may be required for construction of swales. General vegetation management (e.g., mowing, weeding, etc.) may be required for periodic maintenance of the facilities. Generally, these types of runoff management features would not use or require energy, other than for operation of any equipment used in maintenance activities.

#### ***Sediment Retention Basins***

Sediment retention basins or sediment basins are constructed from an embankment or excavation to capture and retain sediment-laden runoff. Sediment retention basins typically are constructed with an engineered outlet and are designed to retain runoff for a sufficient length of time to allow the sediment to settle out in the basin. Heavy equipment is required for

construction of sediment retention basins, such as dozers, hydraulic excavators, trenchers, dump trucks, scrapers, etc. Engineered fill material may need to be imported to the site for construction of the embankment, and/or excavated material may need to be hauled off from the site and disposed of at a landfill. Maintenance activities include periodic inspections of the basin, removal of accumulated sediment, debris/trash removal, replacement of damaged parts, and vegetation management (NRCS 2010).

### ***Bioreactors***

A bioreactor is a passive filtration system that removes nitrate in water drainages (e.g. tile drains) through the process of denitrification. The system design typically includes a pit filled with organic material (e.g., wood chips, biochar, corn cobs, and/or other material) (Christianson and Schipper 2016). For a large agricultural field (e.g., 40 to 80 acres), the pit may be 100 feet by 200 feet, positioned between the field and waterbody. The bioreactor also may include water control structures and piping to convey water to and from the bioreactor, and geotextile fabric may be placed between the carbon material and the surrounding soil. Construction activities include excavation of the pit, installation of the water control structures/piping, and importation/placement of the wood chips or other carbon material. Equipment used in the construction process may include excavators, skidsteer loaders, dump trucks, and trenchers. Once installed, bioreactors do not use energy or other resources during operation. Maintenance activities may include replacement of the fill material approximately every 10 years.

### ***Riparian Buffer Areas***

Riparian buffer areas are communities of perennial vegetation including trees, shrubs, and grasses adjacent to a body of water that provide important habitat and water quality functions, including passive removal of pollutants (e.g., sediment, pesticides, etc.) and temperature regulation through shading. This category could include NRCS Conservation Practices 390 (Riparian Herbaceous Cover) and 391 (Riparian Forest Cover). Depending on the existing vegetation/ground cover in the targeted area, construction of the riparian buffer area may include removal of existing crops/vegetation (e.g., if the area is currently used for crop production), light disking, and broadcast seeding or plug planting of riparian vegetation species. Equipment used during construction could include a “no till” or grass drill, skidsteer loader, and trucks for transport of materials. If the area to be planted with riparian vegetation is currently under agricultural production, the existing crops and organic material may need to be hauled off site to a composting facility or the landfill.

Following construction/installation, riparian buffer areas may require some watering, particularly in the early plant stages to ensure survival, but otherwise would not use substantial water or energy. Maintenance activities may include periodic inspections of streambank stability/evidence of erosion, exclusion of livestock, and general vegetation management (NRCS 2007).

## **2.7.4 Monitoring and Reporting Activities**

As described in Section 2.6 and shown in **Table 2-4** and Appendix A, Agricultural Order 4.0 would include some new or additional monitoring and reporting requirements compared to Agricultural Order 3.0 (e.g., reporting nitrogen applied and nitrogen removed, sediment and



erosion management plan, etc.). Generally, monitoring and reporting activities under Agricultural Order 4.0 would be limited to vehicle trips to monitoring locations, sampling of surface waters or groundwater or soil using non-mechanized equipment, transport of samples to laboratories, taking readings of well or irrigation equipment, and related activities.

Because Agricultural Order 4.0 would require regional groundwater quality trend monitoring, it is also likely that a number of additional groundwater monitoring wells would need to be drilled as part of compliance with Agricultural Order 4.0. Based on CCWB's preliminary evaluation, a minimum of approximately 150 wells of varying depths would be needed throughout the region at a well density of one well per four square miles<sup>5</sup> (CCWB 2019d). CCWB anticipates that many existing wells (e.g., domestic wells on agricultural and non-agricultural properties, small water system wells, irrigation wells on agricultural wells, potentially municipal supply wells, as well as existing monitoring wells) may be suitable for use in the regional monitoring effort; however, some new wells may need to be developed.

Construction activities associated with new monitoring wells may include mobilization and demobilization of the contracted drilling crew and rig, drilling of the well to the desired depth (estimated to take 2 to 3 hours in most cases), installing the well casing and screen, and management and disposal of drilling fluid.

## 2.8 Intended Uses of this EIR

CCWB will use this EIR to inform its decision as to whether to adopt and implement the Proposed Project/Agricultural Order 4.0 requirements. In addition, the EIR may be used by other agencies to support their issuance of permits or approvals in relationship to activities conducted pursuant to Agricultural Order 4.0 compliance. Agencies that may use this EIR include, but are not limited to, the following:

- Cities and counties throughout the central coast region
- California Air Resources Board
- California Coastal Commission
- California Department of Fish and Wildlife
- California Department of Forestry and Fire Protection
- California Department of Pesticide Regulation
- California Office of Historic Preservation
- California State Lands Commission

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<sup>5</sup> This is an estimate and may vary by groundwater basin. CCWB is currently evaluating groundwater quality conditions in central coast basins, and the appropriate density for each groundwater basin is not yet known.

- State Water Resources Control Board
- U.S. Army Corps of Engineers
- National Marine Fisheries Service

# Chapter 3

## Environmental Analysis

### 3.0 Introduction to the Environmental Analysis

This section provides introductory information related to the evaluation of environmental impacts associated with the California Regional Water Quality Control Board, Central Coast Region's (CCWB) Waste Discharge Requirements for Discharges from Irrigated Lands (Proposed Project or "Agricultural Order 4.0"). It describes the overall approach to the impact analyses, including key terminology and a description of how the significance of environmental impacts is evaluated. It also discusses resource topics eliminated from detailed analysis in the final environmental impact report (FEIR). Subsequent sections in this chapter describe and evaluate potential impacts to environmental resources from the Proposed Project.

#### 3.0.1 Introduction to the Resource Sections

Chapter 3 includes 12 topical sections that describe the environmental resources and potential environmental impacts of the Proposed Project. Each section (Sections 3.1 through 3.12) contains the following information about each respective resource topic:

- A description of the regulatory setting related to the resource topic;
- A description of the environmental setting and background information related to the resource topic, to help the reader understand the resources that could be affected by the Proposed Project;
- A discussion of the thresholds used in determining the significance of the Proposed Project's potential environmental impacts;
- A discussion of the potential environmental impacts of the Proposed Project on the resource, including the significance of each potential impact; and
- A description of any mitigation measures to be adopted by CCWB that would avoid or minimize impacts.

#### 3.0.2 Significance of Environmental Impacts

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) define a threshold of significance for each impact that may occur on the physical environment. A threshold of significance, or significance criterion, is an identifiable quantity, quality, or performance level of a particular environmental effect. In general, potential impacts are identified as either significant (i.e., above threshold) or less than significant (i.e., below threshold).

Under CEQA, the impacts of a proposed project are assessed relative to the environmental baseline, which is defined as the existing physical conditions in the affected area as they existed at the time the notice of preparation (NOP) was published (State CEQA Guidelines Section 15126.2[a]) (see Section 3.0.3 for a discussion of the environmental baseline as it relates to the analysis in this DEIR). Impacts of a proposed project are limited to changes in the baseline physical conditions of the environment (State CEQA Guidelines Section 15125[a]) that would result directly, indirectly, or cumulatively from the proposed project. CEQA does not require the lead agency to consider impacts that are speculative (State CEQA Guidelines Section 15145).

For the purposes of this FEIR, significance criteria are generally drawn from the State CEQA Guidelines, Appendix G: Environmental Checklist Form. The State CEQA Guidelines including Appendix G were updated in December 2018, which was subsequent to the publication of the NOP (February 2018). This FEIR uses the updated Appendix G criteria adopted in December 2018.

### 3.0.3 Environmental Baseline of Analysis

As described in Chapter 2, *Project Description*, commercial irrigated agriculture in the central coast region is currently subject to requirements under Agricultural Order 3.0. As such, many owners and operators of irrigated lands, or growers, are already implementing management practices and performing monitoring and other activities to address their discharges, and these ongoing activities are a part of the baseline environmental conditions.

The impact analysis in this FEIR focuses on the increment of change that would result from implementation of Agricultural Order 4.0, considering both ongoing and new compliance activities. For example, the extent to which Agricultural Order 4.0 may require owners and operators enrolled in the order to implement additional management practices on ranches, which could result in environmental impacts through their implementation, and therefore could result in new environmental impacts as a result of the Proposed Project. Any ongoing environmental effects associated with compliance activities for Agricultural Order 3.0 are considered part of the baseline.

The baseline differs for each resource topic and is described in the “Environmental Setting” section within each topical resource section. ~~While the NOP was issued in February 2018, and in accordance with the CEQA Guidelines, the environmental analysis for the Proposed Project is considered to have commenced in fall of 2017. Therefore, the baseline for this DEIR analysis is the physical environmental conditions that existed in fall of 2017 at the time the NOP was published.~~ In some cases, more or less recent data or information is used in this FEIR, as appropriate and based on data availability. As an example, it is appropriate to use a larger period of time for water quality data to account for seasonality and the dynamic nature of environmental data rather than one day.

### 3.0.4 Impact Terminology

This FEIR uses the following terminology to describe the environmental effects of the Proposed Project:

- A finding of ***no impact*** is made when the analysis concludes that the Proposed Project would not affect a particular environmental resource or issue.
- A potential impact is considered ***less than significant*** if the analysis concludes that the Proposed Project would not result in a substantial adverse change in the environment, and no mitigation is needed.
- A potential impact is considered ***significant*** or ***potentially significant*** if the analysis concludes that the Proposed Project would or could result in a substantial adverse effect on the environment.
- A potential impact is considered ***significant and unavoidable*** if the analysis concludes that the Proposed Project could result in a substantial adverse effect on the environment, and the impact would remain significant after application of all feasible mitigation measures.
- A potential impact is considered ***beneficial*** if the analysis concludes that the Proposed Project would result in an improvement in the quality of the environment.
- A ***substantial adverse change*** in the environment would be a change resulting from the Proposed Project that was greater than the established threshold of significance for each potential impact.
- ***Mitigation*** refers to specific measures or activities that CCWB would require Agricultural Order 4.0 enrollees to implement to avoid, minimize, rectify, reduce, eliminate, and/or compensate for a significant or potentially significant impact resulting from the Proposed Project. Alternatively, mitigation may be identified for CCWB to implement.
- A ***cumulative impact*** can result when a change in the environment results from the incremental impact of the Proposed Project when added to similar impacts of other related past, present, and probable future projects or programs. Significant cumulative impacts may result from individually minor but collectively significant interactions among projects. The cumulative impact analysis in this FEIR (provided in Chapter 5, *Other Statutory Considerations*) focuses on whether the Proposed Project's incremental contribution to identified cumulatively significant impacts caused by past, present, or probable future projects is considerable (i.e., significant).

### 3.0.5 Sections Eliminated from Further Analysis

The following environmental resource topics/areas have been eliminated from detailed analysis in this FEIR because little or no potential exists for activities associated with the Proposed Project to have a physical effect on the specified resources, based on the nature and scope of activities. The initial study concluded as such, and the rationale for eliminating sections from detailed analysis in the FEIR is described below for each applicable resource topic.

### ***Aesthetics***

Compliance with Agricultural Order 4.0 would take place within active irrigated agricultural areas. In general, reasonably foreseeable management practices would not have significant above-ground components that could affect views or scenic resources. While construction/installation of certain management practices (e.g., sediment basins, bioreactors, vegetated filter strips, etc.) could temporarily adversely affect the existing visual character or quality of a given area (e.g., due to the presence of construction equipment), over the long term, these types of practices/facilities would not substantially affect aesthetics. In some cases, an increase in riparian vegetation as a result of the Proposed Project could result in a beneficial aesthetics impact. As a result, the aesthetics resource topic is dismissed from detailed consideration in this FEIR.

### ***Geology, Soils, and Seismicity***

The Proposed Project would not involve construction of above-ground structures that could expose people to substantial risk of loss, injury, or death due to geologic hazards (e.g., rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, or landslides). Reasonably foreseeable management practices would be limited to on-farm measures to reduce or eliminate discharges that could affect water quality. Construction/installation of some management practices (e.g., sediment retention basins, bioreactors, vegetated filter strips, efficient irrigation systems, etc.) would involve excavation of soils, but none of these practices would create dangerous slopes or potentially subject people to substantial risks. Over the long term, many of the management practices (e.g., planting cover crops, stormwater management features) could have a beneficial effect by reducing soil erosion and conserving topsoil during irrigated agricultural production. Therefore, this resource topic is dismissed from detailed consideration in this FEIR.

### ***Land Use and Planning***

Compliance with Agricultural Order 4.0 would not require construction of any structures or infrastructure that could physically divide an established community. In general, reasonably foreseeable methods of compliance/management practices would be limited to on-farm measures designed to minimize or eliminate discharges of pollutants to receiving waters. These practices would be implemented for the purpose of minimizing environmental effects of irrigated agriculture (i.e., adverse impacts to water quality). While some adverse effects could occur during construction/installation of management practices, they would not be anticipated to conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The potential for Agricultural Order 4.0 to conflict with any applicable habitat conservation plan or natural community is evaluated in Section 3.3, *Biological Resources*. Additionally, the potential for Agricultural Order 4.0 to conflict with existing zoning for agricultural uses is discussed in Section 3.1, *Agriculture and Forestry Resources*. The land use and planning resource topic is dismissed from detailed consideration in this FEIR.

### ***Mineral Resources***

Compliance with Agricultural Order 4.0 would take place primarily within areas under active irrigated agricultural production. No activities would take place on or adjacent to active mines.

While some reasonably foreseeable management practices (e.g., sediment retention basins, vegetated filter strips, bioreactors, etc.) would require some excavation, this would not adversely affect, or result in the loss of availability of, a known mineral resource that would be of value to the region. Compliance with the Proposed Project also would not result in the construction of any homes, offices, or large impervious surface, which could potentially impede future development of below-ground mineral resources at that site. Overall, the Proposed Project would have no potential to impact mineral resources. Therefore, this resource topic is dismissed from detailed consideration in this FEIR.

### ***Population and Housing***

The Proposed Project would not result in the construction of any housing, office buildings, or related structures. Compliance with Agricultural Order 4.0 would be limited to implementation of management practices to reduce or eliminate discharges of pollutants from irrigated agricultural lands. Management practices would be installed/implemented on agricultural lands and would not displace any existing housing or people. As a result, the Proposed Project would not result in the need to construct replacement housing elsewhere for displaced people or housing. Therefore, this resource topic is dismissed from detailed consideration in this FEIR.

### ***Public Services***

Compliance with Agricultural Order 4.0 would take place primarily in areas of irrigated agricultural production, which tend to be rural in nature and relatively sparsely populated. As described above under “Population and Housing,” the Proposed Project would not involve the construction of any housing, nor would it indirectly result in the need to build new housing. Reasonably foreseeable practices would be limited to on-farm measures designed to reduce or eliminate discharges of pollutants from irrigated agricultural lands. While installation/construction of some management practices (e.g., sediment retention basins, vegetated filter strips, bioreactors, etc.) could require temporary construction labor, implementation of these practices over the long term would not create jobs or result in population growth.

As a result, the Proposed Project would not increase demand for public services, such as fire protection, police protection, schools, parks, or other public facilities. As the Proposed Project would not increase population, it also would not adversely affect service ratios, response times, or other performance objectives, such as to require the provision of new or physically altered governmental facilities (e.g., new police or fire station), the construction of which could have adverse environmental impacts. Therefore, this resource topic is dismissed from detailed consideration in this FEIR.

### ***Recreation***

The Proposed Project would not include any recreational facilities or require the construction or expansion of recreational facilities. As described above, compliance with Agricultural Order 4.0 would be limited to implementation/installation of management practices to reduce or eliminate discharges of pollutants from irrigated lands. Agricultural Order 4.0 would not result in increased population that could in turn increase demands on, or use of, existing recreational facilities. Compliance with Agricultural Order 4.0 would occur in areas of active irrigated

agricultural production and would have no potential to directly impact existing recreational facilities. Therefore, this resource topic is dismissed from detailed consideration in this FEIR.

### ***Transportation and Traffic***

Compliance with Agricultural Order 4.0 would occur primarily in areas of existing irrigated agricultural production, which tend to be rural in nature and places where vehicle congestion is not a predominant issue. As described above, the Proposed Project would not require or result in the construction of any new homes or businesses, and would not result in a long-term increase in population. The Proposed Project may require some additional monitoring activities by Agricultural Order 4.0 enrollees, which could result in some additional vehicle trips to monitoring locations and associated vehicle miles traveled; however, these increases would not be substantial, and, when considering that they would occur primarily in rural areas, would not result in substantial adverse effects on the circulation system.

Construction/installation, as well as periodic maintenance, of some management practices (e.g., sediment retention basins, bioreactors) could require use of heavy construction equipment and result in truckloads of debris or spoils being off-hauled from the site. Generally, construction activities would be focused on/within farms or in irrigated agricultural areas, but some construction equipment could use public roads for some period of time. These impacts are not expected to be significant, but the potential for Proposed Project compliance activities to increase roadway hazards or affect emergency access is evaluated in Section 3.8, *Hazards and Hazardous Materials*. The transportation and traffic resource topic is dismissed from detailed consideration in this FEIR.

### ***Utilities and Service Systems***

The Proposed Project would not directly require or result in the construction of new or expanded utilities or service systems (e.g., water or wastewater facilities). Compliance activities would take place in areas of active irrigated agricultural production, which are typically rural in nature; parcels in these areas would not typically be connected to municipal water, wastewater, or stormwater systems. Compliance activities could include installation of stormwater management features on farm sites, but the environmental effects of these activities are evaluated throughout this FEIR.

The Proposed Project could result in a beneficial effect in that it could reduce pollutant discharges from irrigated agriculture and thereby reduce potential for exceedance of wastewater treatment requirements of CCWB. Some reasonably foreseeable management practices (e.g., efficient irrigation systems) could improve irrigation efficiency and potentially reduce demands on surface water and groundwater resources.

Construction/installation and maintenance of some reasonably foreseeable management practices (e.g., sediment retention basins, filter strips, bioreactors, etc.) could require disposal of spoils or accumulated sediment at a landfill, but the volumes of these materials would not be expected to exceed the capacity of any landfill. The specific locations where such management practices would be implemented are unknown; therefore, it would be speculative to determine where spoils would be disposed of and the associated impacts on the capacities of specific landfills. Overall, the Proposed Project would not result in significant adverse impacts on utilities and service systems; this resource topic is dismissed from detailed consideration in this FEIR.



## 3.1 Agriculture and Forestry Resources

### 3.1.1 Introduction

This section presents the regulatory and environmental setting and potential impacts of the Proposed Project related to agriculture and forestry resources. This section focuses on potential impacts to the CEQA Appendix G significance criteria related to agriculture and forestry resources, including potential for direct conversion of agricultural land to non-agricultural uses due to Proposed Project activities, conflicts with existing zoning for agricultural use or Williamson Act contracts, or other changes to the environment that could result in conversion of agricultural land to non-agricultural use.

Refer to Section 3.5, *Economics*, for discussion of potential indirect conversion of agricultural lands due to economic effects (e.g., increased costs of compliance). ~~Refer to Section 3.8, *Hazards and Hazardous Materials*, for discussion of potential impacts related to food safety associated with the proposed setback requirements.~~

### 3.1.2 Regulatory Setting

#### ***Federal Laws, Regulations, Policies, or Programs***

No federal laws, regulations, policies, or programs are applicable to agriculture and forestry resources and the Proposed Project.

#### ***State Laws, Regulations, Policies, or Programs***

##### ***Farmland Mapping and Monitoring Program***

The California Department of Conservation (CDOC) established the Farmland Mapping and Monitoring Program (FMMP) in 1982 as a non-regulatory program to provide a consistent and impartial analysis of agricultural land use and land use changes throughout California. The first Important Farmland maps, produced in 1984, covered 30.3 million acres in 38 counties. Since that time, CDOC has collected data every 2 years to assist in understanding changes in agricultural land in the state. Data now span more than 32 years and have expanded to 49.1 million acres as modern soil surveys have been completed by U.S. Department of Agriculture (USDA). FMMP now maps agricultural and urban land use for nearly 98 percent of California's privately held land.

The FMMP has developed categorical definitions of Important Farmland that incorporate the land's suitability for agricultural production rather than solely relying on the physical and chemical characteristics of the soil. The FMMP includes data on the location of agricultural land, land use changes from agriculture to urban development, and soil quality. Land that is identified as Important Farmland is mapped as one of the following four categories (CDOC No Date):

**Prime Farmland.** Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. These lands have the soil quality, growing season, and moisture supply needed to produce sustained high yields. Prime

Farmland must have been used for irrigated agricultural production at some time during the 4 years before the FMMP's mapping date.

**Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Farmland of Statewide Importance must have been used for irrigated agricultural production at some time during the 4 years before the FMMP's mapping date.

**Unique Farmland.** Farmland of lesser quality soils used for the production of the state's leading agricultural crops. These lands usually are irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones. Unique Farmland must have been cropped at some time during the 4 years before the FMMP's mapping date.

**Farmland of Local Importance.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

### *California Land Conservation Act of 1965 (Williamson Act)*

The California Land Conservation Act of 1965, better known as the Williamson Act, is California's primary program to protect agricultural land. The Williamson Act discourages conversion of agricultural land by allowing landowners to enter into long-term contracts (10 or 20 years) with the State of California to keep agricultural land in production in return for reduced property tax rates. The landowner and any successors-in-interest are obligated to adhere to the contract's enforceable restrictions unless the contract is rescinded or cancelled. In 1998, an option was added in the Williamson Act Program to create Farmland Security Zones, which are areas within an agricultural preserve that offer private landowners a greater property tax reduction than the regular assessment within the Williamson Act.

### ***Local Laws, Plans, Policies, and Regulations***

#### ***General Plans***

General plans are long-range comprehensive plans developed for cities and counties to govern growth and development. Many county general plans include goals and policies to preserve agricultural land and forest resources through a variety of mechanisms, such as creation of urban growth boundaries, designation of agricultural overlay zones, requirement of buffers between agricultural and other uses, and mitigation fees for conversion of agricultural land associated with development. Appendix B presents goals and policies in county general plans within the central coast region that are applicable to the Proposed Project.

## **3.1.3 Environmental Setting**

### ***Regional Agricultural Production***

The temperate climate, moderate rainfall, and fertile soils of the central coast region allow for year-round agricultural production, making it one of the most productive agricultural regions of the state. The region also supports a diverse range of crops and commodities owing in part to the variable physical topography and vegetation communities (e.g., redwood forests and foggy coastal terraces to cultivated valley floors and semi-arid grasslands). Prime agricultural lands in

this region include the Salinas, Santa Maria, and Lompoc Valleys, among other areas (Central Coast Regional Water Quality Control Board [CCWB] 2018a). Primary agricultural commodities produced in the central coast region include fruits, vegetables, cattle, and nursery plants.

Along the northern coast in the region, Santa Cruz and San Mateo counties primarily produce nursery plants, flowers, Brussels sprouts, raspberries, strawberries, and other vegetables. The highly productive Salinas Valley in Monterey County is an approximately 90-mile strip of land that runs in a southeast to northwest direction, following the direction of the Salinas River. Lettuce, spinach, broccoli, cauliflower, strawberries, and asparagus, among other crops, are grown in the Salinas Valley. The Santa Maria Valley, located on the coast south of San Luis Obispo in Santa Barbara County, produces primarily strawberries and vegetables (County of Santa Barbara 2009). The Lompoc Valley, located south of the Santa Maria Valley, follows the direction of the Santa Ynez River. This valley is known for producing flower seed, vegetables, and beans (County of Santa Barbara 2009). The main types of agricultural crops and the locations in which they are grown in the region are shown in **Figure 3.1-1**.

### ***Important Farmland***

As described in Chapter 2, *Project Description*, the central coast region contains approximately 538,940 acres of irrigated farmland (i.e., areas designated by CDOC as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland). These areas are defined as the Proposed Project area, as Agricultural Order 4.0 would apply to irrigated agricultural lands. Farmland of Local Importance was not included in the representation of the Project area because this land class is not typically irrigated. **Figure 3.1-2** shows the areas designated by CDOC as Important Farmland in the central coast region.

**Table 3.1-1** provides an overview of Important Farmland acreages in the central coast region.

**Table 3.1-1.** Important Farmland Acreages in the Central Coast Region

County	Important Farmland Acreage (Irrigated Farmland Only)			
	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Total in County
Kern	—	—	—	—
Monterey	166,188	43,992	26,102	236,282
San Benito	26,899	6,914	2,254	36,067
San Luis Obispo	41,189	22,698	45,175	109,062
San Mateo	396	90	735	1,222
Santa Barbara	66,979	13,195	37,325	117,499
Santa Clara	13,587	3,333	1,248	18,168
Santa Cruz	13,688	2,405	3,550	19,643
Ventura	101	82	816	998
<b>All Counties</b>	<b>329,028</b>	<b>92,708</b>	<b>117,204</b>	<b>538,940</b>

Source: CDOC 2016a

A technical brief was developed by CCWB to analyze changes in acreage of irrigated agricultural lands in the central coast region (CCWB 2018b). This report quantified the annual changes in acreage of Farmland of Statewide Importance, Prime Farmland, and Unique Farmland from 1984 to 2014/16 based on FMMP data. Summary results are presented in **Figure 3.1-3**. The analysis shows that, region-wide, Prime Farmland is decreasing (10 percent reduction over the study period), while Farmland of Statewide Importance and Unique Farmland are increasing (29 percent increase over the study period). Additionally, Urban and Built-up Land acreages were shown to be increasing (25 percent increase over the study period) (CCWB 2018b).

The trend observed for Prime Farmland is consistent with the California-wide trend of decreasing acreage for Prime Farmland. The trend observed for Farmland of Statewide Importance and Unique Farmland shows that some types of irrigated farmland are increasing in the central coast region, despite increasing urbanization. Additionally, the results of the analysis shown in **Figure 3.1-3** suggest that increasing the regulation of irrigated agricultural lands (e.g., from Agricultural Order 1.0 and 2.0) are not causing irrigated farmland to go out of production or be converted to non-agricultural uses.

### ***Williamson Act Lands***

Approximately 390,132 acres of irrigated farmlands in the central coast region is subject to a Williamson Act contract. **Figure 3.1-4** shows Williamson Act contract lands within the central coast region. **Table 3.1-2** provides summary data on Williamson Act contract lands in the region.

**Table 3.1-2.** Williamson Act Contract Lands as a Percentage of Important Farmland

<b>Land Type</b>	<b>Acres under Williamson Act Contracts</b>	<b>Total Acres in Central Coast Region</b>	<b>Percentage of Lands under Williamson Act Contracts</b>
Prime Farmland	254,818	329,028	77
Farmland of Statewide Importance	65,158	92,708	70
Unique Farmland	70,156	117,204	60
Irrigated Land Subtotal	390,132	538,940	72

As shown in Table 3.1-2, the majority (72 percent) of irrigated lands within the central coast region are under Williamson Act contracts. Notably, 77 percent of Prime Farmland within the region is under a Williamson Act contract.

### ***Forestry Resources***

Timber resources are located throughout the central coast region, particularly in Santa Cruz and San Mateo counties, as well as along the coast in Monterey and San Luis Obispo counties. In the southern portion of the central coast region, large areas of public forest and private timberlands exist in the Transverse Ranges in Santa Barbara and northern Ventura counties (California Department of Fish and Wildlife [CDFW] 2015). However, in general, such forest resources are not located within the Proposed Project area; these lands are not typically irrigated and would not be subject to Agricultural Order 4.0.

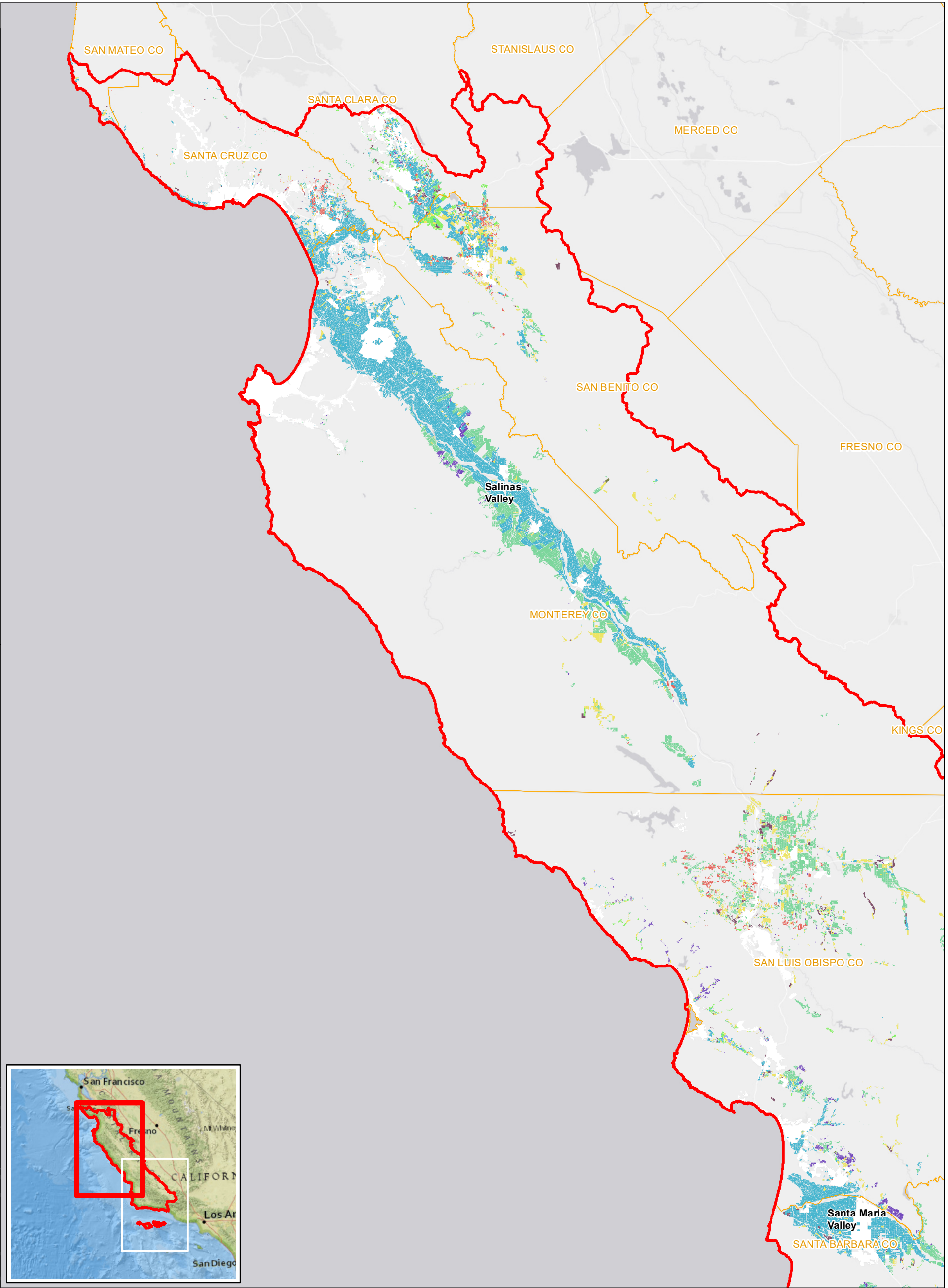
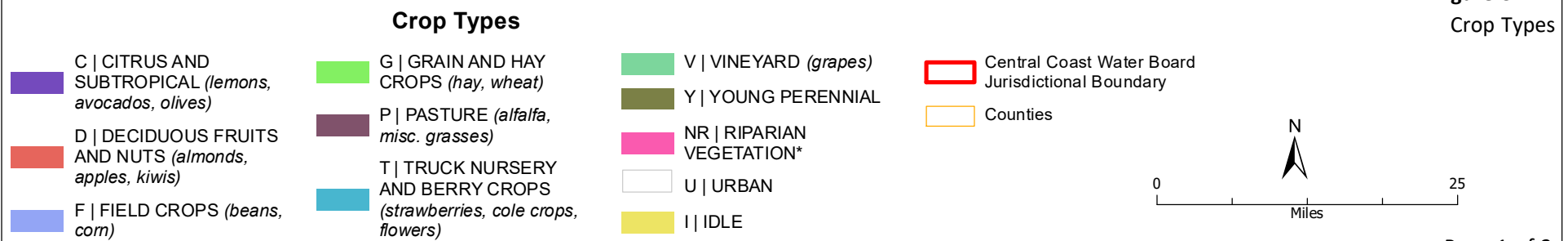


Figure 3.1-1.  
Crop Types



\* This category, from DWR's definition, is only considering managed wetlands as riparian vegetation in agricultural lands. The central coast region does not have managed wetlands. There are, however, riparian vegetation in agricultural areas.

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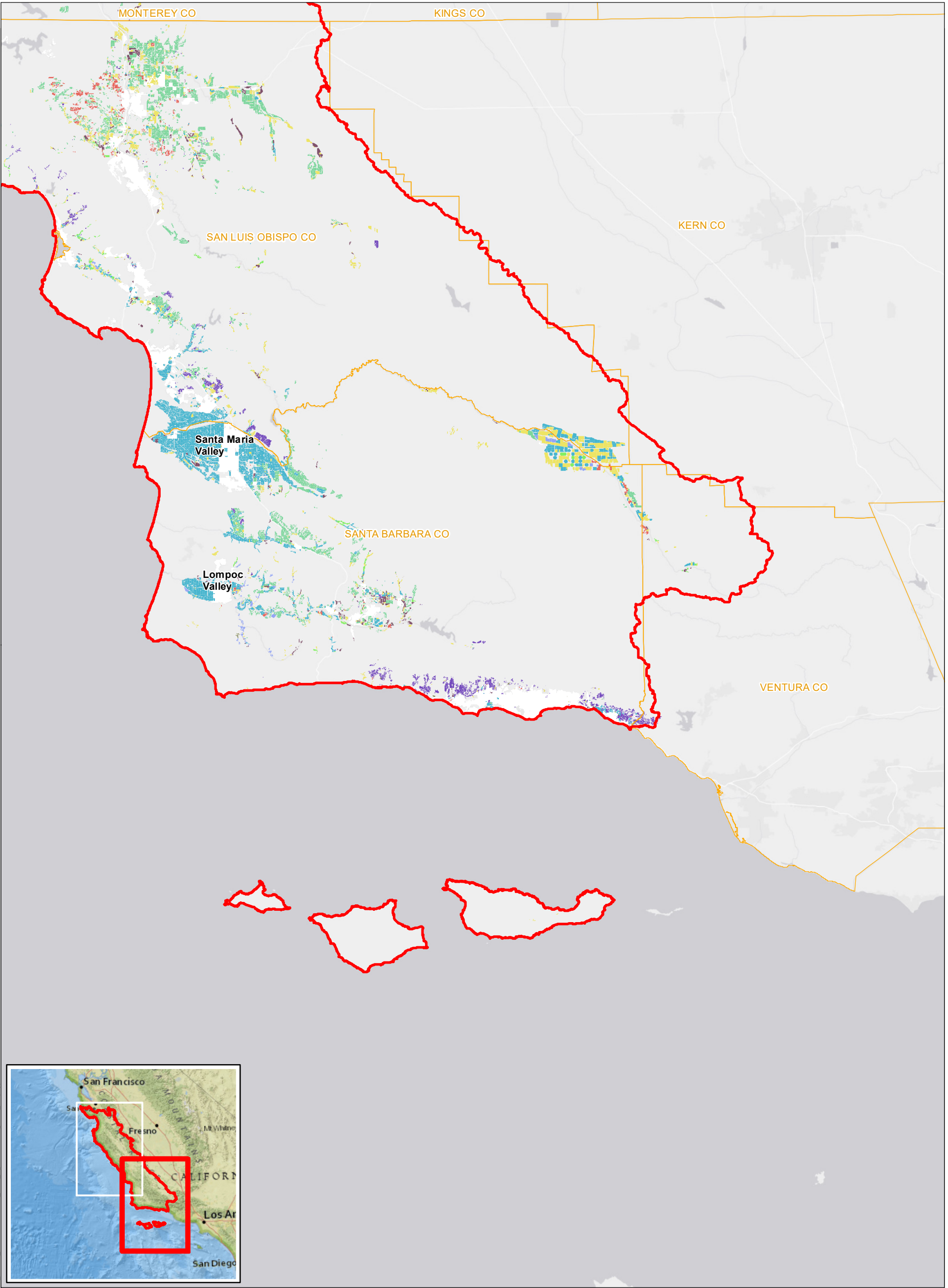
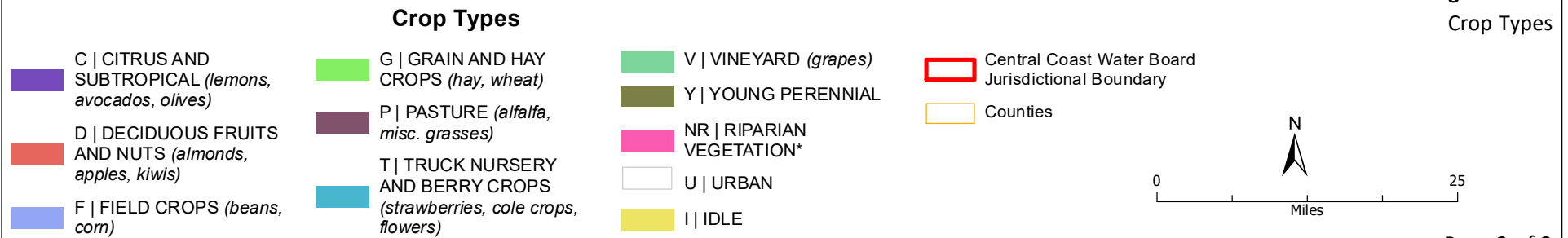


Figure 3.1-1.  
Crop Types

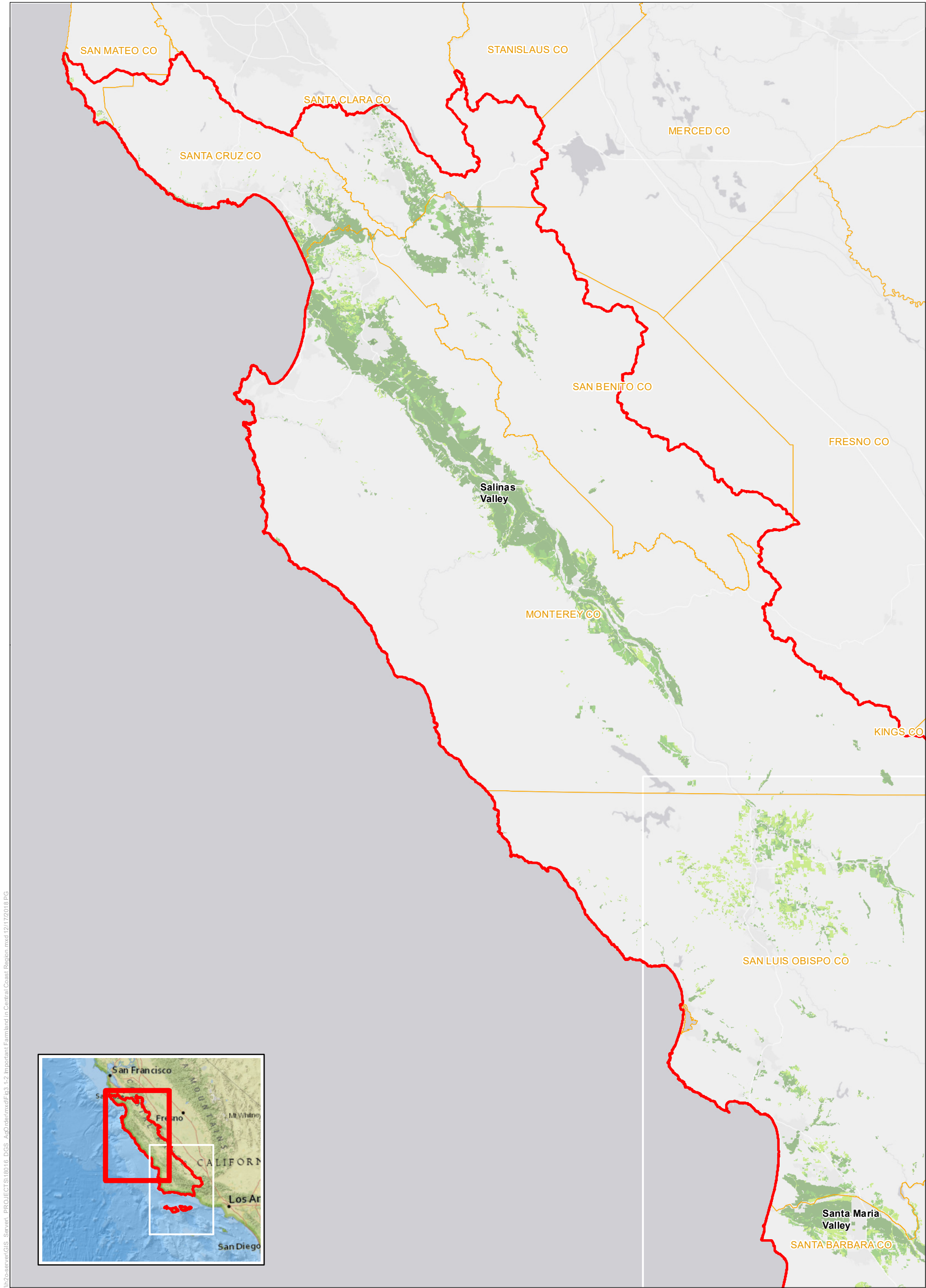


\* This category, from DWR's definition, is only considering managed wetlands as riparian vegetation in agricultural lands. The central coast region does not have managed wetlands. There are, however, riparian vegetation in agricultural areas.

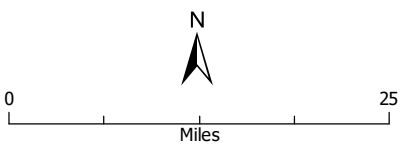
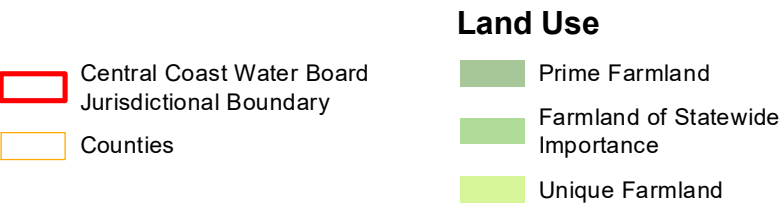
Source: California Department of Conservation, Division of Land Resource Protection, Farmland Map ping and Monitoring Program, 2014, 2016, U.S. Geological Survey (HUC 8), Department of Water Resources 2014

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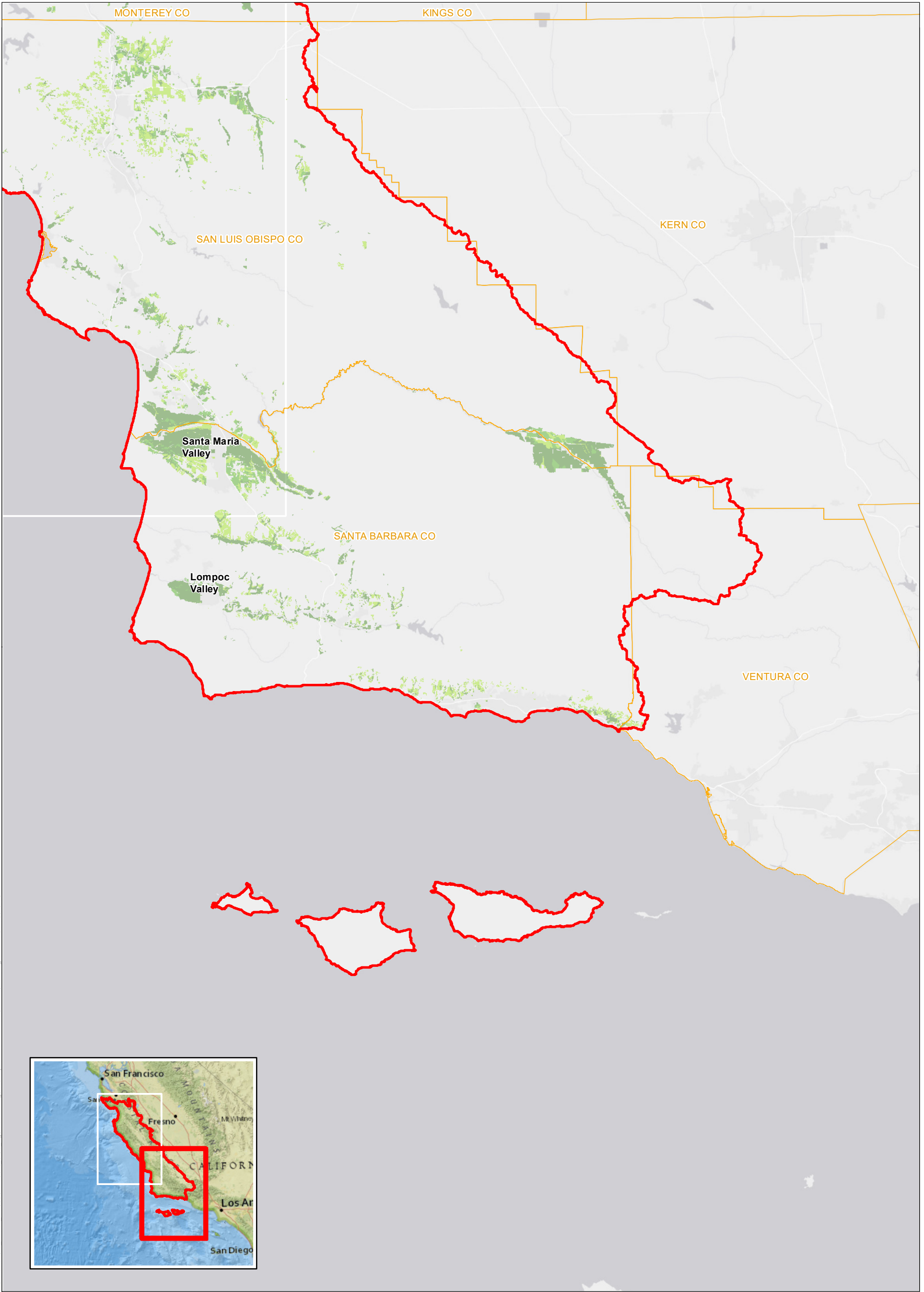




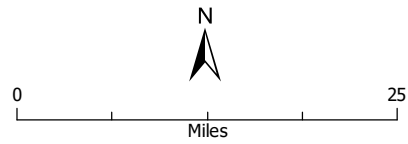
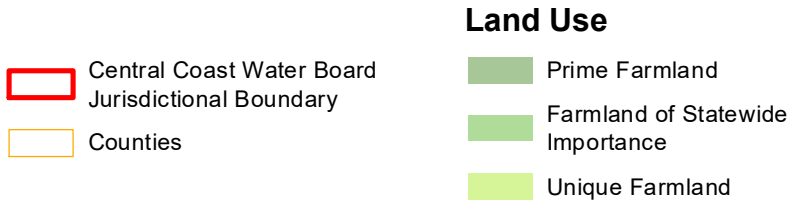
**Figure 3.1-2.**  
Important Farmland



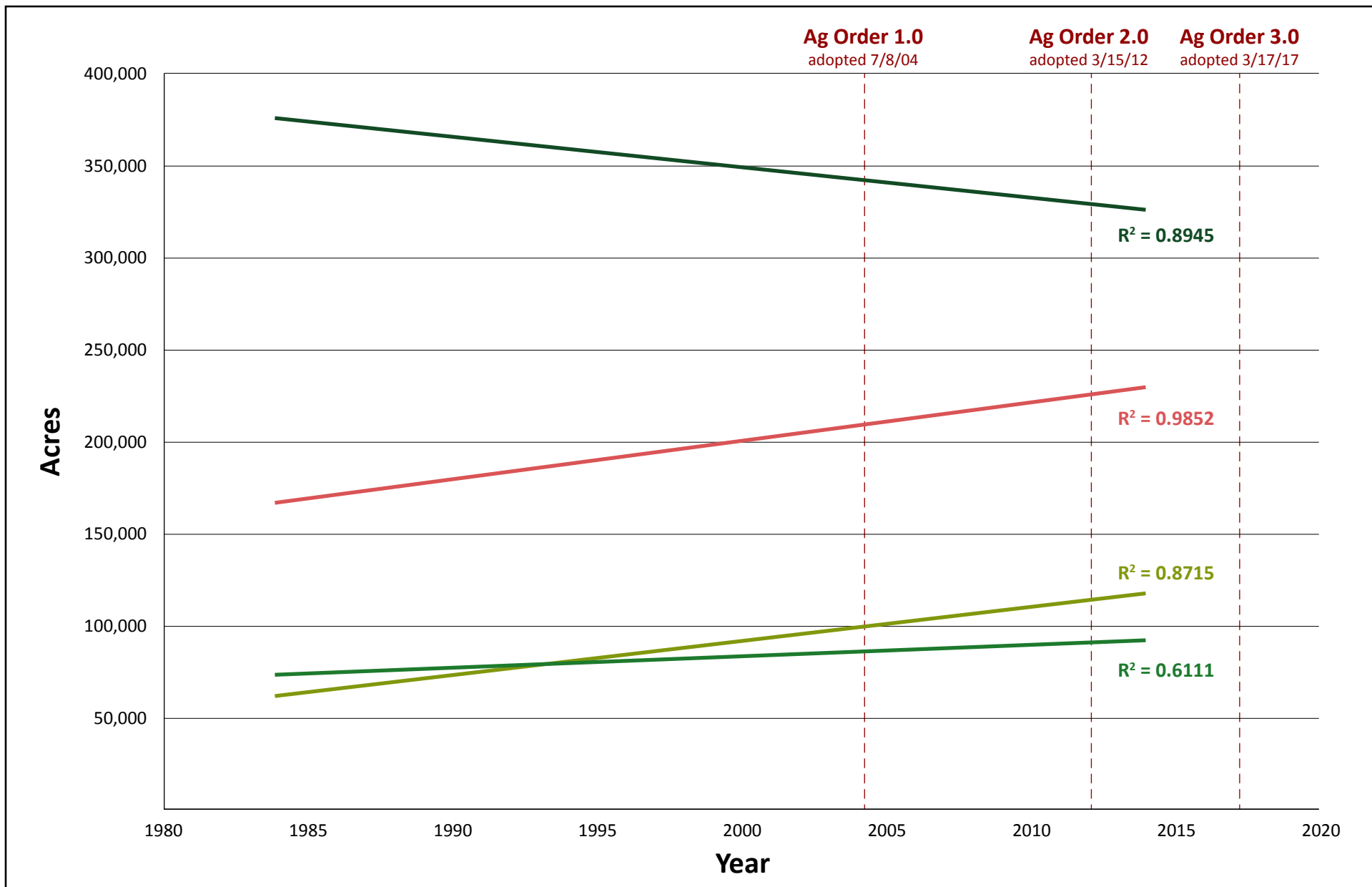
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**Figure 3.1-2.**  
Important Farmland



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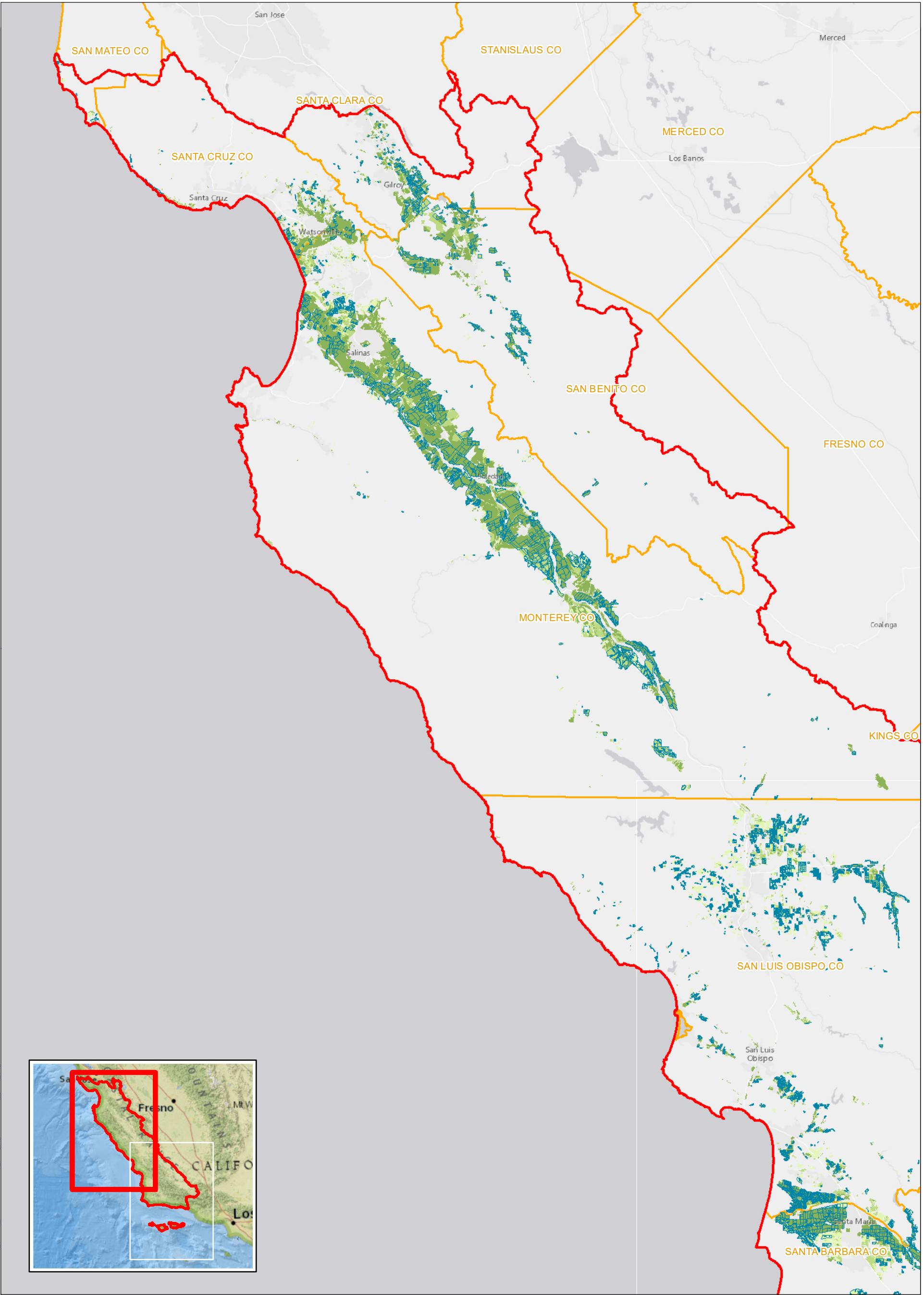


Source: CDOC and CCWB 2018

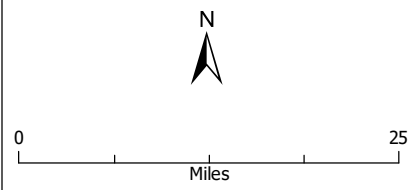
Prime Farmland  
 Farmland of Statewide Importance  
 Unique Farmland  
 Urban and Built-Up Land

**Figure 3.1-3.**  
Agricultural Land Trends

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**Figure 3.1-4.**  
Irrigated Farmland under  
Williamson Act Contract

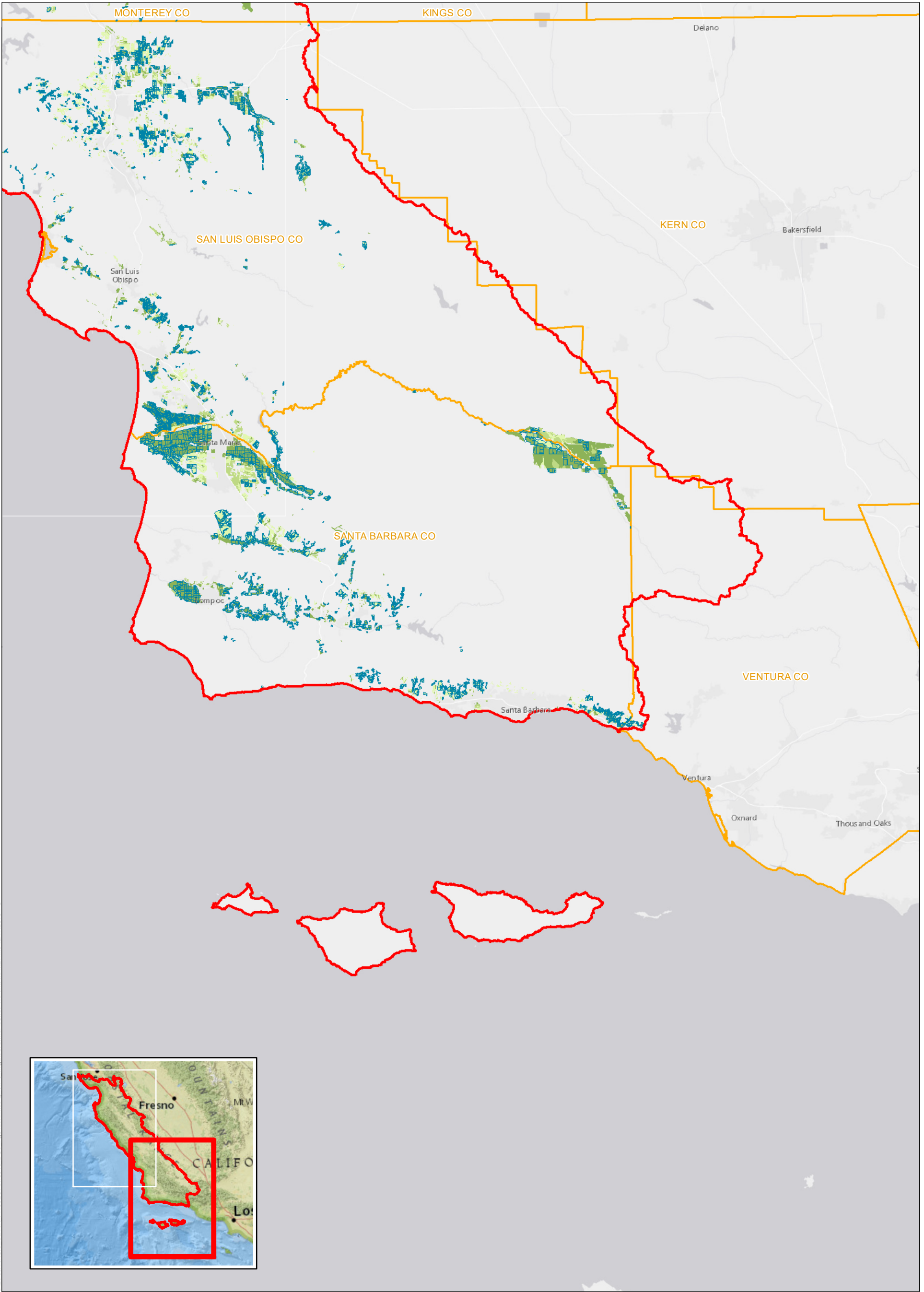


- Land Use**
- Prime Farmland
  - Farmland of Statewide Importance
  - Unique Farmland

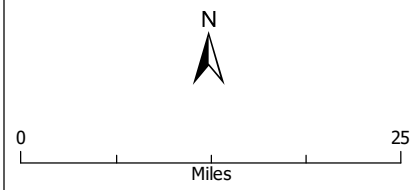
- Williamson Act Parcels in Irrigated Farmland
- Central Coast Water Board Jurisdictional Boundary
- Counties

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**Figure 3.1-4.**  
Irrigated Farmland under  
Williamson Act Contract



- Land Use**
- Prime Farmland
  - Farmland of Statewide Importance
  - Unique Farmland

- Williamson Act Parcels in Irrigated Farmland
- Central Coast Water Board Jurisdictional Boundary
- Counties

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### 3.1.4 Impact Analysis

This section describes the methodology and significance criteria that were used to analyze impacts of the Proposed Project on agriculture and forestry resources. It also presents the analysis of the potential environmental impacts of the Proposed Project.

#### ***Methodology***

The analysis of the potential effects of the Proposed Project on agriculture and forestry resources was both quantitative and qualitative in nature. Because the Proposed Project includes specific setback requirements, CCWB was able to perform a quantitative analysis to determine roughly how many acres could be taken out of production as a result of the proposed setback requirements. This quantitative analysis took a worst case (i.e., conservative) approach in assuming that all growers in priority areas would elect to comply with the on-farm setback compliance pathway rather than one of the other compliance pathways that might result in less land taken out of production, and, notably, that no existing setbacks were present on ranches in the region, and thus the entire mandated setback area would result in cropland conversion. In actuality, some ranches may already have acceptable setbacks under existing conditions (it was not practicable to analyze satellite imagery for the entire central coast region to determine this existing level of setbacks), or may currently have bare ground within the setback distance where no crops are grown. Due to the conservative nature of the assumptions made in this analysis, agricultural land conversion is likely to be less than estimated.

The discussion of potential economic impacts (e.g., increased monitoring and reporting costs for growers) indirectly leading to agricultural land being converted to non-agricultural use references information in Section 3.5, *Economics*, and was primarily qualitative in nature. The Proposed Project allows growers to select the specific management practices to implement on their ranch; therefore, it is unknown which management practices may be implemented at a particular ranch. Additionally, while the potential for increased monitoring costs associated with the Proposed Project can be estimated generally, it is speculative as to which ranches will experience increased costs such as to force or cause them to sell their property or allow their land to go fallow as a result of the Proposed Project.

#### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on agriculture and forestry resources if it would:

- A. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use;
- B. Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- C. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resource Code (PRC) Section 12220[g]), timberland (as defined in PRC Section 4526), or timberland zoned Timberland Production (as defined in Government Code Section 51104[g]);
- D. Result in the loss of forest land or conversion of forest land to non-forest use; or

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

### ***Environmental Impacts of the Proposed Project***

**Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use. (Less than Significant and Unavoidable)**

#### ***Conversion Due to Setback Requirements***

As shown in Table 2-3 in Chapter 2, *Project Description* and described in Appendix A, Agricultural Order 4.0 would require growers to implement riparian setbacks and operational setbacks (collectively referred to as setbacks) if they have irrigated acres in proximity to streams, wetlands, or other waterbodies. All ranches proximal to waterbodies must establish an operational setback of 1.5 times the width of the waterbody or, for wetlands and lakes, a similar distance based on the waterbody area.

Ranches proximal to waterbodies in priority areas must establish a more robust riparian setback. Growers have four compliance pathways to choose from to comply with the riparian setback requirement: (1) participating in a watershed restoration project that may be located outside of their individual ranch but within their watershed area; (2) implementing on-farm setback requirements with setback distance and vegetation requirements based on the waterbody's Strahler Order or wetland area and slope characteristics (i.e., up to 250 feet for Strahler Order 6 streams plus 60 feet on properties with greater than 24 percent slopes); (3) conducting a Rapid Assessment Method (e.g., RipRAM) and increasing their setback distance and/or vegetative cover to match the RipRAM score of a reference site; or (4) submitting an Alternative Proposal for CCWB review and approval, which would include ranch-level surface discharge monitoring and reporting.

Implementing the setback requirements under Agricultural Order 4.0 would result in conversion of agricultural land, including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, to non-agricultural use, regardless of which approach ranches use in complying with the requirements. **Table 3.1-3** shows summary results of an analysis of acreage potentially taken out of production due to the setback requirements.

**Table 3.1-3. Impact Analysis Results for Riparian Setbacks and Operational Setbacks**

Phase	Hydrologic Unit Name	Ranches in Area <sup>1</sup>	Active Irrigated Acres in Area <sup>1</sup>	Acres Potentially Taken Out of Production			Percentage of Irrigated Acres
				Riparian Setback	Operational Setback	Total <sup>2</sup>	
1	Santa Maria	435	48,146	329	10	340	0.7
2	Salinas	1,306	199,651	1,163	278	1,441	0.7
3	Pajaro	1,030	53,875	395	327	722	1.3

Phase	Hydrologic Unit Name	Ranches in Area <sup>1</sup>	Active Irrigated Acres in Area <sup>1</sup>	Acres Potentially Taken Out of Production			Percentage of Irrigated Acres
				Riparian Setback	Operational Setback	Total <sup>2</sup>	
3	Monterey Bay	369	29,053	725	0	725	2.5
3	Santa Ynez	286	17,117	38	90	129	0.8
4	Cuyama	94	22,116	1	118	119	0.5
4	Estrella	138	20,861	0	90	90	0.4
4	Central Coastal	430	19,705	197	0	197	1.0
4	San Antonio	61	10,478	205	0	205	2.0
4	Santa Barbara Coastal	259	7,897	86	0	87	1.1
4	San Francisco Coastal South	19	1,394	3	0	3	0.2
4	Ventura	35	1,003	0	8	8	0.8
4	Coyote	4	72	0	0	0	0.0
	Region	4,462	431,298	3,143	922	4,064	0.9

**Notes:**

1. This analysis used data exported from the Ag\_eNOI database in July 2019. Therefore, the total number of ranches/acres represented in this table may not match with data provided in the project description and elsewhere in this DEIR, which uses data exported in February 2018.
2. This total represents potential setback acreage based on Department of Water Resources (2014) data.

Source: CCWB 2019a

As shown in Table 3.1-3, the analysis found that the setback requirements would result in a total of 4,064 acres of land potentially being taken out of production. Given the total acreage in the region (431,298 acres), this would equate to 0.9 percent of the total irrigated agricultural land in the region potentially being taken out of agricultural production. The majority of agricultural land conversion would occur in priority areas for beneficial use protection (i.e., implementing the full riparian setback requirements to restore degraded watersheds and protect high quality watersheds) (3,143 acres), whereas less conversion would occur in non-priority areas where the 1.5 times the width of the waterbody operational setback would be employed (922 acres).

Based on the phasing in and prioritization of requirements under Agricultural Order 4.0, all of this conversion would not be expected to occur immediately or at the same time; rather, many ranches would not need to meet all success criteria and requirements until 2030 (Priority 1 areas) to 2033 (Priority 4 areas). On the watershed level, the greatest amount of conversion would be anticipated to occur in the Salinas Hydrologic Unit (1,441 acres), although the 725 acres that would potentially be taken out of production in the Monterey Bay Hydrologic Unit would represent 2.5 percent of the total irrigated acreage in this watershed. **Table 3.1-4** shows the types of Important Farmland that could be taken out of production due to the setback requirements.

**Table 3.1 4. Setback Impacts Analysis Results – Important Farmland Conversion**

Setback Type	Important Farmland Potentially Converted to Setbacks (Acres) <sup>1</sup>			
	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Total Farmland
Operational	327.63	150.29	240.33	718.25
Riparian	1,640.45	629.34	759.35	3,029.14
Totals	1,968.08	779.63	999.68	3,747.38

**Note:**

1. The CEQA checklist specifically identifies impacts on Prime Farmland, Unique Farmland or Statewide Importance (Farmland). To determine the type of Farmland these crop types represent, the total number of acres based on the analysis using 2014 DWR data (4,064) were classified using the FMMP, which resulted in a slightly different total of 3,747 acres. The difference may be due to each data source having small differences in the areas marked as crops or Farmland.

Source: CCWB 2019b

A total of approximately 1,968 acres of Prime Farmland could be converted to setbacks, compared to approximately 780 acres of Farmland of Statewide Importance and 1,000 acres of Unique Farmland. This represents approximately 0.5% (Prime Farmland), 0.2% (Farmland of Statewide Importance), and 0.2% (Unique Farmland) of the total irrigated acres. The majority of the Farmland potentially converted to setbacks would be done so to restore degraded riparian habitat and waters adjacent to irrigated agricultural land in priority areas.

While Farmland could be taken out of production under Agricultural Order 4.0 due to the setback requirements, it is important to note that it would be converted to riparian or other vegetation (which is generally considered beneficial for water quality and the ecosystem) and not urban land uses. Nevertheless, the potential conversion of Farmland represents a significant impact, particularly in light of declining acreage of Farmland in the central coast region and California as a whole.

It is worth noting that due to the 2006 *Escherichia coli* 0157:H7 outbreak in bagged spinach, which was traced to California's central coast region, many growers converted riparian and wetland vegetation in the Salinas Valley to bare ground or crops (Karp 2015). Although no definitive cause for the outbreak was determined, wildlife was implicated as a disease vector. Growers were subsequently pressured to minimize the intrusion of wildlife onto their farm fields by removing surrounding non-crop vegetation, such as riparian vegetation.

Between 2005 and 2012, within 50 meters of agricultural fields in the Salinas Valley, Karp and his team detected declines in riparian (9%), woodland (2%), scrub (13%), grassland (11%), and meadow/marsh (30%) vegetation, representing a total of 977 acres. Additionally, they measured a 30% increase in bare ground (692 acres). It is probable that a significant portion of non-crop vegetation area was converted from 2005-2012 to bare ground and not cropland, as a result of food safety concerns triggered by the 2006 *Escherichia coli* 0157:H7 outbreak in bagged spinach. It is likely that similar changes in land uses occurred during the 2005-2012 time period, and

beyond, and in other agricultural watersheds, e.g. the Santa Maria River and Pajaro River Watersheds.

In the larger context, California has lost an estimated 91 percent of its historic wetland acreage, the highest loss rate of any state. Similarly, California has lost between 85 and 98 percent of its historic riparian areas (SWRCB 2008). Landowners and operators of agricultural operations historically removed riparian and wetland areas to plant cultivated crops (Braatne et al. 1996; Riparian Habitat Joint Venture 2004).

Agricultural Order 4.0 setback requirements may not necessarily result in a conversion of cropland to non-crop vegetation; rather, in some cases there may be a conversion from bare ground to non-crop vegetation (e.g. riparian vegetation). Growers may, however, decide to increase the bare ground area flanking the newly established non-crop vegetation in required setback areas, which could result in a conversion away from cropland. Those type of conversions would not be a result of complying with Agricultural Order 4.0's setback requirements, but from food safety concerns.

CCWB considered alternative methods for reducing the potentially significant impacts associated with the setback requirements, including financial contributions to an entity such as the California Farmland Conservancy Program, which establishes conservation easements to preserve existing farmland in California. Based on the value of irrigated farmland (the farm real estate average value per acre in California was \$9,000 in 2018 [USDA 2018]), contributions to such a program to off-set potential agricultural resources impacts from the Proposed Project could amount to a large sum (potentially in the range of \$36.5 million assuming up to 4,064 acres could be impacted). Additionally, such a mitigation approach, while it would help to conserve and steward remaining agricultural land resources, would not replace the Farmland that could be taken out of production as a result of the Proposed Project. Also, a large percentage of lands in the central coast region are already under Williamson Act contracts (see Table 3.1-2), so additional conservation easements may not be needed or as effective in this case. Establishing a new agricultural land conservation or trading program (e.g., to directly compensate for lost productive acres for individual farmers) would be beyond the current resources of CCWB given its many other commitments, the scope of CCWB's statutory jurisdiction, and the potential complexity of such a scheme.

Agricultural Order 4.0 itself would provide a number of different potential approaches for minimizing impacts to productive lands for individual growers, and there are other practical, potentially feasible options to reduce impacts. As described in Appendix A, there are four available compliance pathways for the riparian setback requirements, which individual growers could choose from to minimize impacts to their lands based on suitability for their specific situation. Growers subject to potential loss of productive lands due to the setback requirements could also potentially shift crop rows away from riparian habitat and into un-utilized areas of the property. This would be feasible if a ranch has un-utilized space that is considered equally productive land.

While the flexibility of compliance options in Agricultural Order 4.0 could be helpful for individual growers, it is not possible to predict with any certainty whether they would sufficiently mitigate the agricultural land conversion that could occur under the Proposed Project. As described above, other commonly employed mitigation approaches for agricultural

~~land impacts (e.g., conservation easements) are not considered feasible and likely would not be sufficient to reduce the impact to less than significant, as these approaches would not replace the agricultural land potentially taken out of production as a result of the Proposed Project. As such, no feasible mitigation is available to reduce these adverse effects. Therefore, this impact would be significant and unavoidable.~~

### *Conversion Due to Economic Impacts from Agricultural Order 4.0 Requirements*

~~In addition to agricultural land conversion from riparian setbacks,~~ There is also potential for indirect conversion of agricultural lands due to the economic costs and impacts associated with complying with Agricultural Order 4.0. This concern was frequently raised during the scoping period for the EIR and the public comment periods during development of the Draft Order. Specific concerns included that “additional regulatory requirements would create insurmountable technical and financial obstacles and would compromise the value and long-term viability of agricultural lands” (Grower-Shipper et al.); and “a cumulative effect of environmental regulations can be the loss of some farmland either by regulatory restrictions or by the compliance burden casualty” (California Farm Bureau Federation).

CCWB and its consultants analyzed potential increased costs associated with the proposed Agricultural Order 4.0, as documented in Section 3.5, *Economics*. As described in Section 3.5, Agricultural Order 4.0 would result in increased costs for growers due to additional requirements relative to Agricultural Order 3.0. The additional costs of management practice implementation are speculative because it is unknown which management practices will be implemented by which growers, as Agricultural Order 4.0 would not prescribe specific methods of compliance.

While Agricultural Order 4.0 would result in some increased costs, it is largely speculative as to whether these increased costs could lead to conversion of agricultural lands to non-agricultural uses. CCWB understands that profit margins may be slim for some business owners in the agricultural industry and any increased administrative/regulatory costs could adversely affect businesses’ bottom lines. However, the potential effects of increased costs would depend on specific growers’ situations as well as current and future agricultural commodity markets. CCWB does not find that the anticipated increased costs would be large enough to necessarily cause any existing agricultural operations to go out of business or otherwise choose to abandon their operations, and thereby potentially result in farmland being converted to non-agricultural uses. Please refer to Section 3.5 for more detailed discussion.

As a result of the speculative nature of Agricultural Order 4.0’s effects on agricultural land conversion due to economic impacts, this impact would be **less than significant**.

### *Conversion Due to Implementation of Management Practices*

Certain management practices ~~(apart from setbacks)~~ also could result in conversion of some amount of agricultural land to non-agricultural uses. For example, installation of sediment retention basins or vegetated filter strips could require that a grower take a portion of their field(s) out of production to make room for these new features. The amount of land that could be taken out of production would depend on the specific ranch layout and the design of specific management practices. Because Agricultural Order 4.0 would not specify the manner of compliance, it is not possible to determine which ranches will implement which management



practices in which locations. As a result, it cannot be determined how many acres of land may be taken out of production due to implementation of management practices ~~(other than setbacks)~~. Therefore, this impact is speculative and **less than significant**.

### *Conclusion*

Overall, ~~due to the known potential conversion of Farmland from compliance with Agricultural Order 4.0's setback requirements and the lack of feasible mitigation to lessen these impacts,~~ this impact would be **less than significant and unavoidable**.

### **Impact AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract. (Less than Significant and Unavoidable)**

As described in Impact AG-1, the Proposed Project's effects on agricultural land, including Important Farmland and land that may be under a Williamson Act contract, are speculative. ~~would result in the conversion of farmland to non-agricultural (i.e., open space/habitat) uses from implementation of the proposed setback requirements. The requirements would only apply to ranches that are adjacent to streams or other waterbodies and would vary based on the adjacent stream class and slope of the property. Refer to Table 3.1-3 and Table 3.1-4 for information on the anticipated acreage of lands that may be taken out of production due to the setback requirements in Agricultural Order 4.0.~~

Much of the land that could be taken out of production as a result of Agricultural Order 4.0 is zoned for agricultural use by the applicable county government and/or under a Williamson Act contract. Although zoning regulations vary by jurisdiction, in general, agricultural zoning districts encourage conservation of agricultural lands and continuation of agricultural uses. Riparian vegetation/habitat is not a use that would typically be specifically prohibited in an agricultural zoning district, but it also would not further the purpose of the district by conserving agricultural lands. Given that Agricultural Order 4.0 could result in the conversion of as much as 4,064 acres of agricultural land (see Table 3.1-3), most of which would be zoned for agricultural use, to riparian uses, this conversion would conflict with the existing zoning for agricultural use.

~~Table 3.1-5 shows the acres of agricultural land under an existing Williamson Act contract that could be converted to non-agricultural (i.e., riparian/habitat) use directly as a result of the riparian and/or wetland setback requirements.~~

**Table 3.1-5. — Setback Impacts Analysis — Williamson Act Lands Converted to Non-Agricultural Use**

County	Acres Potentially Taken Out of Production		
	Riparian	Operational	Total
Monterey	1,475.14	271.97	1,747.11
San Benito	0.03	109.01	109.04
Santa Cruz	20.06	0.18	20.24

Santa Clara	0	19.54	19.54
San Luis Obispo	102.01	108.70	210.71
Santa Barbara	411.89	139.20	551.09
Ventura	6.91	0	6.91
San Mateo	1.07	0	1.07
Total	2,017.11	648.6	2,665.71

Source: CCWB 2019b

As described in Section 3.1.2 above, the Williamson Act is California's primary program to protect agricultural land and is fundamentally intended to prevent the conversion of agricultural lands to non-agricultural uses. Although specific Williamson Act contracts between landowners and the state could differ to some degree in their language and clauses, generally the conversion of existing agricultural land to non-agricultural uses (even for open space or riparian vegetation/habitat purposes) would be assumed to conflict with the spirit of the contract.

Communications with CDOC's Division of Land Resources Protection have indicated that prevailing case law states that as long as 50 percent or more of the land under a Williamson Act contract is in agricultural use, the remainder can be used for open space (Richter, pers. comm., 2019). Additionally, as discussed above in section 3.1.4, it is likely that much of the converted land will be from bare ground to non-crop vegetation. While it is unlikely that the riparian setback requirements would result in more than 50 percent of a specific ranch's land area under Williamson Act contract being converted to riparian/open space uses, this possibility cannot be entirely ruled out. As such, this impact is considered to be potentially significant. For the reasons stated under Impact AG-1, no feasible mitigation is available to reduce these potential effects. Therefore, this impact would be less than significant~~significant and unavoidable~~.

**Impact AG-3: Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. (No Impact)**

The Proposed Project would only apply to irrigated lands. Because forest land and timberland are not usually irrigated, these areas would not be subject to the Proposed Project requirements and would have no potential to be adversely affected by the Proposed Project. No lands currently zoned for forest land, timberland, or timberland zoned Timberland Production are anticipated to be subject to Agricultural Order 4.0. As such, **no impact** would occur.

**Impact AG-4: Result in the loss of forest land or conversion of forest land to non-forest use. (No Impact)**

As described in Impact AG-3, Agricultural Order 4.0 would not be anticipated to apply to any forest lands because Agricultural Order 4.0 would only apply to irrigated lands and forest lands

are not typically irrigated. Therefore, it would have no potential to result in the loss of forest land or conversion of forest land to non-forest use. **No impact** would occur.

**Impact AG-5: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use. (*Less than Significant*)**

The Proposed Project would not result in any other changes in the existing environment (apart from the effects described in Impact AG-1) which could result in conversion of Farmland to non-agricultural use. The Proposed Project would be limited to the adoption of Waste Discharge Requirements (WDRs) for irrigated agricultural lands and would not include any new urban or residential development or any other land uses or infrastructure which could directly or indirectly result in agricultural land conversion. As such, this impact would be **less than significant**.

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## 3.2 Air Quality

### 3.2.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to air quality. Greenhouse gas emissions from the Proposed Project are discussed in Section 3.7, *Greenhouse Gas Emissions*.

### 3.2.2 Regulatory Setting

#### ***Federal Laws, Regulations, and Standards***

##### *Clean Air Act*

The federal Clean Air Act (CAA) and the 1990 CAA Amendments govern air quality in the United States and are administered by U.S. Environmental Protection Agency (USEPA). The CAA authorizes USEPA to set limits on the concentrations in the air of certain air pollutants and grants it the authority to place limits on emission sources. USEPA implements a variety of programs under the CAA that focus on reducing ambient air concentrations of pollutants that cause smog, haze, acid rain, and serious health effects and on phasing out ozone-depleting chemicals.

##### National Ambient Air Quality Standards

As required by the CAA, USEPA has established National Ambient Air Quality Standards (NAAQS) for six major air pollutants. These pollutants, known as criteria air pollutants, are ozone (O<sub>3</sub>); particulate matter (PM), specifically PM<sub>10</sub> (PM with aerodynamic radius of 10 micrometers or less) and PM<sub>2.5</sub> (PM with aerodynamic radius of 2.5 micrometers or less); carbon monoxide (CO); nitrogen dioxide (NO<sub>2</sub>); sulfur dioxide (SO<sub>2</sub>); and lead. California also has established ambient air quality standards, known as the California Ambient Air Quality Standards (CAAQS), which generally are more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide (H<sub>2</sub>S), vinyl chloride, and visibility-reducing particles. CAAQS are discussed in more detail below in “State Laws, Regulations, and Standards.” The federal and state standards for criteria air pollutants are shown in **Table 3.2-1**.

A basic measure of air quality is whether an air basin is meeting the NAAQS and CAAQS. Areas that do not exceed these standards are designated as being in attainment; areas that exceed these standards are designated as nonattainment areas (NAAs), and areas for which insufficient data are available to make a determination are designated unclassified. As part of its enforcement responsibilities, USEPA requires each state with NAAs to prepare and submit a State Implementation Plan (SIP) that demonstrates the means by which it will attain the federal standards, and requires that a maintenance plan be prepared for each former NAA for which the state subsequently has demonstrated attainment of the standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs, within the time frame identified in the SIP.

**Table 3.2-1.** Federal and State Ambient Air Quality Standards

Contaminant	Averaging Time	Federal Primary Standards	State Standards
Ozone (O <sub>3</sub> )	1-hour	—	0.09 ppm
	8-hour	0.070 ppm	0.070 ppm
Carbon Monoxide (CO)	1-hour	35 ppm	20 ppm
	8-hour	9.0 ppm	9.0 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour	0.100 ppm	0.18 ppm
	Annual arithmetic mean	0.053 ppm	0.030 ppm
Sulfur Dioxide (SO <sub>2</sub> )	1-hour	0.075 ppm	0.25 ppm
	24-hour	0.14 ppm	0.04 ppm
	Annual arithmetic mean	0.030 ppm	—
Particulate Matter (PM <sub>10</sub> )	24-hour	150 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
	Annual arithmetic mean	—	20 µg/m <sup>3</sup>
Fine Particulate Matter (PM <sub>2.5</sub> )	24-hour	35 µg/m <sup>3</sup>	—
	Annual arithmetic mean	12 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>
Sulfates	24-hour	—	25 µg/m <sup>3</sup>
Lead	30-day average	—	1.5 µg/m <sup>3</sup>
	Rolling 3-month average	0.15 µg/m <sup>3</sup>	—
Hydrogen Sulfide (H <sub>2</sub> S)	1-hour	—	0.03 ppm
Vinyl Chloride (chloroethene)	24-hour	—	0.010 ppm
Visibility-reducing Particles	8 hour (10 am to 6 pm)	—	Visibility equivalent to 10-mile visual range

**Notes:** ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter

*Sources: CARB 2016a, USEPA 2018*

#### National Emission Standards for Hazardous Air Pollutants

The National Emission Standards for Hazardous Air Pollutants, contained in two parts (Part 61 and 63) of Title 40 of the Code of Federal Regulations (CFR), regulate major sources of hazardous air pollutants (HAPs). HAPs include asbestos, beryllium, mercury, vinyl chloride, benzene, arsenic, radon/radionuclides, and various types of pesticides, herbicides, and other chemicals. A “major source” is defined as a source having the potential to emit 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs.

### *Non-road Emission Regulations*

USEPA has adopted emission standards for different types of non-road engines, equipment, and vehicles. The Tier 4 (currently in effect) standards require that emissions of PM and nitrogen oxides (NO<sub>x</sub>) from non-road diesel engines are reduced compared to previous engines. Such emission reductions can be achieved through the use of control technologies, including advanced exhaust gas after-treatment.

### ***State Laws, Regulations, and Standards***

#### *California Ambient Air Quality Standards and the California Clean Air Act*

The State of California initiated its own air quality standards, the CAAQS, in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are goals for air quality within the state, which generally are more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, CAAQS also regulate sulfates, H<sub>2</sub>S, vinyl chloride, and visibility-reducing particles. These standards are listed in Table 3.2-1.

The California Clean Air Act (CCAA), enacted in 1988, provides a comprehensive framework for air quality planning. The CCAA requires NAAs to achieve and maintain the health-based CAAQS by the earliest practicable date. The CCAA requires NAAs in the state to prepare attainment plans, which are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented. All air basins in California are either unclassified or in attainment of the NAAQS and CAAQS for CO, SO<sub>2</sub>, and NO<sub>2</sub>. Some air basins are classified as NAAs for the NAAQS and CAAQS for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

The California Air Resources Board (CARB) is responsible for ensuring implementation of the CCAA, meeting state requirements for the federal CAA, and establishing the CAAQS. CARB oversees activities of local air districts and is responsible for incorporating air quality management plans for local air basins into a SIP for USEPA approval. It also is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications (see discussion of CARB rules below).

The California Department of Pesticide Regulation (CDPR) is responsible for regulating agricultural and commercial structural pesticide products as sources of volatile organic compounds (VOCs) as part of the California SIP to meet the O<sub>3</sub> standard. CDPR, in collaboration with CARB, implements several activities related to air monitoring, evaluating health risk of pesticides in air, mitigating and controlling health risks of pesticides, and tracking and reducing pesticide VOC emissions.

#### *California Air Resources Board Rules, Regulations, and Programs*

As noted above, CARB has established a number of rules and regulations for the purpose of meeting the standards in the federal and state CAAs. The relevant CARB rules, regulations, and programs are discussed briefly below.

#### Commercial Vehicle Idling Regulation

CARB adopted an Airborne Toxic Control Measure (ATCM) to limit idling of diesel-fueled commercial motor vehicles. This regulation requires heavy-duty diesel engines of model years

2008 and newer to be equipped with a non-programmable system that automatically shuts down the engine after 5 minutes of idling or, optionally, meets a stringent NO<sub>x</sub> idling emission standard (CARB 2019a).

#### Diesel Fuel Program

CARB established regulations which require that diesel fuel with sulfur content of 15 parts per million (ppm) or less (by weight) be used for all diesel-fueled vehicles that are operated in California. The standard also applies to non-vehicular diesel fuel, other than diesel fuel used solely in locomotives or marine vessels. The regulations also contain standards for the aromatic hydrocarbon content and lubricity of diesel fuels.

#### In-use Off-road Diesel Vehicle Regulation

CARB adopted a regulation to reduce diesel PM and NO<sub>x</sub> emissions from in-use, off-road, heavy-duty diesel vehicles in California. The regulation imposes limits on vehicle idling and requires fleets to reduce emissions by retiring, replacing, repowering, or installing exhaust retrofits to older engines. Personal-use vehicles and vehicles used solely for agriculture are exempt from this regulation (CARB 2016b).

#### Portable Engine Airborne Toxic Control Measure

The Portable Engine ATCM is designed to reduce the PM emissions from portable diesel-fueled engines rated at 50 brake horsepower or larger. Based on their cumulative horsepower, fleets must follow a phase-out schedule or meet fleet-average emission rates.

#### Portable Equipment Registration Program

The statewide Portable Equipment Registration Program (PERP) establishes a system to uniformly regulate portable engines and portable engine-driven equipment units. After being registered in this program, engines and equipment units may operate throughout the state without the need to obtain separate permits from individual air districts. Owners or operators of portable engines and certain types of equipment can voluntarily register their units to operate their equipment anywhere in the State, although the owners and operators may still be subject to certain district requirements for reporting and notification. Engines with less than 50 brake horsepower are exempt from this program.

#### *California Toxic Air Contaminant Act*

The California Toxic Air Contaminant Act created the statutory framework for the evaluation and control of chemicals as toxic air contaminants (TACs). A TAC is “an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health (California Health and Safety Code Section 39655).” CDPR is responsible for evaluating chemicals, including pesticides, to determine whether the chemical should be listed as a TAC. Once a chemical is listed as a TAC, CDPR investigates the need for, and appropriate degree of, control for the TAC, including potential measures to reduce emissions to levels that adequately protect public health.



### ***Regional and Local Laws, Regulations, and Policies***

#### ***Air Pollution Control District Rules and Regulations***

The state is divided into 15 air basins, which are managed by 35 air districts. Air districts establish rules and regulations governing emissions, consistent with federal and state laws, including those pertaining to portable equipment registration, odor, fugitive dust, solvents (i.e., VOCs), and visible emissions. Air district rules and regulations generally require that individuals limit emissions (e.g., fugitive dust, VOCs, TACs, etc.) during construction activities. Many air districts also limit emissions of odor-causing substances and particulate matter that adversely affects visibility. Agricultural activities are often exempt from air district rules and regulations.

#### ***General Plans***

Many city and county general plans contain goals, policies, and strategies related to air quality and air pollutant emissions. Applicable policies and strategies from these general plans may include limiting idling time of vehicles and equipment and encouraging the installation of emission control devices. Appendix B shows applicable goals and policies for county general plans in the central coast region.

### **3.2.3 Environmental Setting**

#### ***Criteria Air Pollutants***

##### ***Ozone***

O<sub>3</sub> is formed by photochemical reactions between NO<sub>x</sub> and reactive organic gases (ROGs) in the presence of sunlight rather than being directly emitted. O<sub>3</sub> is a pungent, colorless gas that is a component of smog. Elevated O<sub>3</sub> concentrations can result in reduced lung function, particularly during vigorous physical activity. This health problem can be particularly acute in sensitive receptors such as the sick, seniors, and children. O<sub>3</sub> levels peak during the summer and early fall months.

##### ***Carbon Monoxide***

CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairment to central nervous system functions. CO passes through the lungs into the bloodstream, where it interferes with the transfer of oxygen to body tissues.

##### ***Nitrogen Oxides***

NO<sub>x</sub> contribute to other pollution problems, including a high concentration of fine PM, poor visibility, and acid deposition. NO<sub>2</sub>, a reddish-brown gas, and nitric oxide, a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to collectively as NO<sub>x</sub>. NO<sub>x</sub> is a primary component of the photochemical smog reaction. NO<sub>2</sub> can decrease lung function and may reduce resistance to infection.

### *Sulfur Dioxide*

SO<sub>2</sub> is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO<sub>2</sub> levels in California. SO<sub>2</sub> irritates the respiratory tract, can injure lung tissue when combined with fine PM, and reduces visibility and the level of sunlight.

### *Reactive Organic Gases*

ROGs are formed from combustion of fuels and evaporation of organic solvents. ROGs are the fraction of VOCs that are a prime component of the photochemical smog reaction. Individual ROGs can be TACs.

### *Particulate Matter*

PM is the term used for a mixture of solid particles and liquid droplets suspended in the air. PM ranges from particles that can be seen with the naked eye, such as dust or soot, to particles that can only be seen with an electron microscope. Respirable PM of 10 microns in diameter or less is called PM<sub>10</sub>. Fine particulate matter is a subgroup known as PM<sub>2.5</sub> and is defined as particles with a diameter of 2.5 microns or less.

PM can be emitted directly from primary sources or formed secondarily from reactions in the atmosphere. Primary sources include windblown dust, grinding operations, smokestacks, and fires. Secondary formation of PM occurs from reactions of gaseous precursors within the atmosphere, such as the formation of nitrates from NO<sub>x</sub> emissions from combustion activities.

PM can accumulate in the respiratory system and aggravate health problems. These health effects include cardiovascular symptoms; cardiac arrhythmias; heart attacks; respiratory symptoms; asthma attacks; bronchitis; alterations in lung tissue, lung structure, and respiratory tract defense mechanisms; and premature death in people with heart or lung disease. Those at particular risk of increased health decline from exposure to PM include people with preexisting heart or lung disease, children, and seniors.

### *Lead*

Lead is a metal that can be found naturally in the environment and also is released from metal production processes and manufactured products. In the past, motor vehicles were the major contributor of lead emissions to the air. However, because of increased regulations, air emissions of lead from vehicles have declined. The major sources of lead emissions to the air today are ore and metal processing and piston-engine aircraft operating on leaded aviation gasoline. Lead can accumulate in the bones and adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood.

### ***Air Basins and Air District Jurisdictions***

The majority of the central coast region is included within the North Central Coast and South Central Coast air basins. Small portions are included within the San Francisco Bay and San Joaquin Valley air basins. As shown in **Figure 3.2-1**, the central coast region is largely under the jurisdiction of Monterey Bay Air Resources District (MBARD), San Luis Obispo County Air Pollution Control District (SLOCAPCD), and Santa Barbara County Air Pollution Control District

(SBCAPCD), with smaller portions under the jurisdiction of Ventura County Air Pollution Control District (VCAPCD), San Joaquin Valley Air Pollution Control District (SJVAPCD), and the Bay Area Air Quality Management District (BAAQMD).

### ***Meteorology and Climate***

The central coast region, like the rest of California, is typified by a Mediterranean climate pattern, with distinct wet (November to April) and dry seasons (May to October). Portions of the region near the coast exhibit more moderate temperature ranges, staying warmer during the winter and cooler during the summer than inland areas. Coastal mountainous areas of the region also often experience substantially greater levels of precipitation compared to inland valleys.

Wind patterns are also seasonal and marine-influenced. In the summer, a high-pressure system over the Pacific Ocean is dominant and causes persistent west and northwest winds over the entire California coast. The onshore wind brings fog and relatively cool air into the coastal valleys. In the fall, the surface winds become weak. The airflow is occasionally reversed in a weak offshore movement and the relatively stationary air mass is held in place. During the winter, the Pacific high-pressure system moves south and has less influence on the central coast. Air frequently flows in a southeasterly direction out of the Salinas and San Benito Valleys, especially during night and morning hours.

### ***Sensitive Receptors***

Sensitive receptors are those segments of the population that are most susceptible to the effects of poor air quality, such as children, the elderly, and individuals with preexisting health problems (e.g., asthma) (CARB 2005). Examples of locations that may contain sensitive receptors include residences, senior living complexes, schools, parks, daycare centers, nursing homes, and medical facilities. These types of facilities are located throughout the central coast region and may be located in close proximity to irrigated agricultural areas.

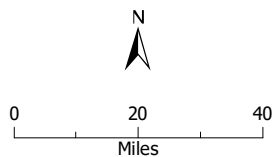
### ***Existing Air Quality***

Existing air quality in the central coast region is impaired for certain constituents, as much of the central coast region is currently in nonattainment for state ozone and PM<sub>10</sub> standards. Smaller portions of the region are also in nonattainment for federal ozone and PM standards. **Table 3.2-2** shows attainment status for criteria pollutants for counties within the central coast region. **Table 3.2-3** shows ambient air quality monitoring data for air basins in the region.

Existing sources of air pollution and odor in the central coast region include heavy duty trucks, passenger vehicles, farm equipment, off-road equipment, food processing plants, industrial facilities, waste management facilities, airports, marine vessels, military facilities, power plants, and agricultural operations (MBARD 2017, VCAPCD 2017). Air pollution transported from the San Francisco Bay area and the San Joaquin Valley accounts for much of the pollution in the region (MBARD 2017, SLOCAPCD 2001).



**Figure 3.2-1.**  
Air Districts



- Central Coast Water Board Jurisdictional Boundary
- Air District Boundaries

Source: CARB 2019b

**Table 3.2-2.** Criteria Pollutant Attainment Status in the Central Coast Region

County	Pollutant	National	State
Kern (Portion in San Joaquin Valley Air Basin)	1-hour Ozone	--	Nonattainment
	8-hour Ozone	Nonattainment - Extreme	Nonattainment
	CO	Unclassified/Attainment	Attainment
	PM10	Attainment	Nonattainment
	PM2.5	Nonattainment – Moderate	Nonattainment
	NO <sub>2</sub>	Unclassified/Attainment	Attainment
Monterey	1-hour Ozone	--	Nonattainment-Transitional
	8-hour Ozone	Unclassified/Attainment	Nonattainment-Transitional
	CO	Unclassified/Attainment	Attainment
	PM10	Unclassified	Nonattainment
	PM2.5	Unclassified/Attainment	Attainment
	NO <sub>2</sub>	Unclassified/Attainment	Attainment
San Benito	1-hour Ozone	--	Nonattainment-Transitional
	8-hour Ozone	Unclassified/Attainment	Nonattainment-Transitional
	CO	Unclassified/Attainment	Unclassified
	PM10	Unclassified	Nonattainment
	PM2.5	Unclassified/Attainment	Attainment
	NO <sub>2</sub>	Unclassified/Attainment	Attainment
San Luis Obispo	1-hour Ozone	--	Nonattainment
	8-hour Ozone	Nonattainment – Marginal (eastern portion)	Nonattainment
	CO	Unclassified/Attainment	Attainment
	PM10	Unclassified	Nonattainment
	PM2.5	Unclassified/Attainment	Attainment
	NO <sub>2</sub>	Unclassified/Attainment	Attainment
San Mateo	1-hour Ozone	--	Nonattainment
	8-hour Ozone	Nonattainment – Marginal	Nonattainment
	CO	Attainment	Attainment
	PM10	Unclassified	Nonattainment
	PM2.5	Nonattainment - Moderate	Nonattainment
	NO <sub>2</sub>	Attainment	Attainment
Santa Barbara	1-hour Ozone	--	Nonattainment-Transitional
	8-hour Ozone	Unclassified/Attainment	Nonattainment-Transitional
	CO	Unclassified/Attainment	Attainment
	PM10	Unclassified	Nonattainment
	PM2.5	Unclassified/Attainment	Unclassified
	NO <sub>2</sub>	Unclassified/Attainment	Attainment
Santa Clara	1-hour Ozone	--	Nonattainment

County	Pollutant	National	State
	8-hour Ozone	Nonattainment – Marginal	Nonattainment
	CO	Attainment	Attainment
	PM10	Unclassified	Nonattainment
	PM2.5	Nonattainment - Moderate	Nonattainment
	NO <sub>2</sub>	Attainment	Attainment
Santa Cruz	1-hour Ozone	--	Nonattainment-Transitional
	8-hour Ozone	Unclassified/Attainment	Nonattainment-Transitional
	CO	Unclassified/Attainment	Unclassified
	PM10	Unclassified	Nonattainment
	PM2.5	Unclassified/Attainment	Attainment
	NO <sub>2</sub>	Unclassified/Attainment	Attainment
Ventura	1-hour Ozone	--	Nonattainment
	8-hour Ozone	Nonattainment - Serious	Nonattainment
	CO	Unclassified/Attainment	Attainment
	PM10	Unclassified	Nonattainment
	PM2.5	Unclassified/Attainment	Attainment
	NO <sub>2</sub>	Unclassified/Attainment	Attainment

Definitions for area designations:

- **Nonattainment** is the category for an area that has one or more violations (see definition below) within the last three years.
- **Nonattainment-Transitional** is a subcategory of nonattainment. For ozone, there must be three or fewer exceedances (see definition below) in the last year.
- **Attainment** is the category given to an area with no violations in the last three years.
- **Unclassified** is the category given to an area with insufficient data.

Exceedance versus violation:

- **Exceedance** is a concentration higher than the state standard. Some exceedances may be excluded if determined to be caused by an exceptional event, such as a wildfire or a dust storm. Not all exceedances are violations.
- **Violation** is a concentration higher than the state standard which is not determined to be caused by an exceptional event.

Source: CARB 2018, 2019c; USEPA 2019; BAAQMD 2019

**Table 3.2-3.** Ambient Air Quality Monitoring Data for Air Basins in the Central Coast Region

Pollutant Standards	North Central Coast Air Basin			South Central Coast Air Basin			San Francisco Bay Air Basin			San Joaquin Valley Air Basin		
	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
<b><u>1-Hour Ozone</u></b>												
Maximum 1-hour concentration (ppm)	0.101	0.084	0.089	0.111	0.103	0.101	0.109	0.139	0.099	0.131	0.143	0.129
1-hour California designation value	0.08	0.08	0.09	0.09	0.09	0.09	0.11	0.11	0.10	0.12	0.12	0.12
1-hour expected peak day concentration	0.082	0.084	0.085	0.091	0.093	0.093	0.104	0.102	0.101	0.129	0.124	0.120
Number of days standard exceeded												
CAAQS 1-hour (>0.09 ppm)	1	0	0	4	3	2	6	6	2	51	48	42
<b><u>8-Hour Ozone</u></b>												
National maximum 8-hour concentration (ppm)	0.078	0.075	0.072	0.088	0.094	0.092	0.087	0.110	0.080	0.101	0.112	0.101
National second-highest 8-hour concentration (ppm)	0.074	0.069	0.070	0.084	0.091	0.080	0.086	0.101	0.076	0.097	0.104	0.101
8-hour high national designation value	0.069	0.068	0.068	0.077	0.077	0.078	0.074	0.075	0.073	0.094	0.092	0.090
Number of days standard exceeded												
NAAQS 8-hour (>0.070 ppm)	5	1	1	16	25	19	15	6	3	112	122	111
<b><u>Particulate Matter (PM10)</u></b>												
National maximum 24-hour concentration (µg/m³)	71.4	95.3	95.9	436.1	399.8	209.0	40.0	95.3	191.1	152.2	298.4	250.2
National second-highest 24-hour concentration (µg/m³)	70.9	95.2	84.1	266.9	208.2	160.9	35.2	59.1	101.9	126.0	158.0	179.4
State maximum 24-hour concentration (µg/m³)	N/A	N/A	N/A	263.9	410.0	208.4	41.0	98.0	201.0	132.5	210.0	250.4
State second-highest 24-hour concentration (µg/m³)	N/A	N/A	N/A	210.1	216.1	143.7	37.5	62.0	108.0	119.2	153.8	116.2
State high annual average concentration (µg/m³)	N/A	N/A	N/A	35.5	29.0	30.2	18.3	22.1	23.1	47.3	48.4	53.0
National high annual average concentration (µg/m³)	26.0	29.3	28.5	35.5	40.7	28.6	17.5	20.7	23.0	50.0	59.2	59.6
Number of days standard exceeded												
NAAQS 24-hour (>150 µg/m³)	0	0	0	9.5	9.7	1.9	0	0	2.9	0	10.7	10.5
CAAQS 24-hour (>50 µg/m³)	N/A	N/A	N/A	77.1	29.5	55.6	0	25.8	13.1	157.9	145.5	164.4
<b><u>Particulate Matter (PM2.5)</u></b>												
National maximum 24-hour concentration (µg/m³)	104.7	47.3	92.0	35.2	557.0	46.8	26.5	199.1	197.2	66.4	113.4	189.8
National second-highest 24-hour concentration (µg/m³)	77.0	43.6	68.3	32.5	529.4	41.5	24.4	170.6	175.3	63.6	101.8	177.7
State maximum 24-hour concentration (µg/m³)	104.7	47.3	92.0	35.3	557.0	46.8	26.5	199.1	197.2	66.4	113.4	257.5
State second-highest 24-hour concentration (µg/m³)	77.0	43.6	68.3	32.5	529.4	41.5	24.4	108.6	159.2	63.9	101.8	177.7
National annual designation value (µg/m³)	6.5	6.1	6.9	10.7	9.7	11.0	10.4	10.9	12.0	18.4	17.3	17.8
National annual average concentration (µg/m³)	6.8	7.1	8.3	9.6	13.7	10.2	9.1	13.7	14.4	15.9	18.2	19.4
State annual designation value (µg/m³)	7	7	9	13	14	14	12	13	14	19	18	19
State annual average concentration (µg/m³)	6.8	6.4	8.5	9.6	13.5	9.2	9.1	13.2	14.5	16.0	16.8	18.7
Number of days standard exceeded												
NAAQS 24-hour (>35 µg/m³)	11.9	2.2	10.7	0	12.7	2.6	0.0	13.3	16.4	25.5	33.8	42.3

Source: CARB 2019d

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### 3.2.4 Impact Analysis

#### ***Methodology***

As Agricultural Order 4.0 would not specify or prescribe specific management practices that growers must undertake, it is impossible to know which growers will implement which types of management practices in which locations pursuant to the Order. Therefore, it was not possible to perform a quantitative analysis of the potential impacts of the Proposed Project. Instead, potential impacts were evaluated qualitatively. The qualitative analysis considered the typical air pollutant emission sources associated with irrigated agricultural operations, the existing air quality conditions throughout the central coast region, and the additional emissions that reasonably could occur due to activities conducted under the Proposed Project.

#### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact related to air quality if it would:

- A. Conflict with or obstruct implementation of an applicable air quality plan;
- B. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- C. Expose sensitive receptors to substantial pollutant concentrations; or
- D. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

#### ***Environmental Impacts of the Proposed Project***

**Impact AQ-1: Conflict with or obstruct implementation of an applicable air quality plan, and/or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard. (*Less than Significant*)**

The Proposed Project would not involve the construction of new housing and would not result in the creation of substantial numbers of new permanent jobs. The new and additional monitoring and reporting requirements in Agricultural Order 4.0, ~~as well as potential cooperative watershed restoration projects (pursuant to the setback requirements),~~ could result in some new jobs, but this additional employment would not be substantial. As such, the Proposed Project would not result in substantial population or employment growth exceeding estimates found in applicable plans, and therefore would not conflict with or obstruct implementation of any applicable air quality plans in the central coast region.

Construction of certain management practices (e.g., sediment retention basins, vegetated filter strips, riparian buffer areas, etc.) implemented as a result of Agricultural Order 4.0 could result in emissions of air pollutants, such as exhaust from diesel-powered equipment and fugitive dust. Construction activities would require operation of equipment which would generate ozone precursors (i.e., NO<sub>x</sub>, ROG), CO, and particulate matter (i.e., PM<sub>10</sub> and PM<sub>2.5</sub>). Additionally, activities such as excavation, tilling, or vehicle or truck trips on unpaved roads could generate

fugitive dust emissions. Due to the nature of the Proposed Project and flexibility afforded to growers, precise quantities of these emissions are unknown, and would depend on a number of site-specific factors. Additionally, some level of management practice implementation is ongoing under existing conditions (i.e., under Agricultural Order 3.0); however, the emissions associated with these baseline activities also are not known.

In general, the emissions associated with construction of management practices ~~and/or implementation of the setback requirements (e.g., possible removal of existing crops and planting of new vegetation)~~ are not expected to be substantial. In comparison to many other common, ongoing projects in the central coast region, such as housing developments, commercial and industrial construction, transportation projects, etc., the management practices implemented under the Proposed Project would be relatively minor in scale and associated emissions. Additionally, the phasing/prioritization and time schedules built into Agricultural Order 4.0 would allow farmers time to implement changes in their practices and undertake earthmoving projects (e.g., sediment basins). This would likely result in individual projects/activities being spaced out over time across the region, thereby reducing the likelihood of any daily or annual significance thresholds being exceeded.

While construction-related air pollutant emissions are not anticipated to be substantial and are essentially speculative in nature, compliance with applicable local air district rules and regulations would further reduce potential for impacts. As described in Section 3.2.3, six different air districts have jurisdiction over parts of the central coast region; as such, specific rules and regulations applicable to individual growers may differ based on their location. Compliance with local air district rules, including any construction-related best management practices (BMPs) or mitigation measures required by the air district, would serve to minimize emissions of various harmful air pollutants during construction. Implementation of other measures, such as Mitigation Measure HWQ-1, could also help to minimize certain emissions (e.g., dust).

During operation, Agricultural Order 4.0 would not substantially increase emissions over existing conditions. New and additional monitoring requirements/activities under Agricultural Order 4.0 could increase emissions to some degree from vehicle trips to and from monitoring locations, as well as operation of monitoring wells. Additionally, to the extent that new management practices ~~or setback areas~~ require periodic maintenance or repair, these activities could result in some emissions (e.g., from operation of equipment). Operation of efficient irrigation systems and new groundwater monitoring wells also may require some amount of electricity, which could indirectly result in air pollutant emissions depending on the power source. However, some reasonably foreseeable management practices, such as reducing tillage, limiting bare soil, ~~setbacks~~, and improving fertilizer/nutrient management could also potentially reduce emissions of criteria pollutants relative to baseline conditions.

As identified in Table 3.2-2, many areas of the central coast region are in non-attainment for a criteria pollutant, particularly for ozone and PM<sub>10</sub>. Operation of construction equipment and vehicle trips for monitoring and maintenance activities could add some amount of ozone precursors and PM (e.g., from diesel exhaust). However, for the reasons described above, these emissions would not be significant or cumulatively considerable, and are fundamentally speculative in nature. Particularly when considering (1) the short-term nature of construction emissions; (2) the small-scale of most reasonably foreseeable management practices; (3) the

prioritization and phasing stipulations and time schedules in the Proposed Project; (4) the relatively minimal likely emissions from monitoring and maintenance activities, and (5) the existing emissions occurring under Agricultural Order 3.0, the Proposed Project would not result in a cumulatively considerable net increase in a criteria pollutant for which the project region is in non-attainment.

This impact would be **less than significant**.

**Impact AQ-2: Expose sensitive receptors to substantial pollutant concentrations. (*Less than Significant*)**

As discussed under Impact AQ-1, the Proposed Project could result in implementation of various management practices ~~and establishment of new setback areas~~, which would require use of heavy construction equipment that would emit air pollutants (e.g., diesel particulate matter [DPM]). Additionally, monitoring and reporting activities could involve vehicle trips to monitoring sites and operation of monitoring wells, which could directly and indirectly emit air pollutants. Routine maintenance and/or repair of certain management practices ~~and vegetation management activities in setback areas~~ also could involve use equipment that emits potentially hazardous pollutants.

As noted in Section 3.2.3, sensitive land uses and receptors occur throughout the central coast region and may be located in close proximity to irrigated agricultural lands in some cases. Although it cannot be known precisely where individual growers will implement management practices or conduct other Proposed Project activities, it is possible that some activities may occur near sensitive receptors. While the risks associated with such activities/emissions cannot be quantitatively assessed, based on the reasonably foreseeable activities under the Proposed Project, this is not likely to result in sensitive receptors being exposed to substantial pollutant concentrations.

In general, the types of equipment (and associated emissions) that may be used during Proposed Project activities are not fundamentally dissimilar from those used during normal irrigated agricultural activities. Tilling, harvesting, and other activities on irrigated agricultural fields often involves use of diesel-powered tractors and equipment, which could result in the same types of emissions as may occur during construction of management practices or other Proposed Project activities. Similarly, relatively routine road, utilities, or development projects that occur throughout the region, presumably many times in proximity to potential sensitive receptors, would generate similar types of construction-related emissions.

In most cases it is assumed that Proposed Project activities would occur in rural areas (where irrigated agricultural fields are often located), but where activities may occur in proximity to sensitive receptors (e.g., residence, school, hospital, etc.), there likely would be at least some distance between the activity and the receptor. Impacts from emissions of pollutants are most severe directly adjacent to the emission source and decrease rapidly with increasing distance. For example, concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (CARB 2005). As such, it is likely that potential impacts from pollutant emissions would be mitigated by typical distances between irrigated agricultural fields and any sensitive receptors in the area. Compliance with any applicable local air district rules and regulations also would serve to further reduce potential impacts.

Another type of hazardous emission that could potentially occur during ground-disturbing activities under the Proposed Project is naturally occurring asbestos (NOA). NOA can be found in ultramafic rock outcrops (often occurring on ridges and in hilly terrain) and in serpentine soils (typically thin soils that are inhospitable to plant growth), neither of which are likely to occur in areas under irrigated agriculture. However, while contact with NOA is unlikely throughout most of the Project area, SLOAPCD's NOA Screening Buffer map includes some agricultural lands inside its NOA buffer areas, particularly in the vicinity of Los Osos and Santa Maria. Grading projects within these buffer areas are required to comply with CARB's NOA ATCM (SLOAPCD 2019), which would reduce this potential impact to less than significant.

The Proposed Project would not create any substantial new permanent sources of pollutant emissions that could subject sensitive receptors to excessive concentrations of these pollutants. Operational emissions associated with the Proposed Project would likely be relatively minor, and growers would be subject to Mitigation Measure AQ-1 requiring compliance with all applicable local air district rules and regulations. Further, some of the reasonably foreseeable management practices under the Proposed Project could potentially decrease emissions of TACs relative to baseline conditions. Practices such as reducing tillage, reducing pesticide applications, and applying less fertilizer could all decrease equipment usage or (in the case of pesticides) potentially result in the direct reduction of TAC emissions compared to baseline conditions.

This impact would be **less than significant**.

**Impact AQ-3: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. (*Less than Significant*)**

In addition to the criteria pollutants and TACs (discussed under Impact AQ-1 and AQ-2), certain Proposed Project activities could result in emission of odor-causing substances. Diesel exhaust from operation of equipment during construction or operation (e.g., maintenance or repair) activities may temporarily generate odors in the immediate area where the equipment is operated. Disturbance of soil generally, such as during construction of certain management practices, also could potentially release odors in the immediate area. Application of fertilizers and pesticides can generate odors, although these activities are ongoing under existing conditions and would not be substantially increased under the Proposed Project (if anything, fertilizer and pesticide applications would be expected to decrease under the Proposed Project). Apart from these potential effects, and the emissions discussed under Impacts AQ-1 and AQ-2, the Proposed Project would not result in any other emissions that could adversely affect a substantial number of people.

Any odors generated due to Proposed Project activities would be short-lived and/or would occur intermittently. These odors also would not affect a substantial number of people. Although the locations of individual activities under the Proposed Project are not known, in most cases it can be assumed that Project activities would occur in rural areas with relatively few people or receptors in the area. Even in instances where activities may occur near more populated areas, the odors and other emissions would be highly localized and potential effects would likely be limited to workers in the immediate area. As a result, this impact would be **less than significant**.

## 3.3 Biological Resources

### 3.3.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to biological resources. Biological resources considered in this section include special-status plant, wildlife, and fish species; sensitive natural communities, including jurisdictional wetlands and other waters; and wildlife movement corridors.

### 3.3.2 Regulatory Setting

Some of the regulatory setting relevant to biological resources is described in Section 3.9, *Hydrology and Water Quality*. Refer to that section for descriptions of the following laws, regulations, and policies:

- Porter-Cologne Water Quality Control Act;
- Clean Water Act of 1972, Sections 303, 401, 402, and 404; and
- Water Quality Control Plan for the Central Coastal Basin.

#### ***Federal Laws, Regulations, and Standards***

##### ***Endangered Species Act of 1973***

The Endangered Species Act (ESA) (16 U.S. Code [USC] Section 1531 et seq.; 50 Code of Federal Regulations [CFR] Parts 17 and 222) provides for conservation of species that are endangered or threatened throughout all or a substantial portion of their range, as well as protection of the habitats on which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. In general, USFWS manages terrestrial and freshwater species, whereas NMFS manages marine and anadromous species.

Section 9 of the ESA and its implementing regulations prohibit the “take” of any fish or wildlife species listed under the ESA as endangered or threatened, unless otherwise authorized by federal regulations. The ESA defines the term “take” to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 USC Section 1532). Section 7 of the ESA (16 USC Section 1531 et seq.) outlines the procedures for federal interagency cooperation to conserve federally listed species and designated critical habitats.

##### ***Magnuson-Stevens Fishery Conservation and Management Act (Sustainable Fisheries Act)***

The amended Magnuson-Stevens Fishery Conservation and Management Act of 1996 (16 USC Chapter 38 Section 1801–1891), also known as the Sustainable Fisheries Act, provides for the conservation and management of all fish resources within the exclusive economic zone of the United States. It requires that all federal agencies consult with NMFS on activities or proposed

activities authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat of commercially managed marine and anadromous fish species.

### ***Migratory Bird Treaty Act***

The Migratory Bird Treaty Act (MBTA) (16 USC Sections 703–712; 50 CFR Subchapter B) makes it unlawful to pursue, hunt, take, capture, kill, or possess any migratory birds, or part, nests, or eggs of such migratory birds, that are listed in wildlife protection treaties between the United States and Canada, Mexico, Japan, and Russia. The MBTA applies to almost all avian species that are native to California. The MBTA prohibits the take of such species, including the removal of nests, eggs, and feathers. It requires that all federal agencies consult with USFWS on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect migratory birds.

The Migratory Bird Treaty Reform Act amends the MBTA so that nonnative birds or birds that have been introduced by humans to the United States or its territories are excluded from protection under the MBTA.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, directs each federal agency taking actions that have or may have adverse impacts on migratory bird populations to work with USFWS to develop a memorandum of understanding to promote the conservation of migratory bird populations.

### ***Bald and Golden Eagle Protection Act***

The Bald and Golden Eagle Protection Act prohibits the taking or possession of, and commerce in, bald and golden eagles, with limited exceptions (16 USC Section 668). Under the Bald and Golden Eagle Protection Act, it is a violation to “take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest or egg, thereof....” *Take* is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. *Disturb* is further defined in 50 CFR Part 22.3 as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

### ***State Agencies, Laws, and Programs***

#### ***California Endangered Species Act***

The California Endangered Species Act (CESA) (California Fish and Game Code [CFGF] Sections 2050–2098) declares that state agencies should not approve projects that would jeopardize the continued existence of a species listed under CESA as endangered or threatened or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if reasonable and prudent alternatives are available consistent with conserving the species or its habitat that would prevent jeopardy.

CESA prohibits the take of any species that is state-listed as endangered or threatened, or designated as a candidate for such listing. “Take” is defined by CFGF Section 86 as “hunt,

pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” an individual of a listed species. Under CESA, the California Department of Fish and Wildlife (CDFW) may issue an incidental take permit authorizing the take of listed and candidate species that is incidental to an otherwise lawful activity, subject to specified conditions.

### *California Fully Protected Species*

CDFW has designated 37 fully protected species and prohibited the take or possession of these species at any time, and no licenses or permits may be issued for their take except for necessary scientific research or relocation of certain bird species for the protection of livestock.

### *Nesting Bird Protections – California Fish and Game Code*

Several sections of the CFGC provide protections for nesting birds. CFGC Section 3503 states that it is unlawful to take, possess, or destroy the nest or eggs of any bird, except as otherwise provided by code or any regulation made in accordance with the code. Section 3503.5 prohibits the take, possession, or destruction of any nests, eggs, or birds in the orders Falconiformes (New World vultures, hawks, eagles, ospreys, and falcons, among others) or Strigiformes (owls). Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, projects are generally required to reduce or eliminate disturbances at active nesting territories during the nesting cycle.

### *Lake and Streambed Alteration Program*

CDFW administers the Lake and Streambed Alteration Program (CFGC Section 1600 et seq.), which provides for protection and conservation of fish and wildlife resources with respect to any project that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake.

Under the program, an applicant must notify and enter into an agreement with CDFW before undertaking any activity that would substantially divert or obstruct the natural flow of any river, stream, or lake; or would substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or would deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

### *California Native Plant Protection Act*

The California Native Plant Protection Act (CNPPA) (CFGC Sections 1900-1913) requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of this act prohibit the taking of listed plants from the wild and require notification, by the landowner undertaking a land use change action, of the CDFW at least 10 days in advance of that land use change on lands in California. This allows CDFW to salvage listed plant species that otherwise would be destroyed.

### *California Wetlands Conservation Policy of 1993*

The California Wetlands Conservation Policy established a policy framework and strategy that sought to:

- Ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property.
- Reduce procedural complexity in the administration of state and Federal wetlands conservation programs.
- Encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation and restoration.

The policy established a number of statewide initiatives, including: a statewide wetlands inventory, wetlands conservation planning, improvement of wetland regulatory programs, landowner incentives, wetlands mitigation banking, and development of new wetland programs. Practically, there are a number of state and federal programs and permitting processes that serve to implement the California Wetlands Conservation Policy, including U.S. Army Corps of Engineers' Clean Water Act section 404 dredge and fill permitting process and SWRCB's Clean Water Act section 401 water quality certification process.

### ***Sustainable Groundwater Management Act***

The Sustainable Groundwater Management Act (SGMA) requires local agencies to form Groundwater Sustainability Agencies (GSAs) to prepare Groundwater Sustainability Plans (GSPs) for the sustainable local management of groundwater. The components of SGMA related to water use and hydrology are described in Section 3.9, *Hydrology and Water Quality*. With respect to biological resources, SGMA includes requirements to identify and consider impacts to groundwater dependent ecosystems (GDEs) (The Nature Conservancy 2018). GDEs are generally defined as the plants, animals, and natural communities that rely on groundwater to sustain all or a portion of their water needs (The Nature Conservancy 2018). GDEs within the central coast region are discussed further in Section 3.3.3, "Environmental Setting."

### ***Local and Regional Laws and Plans***

#### ***Local Ordinances and General Plans***

Within the Proposed Project area, numerous regional, county, and city ordinances and policies exist for the protection of biological resources. Examples include ordinances and local zoning that specify setbacks for wetlands, streams, and lakes and regulate the removal of trees. Because of the broad geographic scope of the study area, it was not feasible to specifically consider individual ordinances and policies in this analysis. Additionally, actions by CCWB (a state agency) are not required to comply with county, city, or local ordinances. However, the activities that could occur under the Proposed Project are expected to generally align and be consistent with such local ordinances and policies. Refer to Volume 2, Appendix B for county general plan goals and policies potentially applicable to the Proposed Project.

#### ***Habitat Conservation Plans and Natural Community Conservation Plans***

There are several habitat conservation plans (HCPs) that occur within the Proposed Project area, including, but not limited to, the following:



- Pacific Gas & Electric Company (PG&E) Bay Area Operations and Maintenance HCP (Santa Clara and San Mateo counties);
- Santa Clara Valley Habitat Plan (Santa Clara County);
- PG&E San Joaquin Valley Operations and Maintenance HCP (within the Proposed Project area, in Kern County);
- Bean Creek Estates, Blake Lane HCP, Bonny Dune Quarries, Busch Residence, Carter-224 Hidden Glen Drive, Collado Drive, Lone Pine Lane (Sisk)Hanson Aggregates Felton Plant, Mayer Property, Salvation Army, Seascape Uplands, Tinkess Parcel, Tucker, University of California Santa Cruz – RanchView Terrace HCP, West Residence HCP, and Wilder Quarry (Granite Rock) (Santa Cruz County);
- Gosnell Residential, Marina Peninsula Trail and Rehabilitation Project Site (Morro Bay State Park Boardwalk), and Hord Residential Project (San Luis Obispo County);
- Sarment Property, Post-Ranch Inn, and Wildcat Line LP HCP (Monterey County)
- Champagne Shores, Chevron Pipeline, Kern Water Bank, Nuevo-Torch and Seneca and Enron Oil and Gas (Ken County); and
- Dos Pueblos Golf Links, Laguna County Sanitation District, Lompoc Geotechnical Boring Project Phase 1 (Santa Barbara County).

HCPs are planning documents required as part of an application for an incidental take permit from USFWS. HCPs describe the anticipated effects of the proposed taking; how those impacts will be minimized, or mitigated; and how the HCP is to be funded (USFWS 2011). The above list of HCPs was developed based on review of USFWS's database of HCPs. Apart from the Santa Clara Valley Habitat Plan, which is a HCP/Natural Community Conservation Plan (NCCP), no other natural community conservation plans (NCCPs) were identified within the central coast region based on review of online resources.

### 3.3.3 Environmental Setting

This section describes existing biological resources in the central coast region, focusing on areas under irrigated agricultural production or areas that otherwise may be affected by Proposed Project activities. Please refer to Section 3.9, *Hydrology and Water Quality* for a description of the regional topography, climate, hydrology, and watersheds within the central coast region. **Figure 3.3-1** shows the land cover types found in the central coast region. Land cover types most directly related to the Proposed Project are described below.

#### ***Agricultural Land***

Agricultural land includes field row crops; truck, nursery, and berry crops; citrus and subtropical fruit orchards; deciduous fruit orchards; vineyards; grain and hay crops; irrigated pasture lands; and agricultural lands that are idle at any given time. Please refer to Figure 3.1-1 in Section 3.1, *Agriculture and Forestry Resources*, for information on where the different crop types occur in the central coast region.

In general, agricultural land does not support habitat for special-status species, and commercial crop fields are typically managed to exclude wildlife to the extent possible. Nevertheless, some agricultural land or pasture lands may support rodent populations that could provide foraging opportunities for raptors. Evergreen orchards (e.g., citrus and subtropical fruits, such as oranges, lemons, etc.) could potentially provide roosting habitat for bats.

Most irrigated commercial agriculture in the central coast region is practiced following monoculture techniques, where one crop species is planted per field, usually in evenly spaced rows. For orchards and vineyards, understory vegetation may consist of herbaceous plants, grasses, or legumes. Alternatively, bare soil may be maintained underneath crops and between rows to allow for tree/crop maintenance and harvest activities.

Orchard crops are usually perennial species that live for multiple years (deciduous tree species experience a seasonal loss of leaves), whereas field/row crops are often annual species that are planted at various times during the year and for multiple rotations depending on the species. Irrigation may occur via various methods, including flood, sprinkler, or drip application. Conventional agricultural production may use various forms of synthetically-derived chemical pesticides to control insects and other pests. Organic production may use pesticides approved for organic farming, which are typically composed of naturally-derived components and may be less lethal to non-target organisms. Both conventional and organic farmers may use honey bees to assist with pollination of crops.

Idle agricultural land cover refers to fallow fields that typically reflect the dominant crop previously planted and a mixture of grassland and ruderal species that proliferate following disturbance activities.

### **Riparian**

Riparian land cover occurs adjacent to perennial and intermittent streams. In many areas of the central coast region, agricultural land is bordered by riparian vegetation/land cover, which provides a buffer between streams and irrigated agricultural land. Mature riparian vegetation is typically woodland (i.e., tree-dominated), and its structural diversity provides multiple vegetative layers that offer high-value habitat for numerous wildlife species, including foraging opportunities, escape cover, and nesting substrate. This land cover supports many species that occur in other woodlands and many species specific to riparian communities. Younger riparian vegetation can be more scrub-like in structural composition, with a dominant tree canopy typically of willow shrubs. Riparian corridors also serve as wildlife corridors for many common species, as this vegetation community offers unique habitat value from otherwise suboptimal habitat (e.g., tree-lined streams within or adjacent to developed areas).

Common dominant tree species in riparian areas include California sycamore (*Platanus racemosa*), bigleaf maple (*Acer macrophyllum*), black walnut (*Juglans californica*), black cottonwood (*Populus trichocarpa*), and Fremont cottonwood (*Populus fremontii*). Mid-strata trees include Arizona ash (*Fraxinus velutina*), box elder (*Acer negundo*), and white alder (*Alnus rhombifolia*). The understory shrub layer typically includes willow shrubs (*Salix* spp.), California rose (*Rosa californica*), California blackberry, poison oak (*Toxicodendron diversilobum*), and blue elderberry (*Sambucus nigra* ssp. *caerulea*).

Riparian vegetation cover in the central coast region is shown in **Figure 3.3-2**.

## Wetland

Wetlands may occur near or within agricultural lands in the central coast region. In general, wetlands are areas that are seasonally or perennially inundated or saturated; i.e., where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season (USEPA 2018). Water saturation (hydrology) largely determines how the soil develops and the types of plant and animal communities living in and on the soil. The prolonged presence of water creates conditions that favor the growth of specially adapted plants (hydrophytes) and promotes the development of characteristic wetland (hydric) soils (USEPA 2018). **Table 3.3-1** shows information on the acreage and types of wetlands found in the central coast region.

**Table 3.3-1.** Wetlands in Irrigated Agricultural Areas of the Central Coast Region

Wetland Type	Acres	Wetland Density at the Landscape Level <sup>1</sup>
Riverine Wetlands	2,905	0.5%
Lake Wetlands	3	0%
Freshwater Ponds	688	0.1%
Freshwater Forest/Shrub Wetlands	1,024	0.2%
Freshwater Emergent Wetlands	4,444	0.8%
Estuarine and Marine Wetlands	4	0%
Total Wetlands	9,068	1.7%

1. Wetland density at the landscape level is equal to the wetland-type acres divided by the total acres of irrigated agricultural land in the region multiplied by 100. Total irrigated agricultural land in the central coast region is 538,940 acres.

Source: CCWB 2018

Different types of wetlands may include different specific species assemblages, but all types support facultative<sup>1</sup> plant species and provide potential breeding and foraging habitats for birds, amphibians, and other animals. Vernal pools, in particular, are known to support special-status branchiopods<sup>2</sup>, such as longhorn fairy shrimp (*Branchinecta longiantenna*) and vernal pool fairy shrimp (*B. lynchi*). California tiger salamander (*Ambystoma californiense*) can also utilize vernal pools and/or perennial marshes, particularly if predators (e.g., fish, bullfrogs) are absent and suitable upland habitat is nearby.

<sup>1</sup> Facultative plants are those species that have an equal likelihood of occurring in wetlands and non-wetlands.

<sup>2</sup> A branchiopod is a small aquatic crustacean belonging to the class *Branchiopoda*. Such members of this group include the wide-spread, common water flea (*Cladocera* spp.) and several range-limited species, many of which are rare (e.g., vernal pool fairy shrimp [*Branchinecta lynchi*], tadpole shrimp [*Lepidurus packardii*], California clam shrimp [*Cyzicus californicus*], Riverside fairy shrimp [*Streptocephalus woottoni*]).

### ***Aquatic***

Aquatic land cover includes open water (i.e., lakes and ponds) and riverine (i.e., streams and drainages) habitats. Figure 3.9-1 in Section 3.9, *Hydrology and Water Quality*, shows the location of surface waterbodies in relation to irrigated agriculture in the central coast region. Although not pictured on Figure 3.9-1, many small ponds and reservoirs may occur on irrigated agricultural land in the region, potentially providing open water habitat.

Open water habitat is characterized by a water depth that is great enough (over 6.6 feet) to attenuate sunlight and prevent aquatic or emergent plant growth. Such habitat may support any number of resident or wintering bird species, such as western grebe (*Aechmophorus occidentalis*), double-crested cormorant (*Phalacrocorax auritus*), Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), common merganser (*Mergus merganser*), northern shoveler (*Anas clypeata*), lesser scaup (*Aythya affinis*), and bufflehead (*Bucephala clangula*). Amphibian species that may be found in lacustrine features include the Sierran chorus frog (*Pseudacris sierra*), American bullfrog, California newt, and California toad (*Anaxyrus boreas halophilus*).

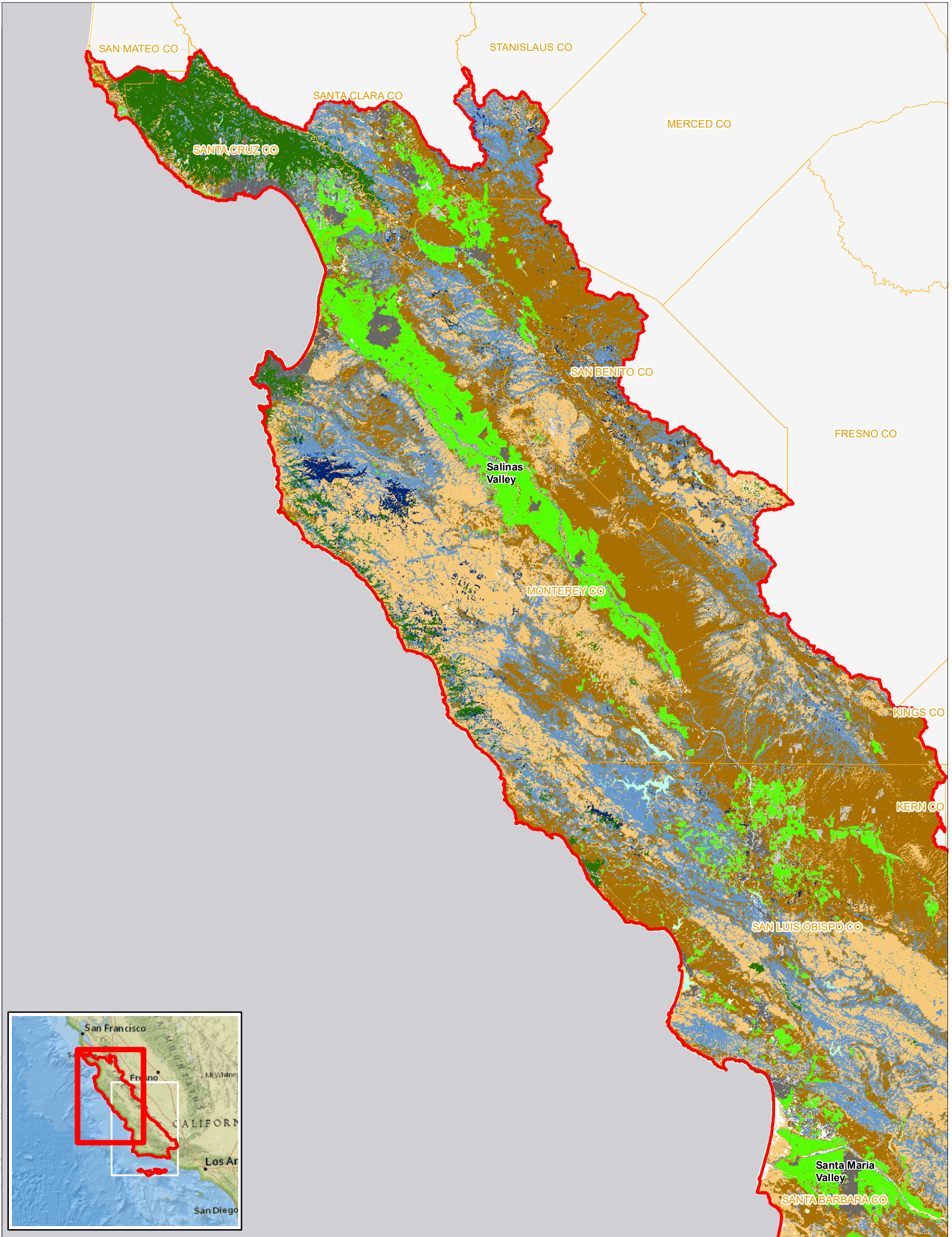
Riverine features are found in close proximity to irrigated agricultural lands in many areas in the central coast region, as shown in Figure 3.9-1. As described in Section 3.9, *Hydrology and Water Quality*, many streams/drainages in the central coast region are characterized by highly seasonal flow patterns, in accordance with the seasonal precipitation pattern, with higher flows from roughly November to April and lower flows from roughly May to October. Many streams/drainages in the region experience very low or no flow during the dry summer months. Perennial waterbodies in the region (e.g., portions of Salinas River, Santa Ynez River, Pajaro River) exhibit flow year-round and may act as migratory corridors for fish species and other animals.

Special-status species with the potential to occur in streams and drainages in the central coast region include California red-legged frog, foothill yellow-legged frog, western pond turtle (*Emys* [= *Actinemys*] *marmorata*), and steelhead (*Oncorhynchus mykiss*) (Southern California, South-Central California Coast, and Central California Coast Distinct Population Segments). **Figure 3.3-3** shows critical habitat in the central coast region, including Essential Fish Habitat in streams near irrigated agricultural lands.

### ***Groundwater Dependent Ecosystems***

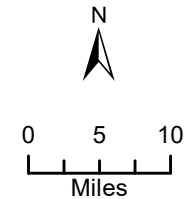
As noted in Section 3.3.2 above under the “Sustainable Groundwater Management Act” discussion, GDEs include the plants, animals, and natural communities that rely on groundwater to supply all or a portion of their water needs. GDEs provide a variety of ecosystem services that benefit people, such as water purification, soil preservation, carbon sequestration, flood risk reduction, and recreational opportunities (The Nature Conservancy 2018). CCWB mapped GDEs in the central coast region based on their relative density at the sub-watershed scale, as shown in **Figure 3.3-4**.





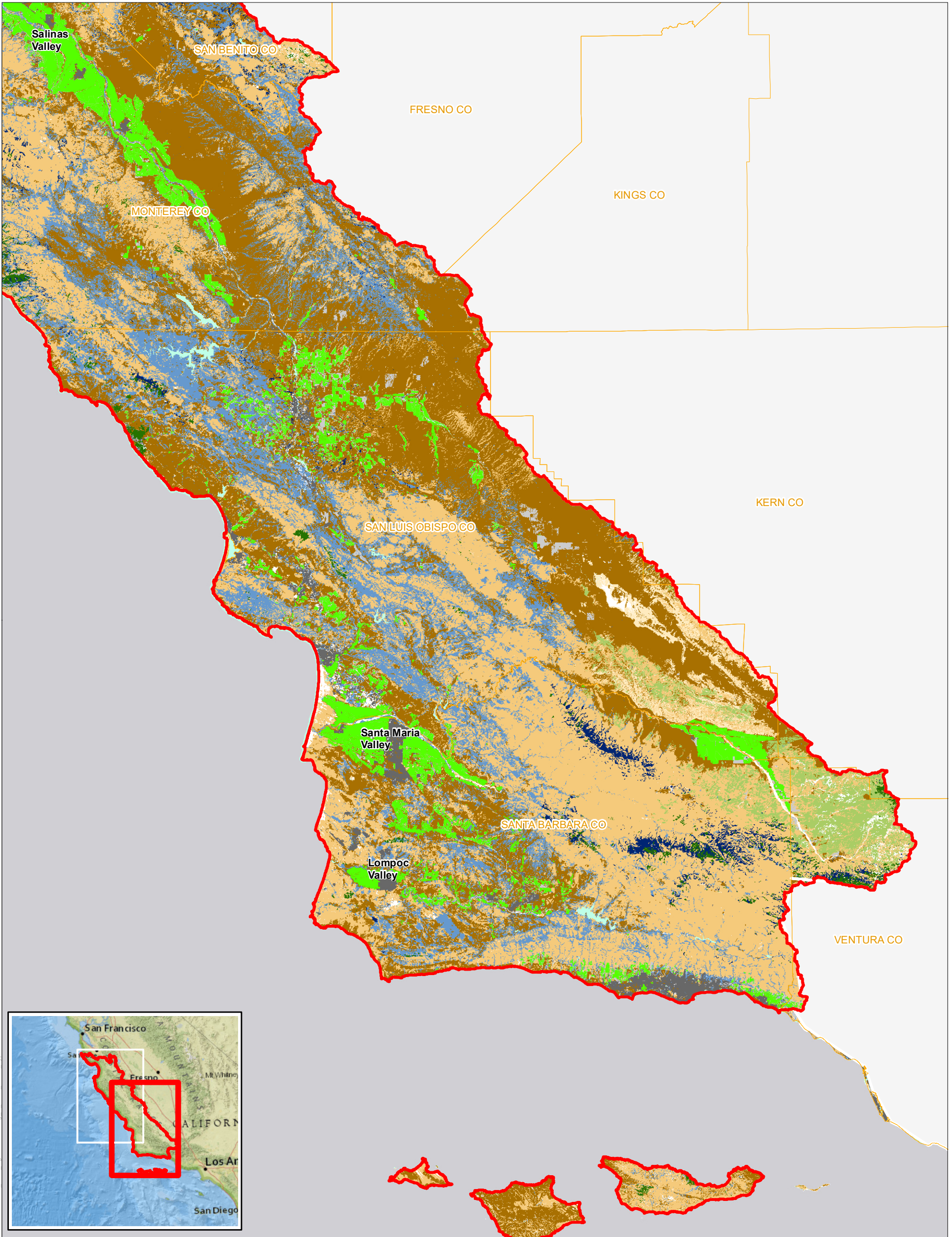
Source: CALFIRE 2015; U.S. DWR 2014; CDOC 2014; and CDOC 2016

**Figure 3.3-1.**  
Land Cover Types  
Page 1 of 2



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Source: CALFIRE 2015; U.S. DWR 2014; CDOC 2014; and CDOC 2016

- Land Cover**
- |                  |                   |   |
|------------------|-------------------|---|
| Agriculture      | Hardwood Woodland | Irrigated Farmland                                |
| Barren/Other     | Herbaceous        | Central Coast Water Board Jurisdictional Boundary |
| Conifer Forest   | Shrub             | Counties  |
| Conifer Woodland | Urban             |   |
| Desert           | Water             |   |
| Hardwood Forest  |                   |   |

**Figure 3.3-1.**  
Land Cover Types

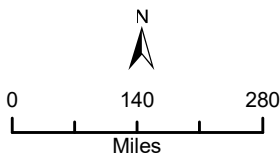
Page 2 of 2

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Source: CDOC 2014; CDOC 2016; Howard and Merrifield 2010; and CCWB 2018



- Riparian Vegetation Cover**
- 1-40% Cover - Lowest Asset
  - 40-70% Cover - Medium Asset
  - 10-100% Cover - Highest Asset

- Irrigated Farmland FMMP Categories**
- Prime Farmland
  - Farmland of Statewide Importance
  - Unique Farmland

- Central Coast Water Board Jurisdictional Boundary
- Counties

**Figure 3.3-2.**  
Riparian Cover

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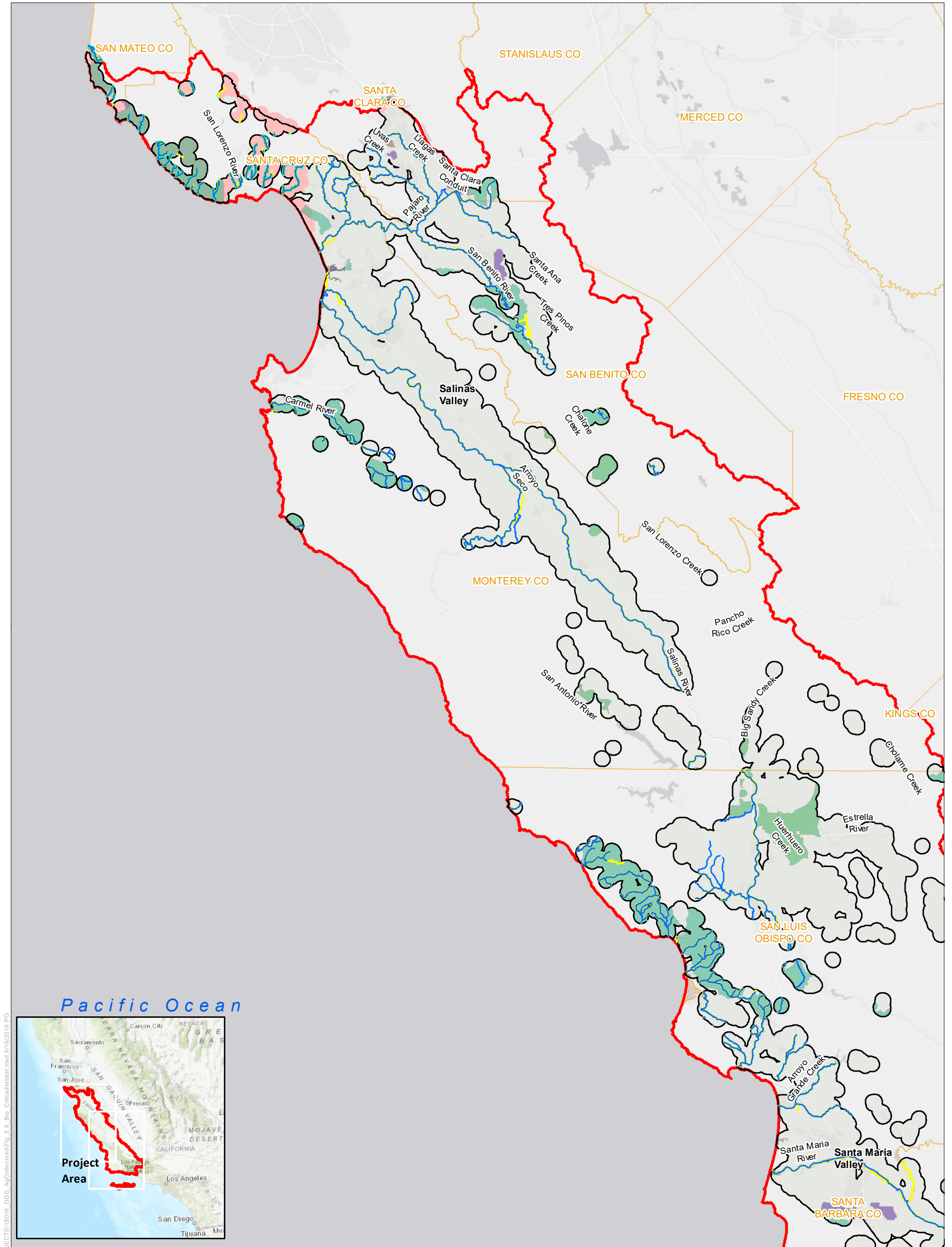




**Figure 3.3-2.**  
Riparian Cover

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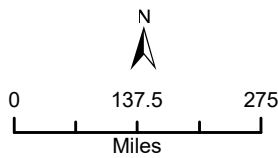
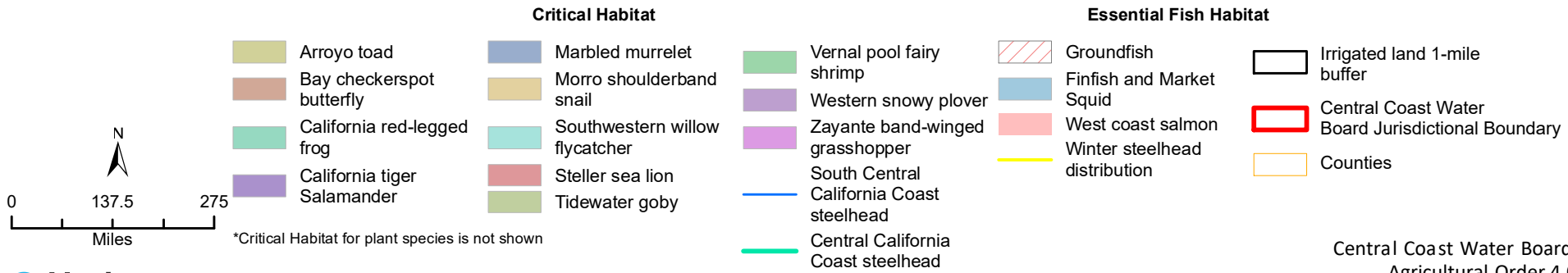




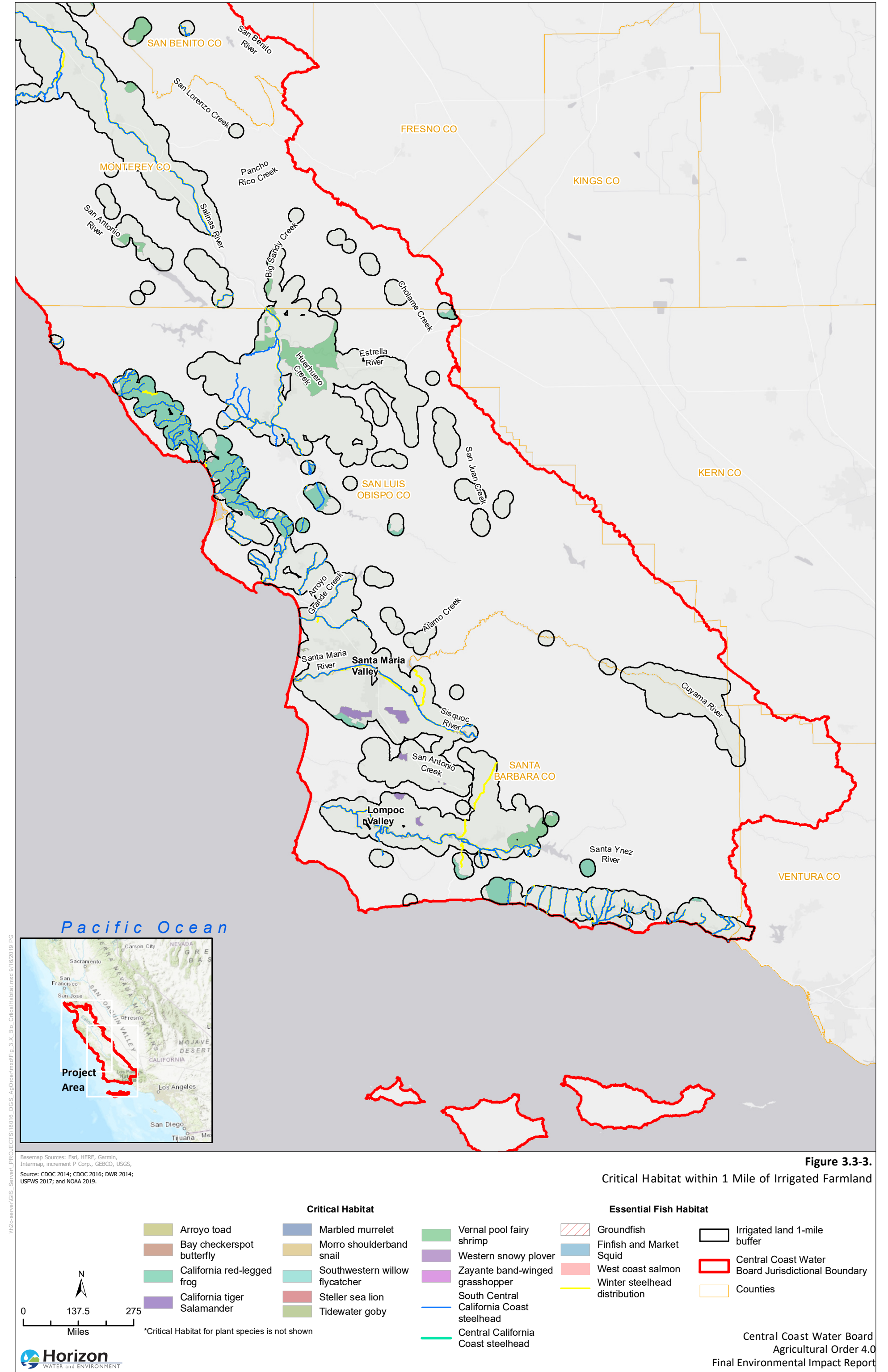
Baseemap Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, Source: CDOC 2014; CDOC 2016; DWR 2014; USFWS 2017; and NOAA 2019.

Figure 3.3-3.

Critical Habitat within 1 Mile of Irrigated Farmland

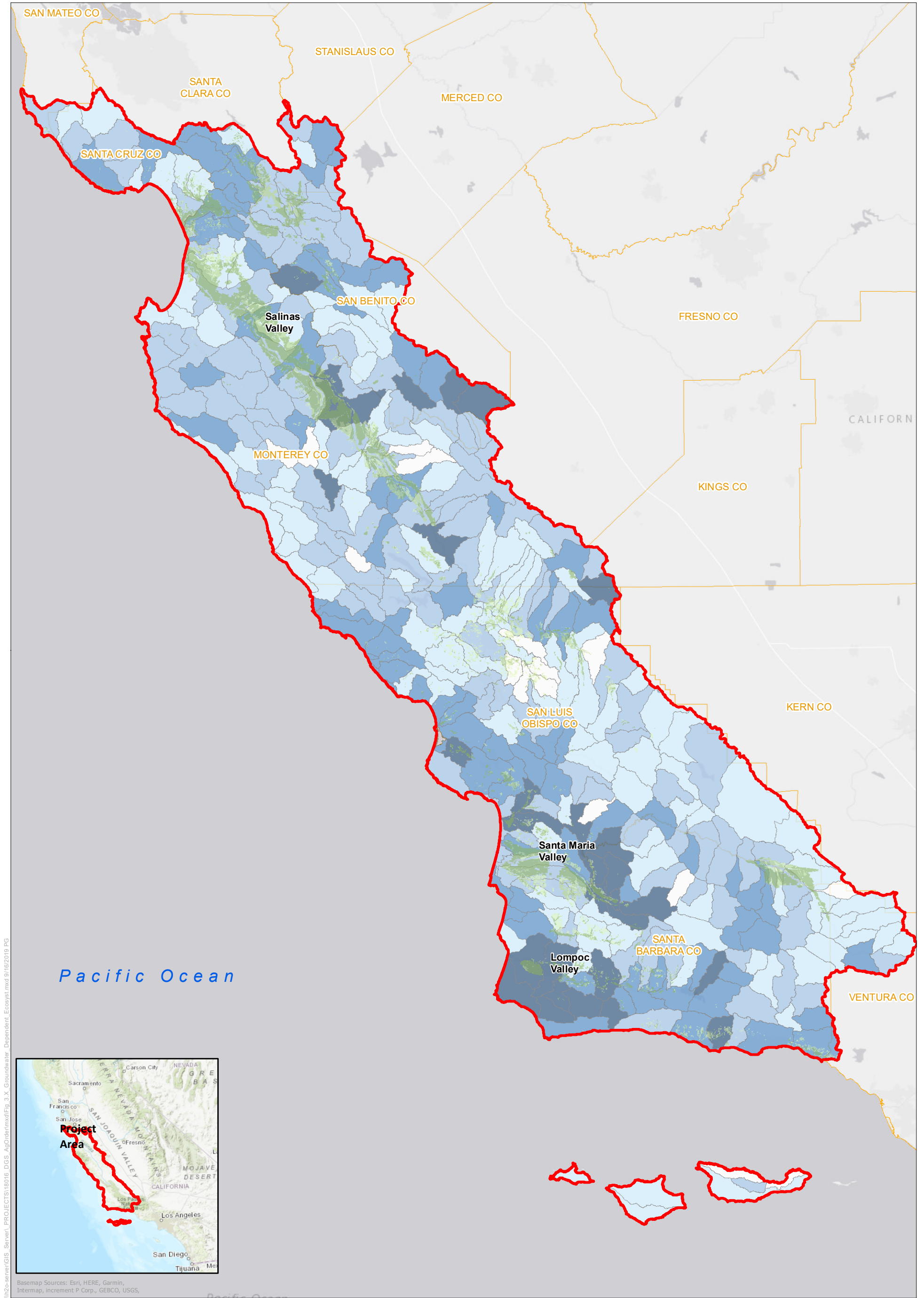


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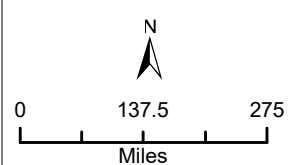
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Source: CDOC 2014; CDOC 2016; Howard & Merrifield 2010



- | Groundwater Dependent Ecosystem Category |        | Irrigated Farmland FMMP Categories |                                  |  |   |          |
|--|--------|------------------------------------|----------------------------------|--|---|----------|
|  | High   |                                    | Very Low                         |  | Central Coast Water Board Jurisdictional Boundary |          |
|  | Medium |                                    | None                             |  |   | Counties |
|  | Low    |                                    |                                  |  |   |          |
|  |        |                                    | Prime Farmland                   |  |   |          |
|  |        |                                    | Farmland of Statewide Importance |  |   |          |
|  |        |                                    | Unique Farmland                  |  |   |          |

\*The index score of GDEs is based on their density in the subwatershed. These data provide an estimate of the relative landscape density of GDEs at the subwatershed scale.

**Figure 3.3-4.**  
Groundwater Dependent Ecosystems

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### ***Special-Status Species***

As noted above, various special-status species have potential to occur in proximity to irrigated agricultural lands or wetland features that may be affected by the activities conducted under the Proposed Project. A comprehensive list of special-status species determined to have potential to occur in areas within or near irrigated agriculture in the central coast region is provided in Volume 2, Appendix C. The determination of potential for such species to occur was based on the existence of species observation records (e.g., in the California Natural Diversity Database) within one mile of irrigated agricultural land and/or whether suitable habitat for the species is reasonably likely to occur within or in immediate proximity to irrigated agricultural lands.

Special-status species considered in this analysis include plant and animal species protected under the ESA, CESA, the CFGC, and the CNPPA, as well as those that are considered rare, threatened, or endangered under Section 15380 of the CEQA Guidelines. Special-status species are classified as follows:

**Federal endangered (FE):** species designated as endangered under the ESA. An FE species is one that is in danger of extinction throughout all or a substantial portion of its range. Take of any individual of an FE species is prohibited except with prior authorization from USFWS or NMFS.

**Federal threatened (FT):** species designated as threatened under the ESA. An FT species is one that is likely to become endangered in the foreseeable future throughout all or a substantial portion of its range. At the discretion of USFWS or NMFS, take of any individual of an FT species may be prohibited or restricted.

**Federal proposed (FP):** species that have been proposed by USFWS or NMFS for listing as endangered or threatened under the ESA. Federal proposed species must be evaluated in Section 7 consultation for any federal action and normally are evaluated in the National Environmental Policy Act review of any action that may affect the species.

**State endangered (SE):** species designated as endangered under the CESA. These include native species or subspecies that are in serious danger of becoming extinct throughout all or a substantial portion of its range resulting from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (CESA Section 2062). Take, as defined by Section 86 of the CFGC, of any state-listed endangered species is prohibited, except as authorized by CDFW.

**State threatened (ST):** species designated as threatened under the CESA. These include native species or subspecies that, although not threatened currently with extinction, are likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts (CESA Section 2067). Take, as defined by Section 86 of the CFGC, of any state-listed threatened species is prohibited, except as authorized by CDFW.

**State candidate (SC):** species designated as a candidate for listing under the CESA. These are native species or subspecies for which the Fish and Game Commission has accepted a petition for further review under Section 2068 of the CESA, finding that sufficient scientific information exists to indicate that the petitioned action may be warranted. Take of any state-designated

candidate species, as defined by Section 86 of the CFGC, is prohibited, except as authorized by CDFW.

**State Species of Special Concern (SSC):** a species, subspecies, or distinct population of a vertebrate animal native to California that has been determined by CDFW to warrant protection and management, intended to reduce the need to give the species formal protection as an SE, ST, or SC species.

**State Fully Protected (FP):** species designated as fully protected under Section 3511, 4700, 5050, or 5515 of the CFGC. FP species may not be taken at any time unless authorized by CDFW for necessary scientific research, which cannot include actions for project mitigation.

**California Rare Plant Rank (CRPR):** The California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants identifies groups of species that are commonly recognized as special-status plants:

- **Rank 1A** plants are presumed extinct in California;
- **Rank 1B** plants are considered rare, threatened, or endangered in California and elsewhere; and
- **Rank 2B** plants are rare, threatened, or endangered in California but more common elsewhere.

**Western Bat Working Group (WBWG):** Bat species with regionally relevant designations of “high” or “moderate” by the WBWG are commonly considered under CEQA, as these designations could have a locally significant effect on a species already imperiled to some degree. A “high” designation indicates that the species is “considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being implemented should a commitment to management exist. Species is imperiled or are at high risk of imperilment.” A “moderate” designation indicates that the species warrants “evaluation, more research, and conservation actions of both the species and possible threats. The lack of meaningful information is a major obstacle in adequately assessing species’ status and should be considered a threat.”

### ***Effects of Existing Impaired Water Quality on Biological Resources***

Under existing conditions, discharges from irrigated agricultural lands are adversely affecting water quality and biological resources in the central coast region. As described in Chapter 2, *Project Description*, water quality impairments from irrigated agricultural waste discharges include widespread toxicity in many surface waters, and elevated levels of turbidity, sedimentation, erosion, and salts, all of which can adversely affect aquatic life. Additionally, many irrigated agricultural operations in the central coast region occur too close in proximity to streams and other waterbodies such that riparian vegetation/buffer areas are insufficient or non-existent. In addition to causing or exacerbating water quality effects from agricultural discharges, this lack of riparian vegetation also limits habitat for special-status species.

### 3.3.4 Impact Analysis

This section describes the methodology and significance criteria used in the analysis of potential impacts to biological resources from the Proposed Project. It also presents the analysis of the potential impacts of the Proposed Project and identifies mitigation measures to reduce or avoid potentially significant effects.

#### ***Methodology***

The analysis considered the potential impacts of reasonably foreseeable activities resulting from the Proposed Project (as described in Chapter 2, *Proposed Project*) on biological resources. As discussed throughout this FEIR, to a certain extent, these impacts are speculative, as the specific locations and types of activities that may be conducted under the Proposed Project are not known. The proposed Agricultural Order 4.0 would allow individual growers considerable discretion in how to comply with applicable discharge targets and limits and other requirements. As such, this analysis is qualitative in nature and makes reasonable assumptions regarding the potential for impacts, and includes conditional mitigation measures that may be applicable depending on the location and type of activity.

#### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the State CEQA Guidelines, the Proposed Project would result in a significant impact related to biological resources if it would:

- A. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- B. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- C. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- D. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- E. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- F. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

### ***Environmental Impacts of the Proposed Program***

**Impact BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS. (*Less than Significant with Mitigation*)**

The Proposed Project is expected to have a largely beneficial effect on biological resources, including special-status species and habitat. Among the primary objectives of the Proposed Project is to protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan in part through protecting and restoring riparian and wetland habitat (see Project Objective #1.d. in Chapter 2, *Project Description*). Compliance with the application targets and limits, discharge targets and limits, and receiving water, and application limits, as well as the other monitoring and reporting requirements in Agricultural Order 4.0, will reduce ongoing discharges of pollutants from irrigated agricultural lands and thus at least partially correct existing impacts on water quality and aquatic habitats. Further, implementation of the setback requirements will restore/create riparian habitat and vegetation in the region, which will benefit any number of special status species that may use these areas.

In spite of these largely beneficial effects, there is potential for some adverse effects to occur from the Proposed Project, including possible flow reductions in surface streams, which could impact aquatic life, as well as construction-related effects from installation of certain management practices. As discussed in Section 3.9, *Hydrology and Water Quality*, there is some potential for certain management practices (e.g., efficient irrigation systems, runoff management features, etc.) to result in reduced volumes of runoff water from agricultural fields, and consequently reduced flow in nearby streams. Ultimately, this potential effect is speculative (see Section 3.9 for detailed discussion), since it cannot be known which ranches will implement these management practices and in which locations (site-specific factors are important in determining the magnitude of potential runoff/flow reduction). Based on the information available, any potential reduction in flow is not likely to be substantial considering that many ranches have already implemented efficient irrigation systems under existing conditions.

Given the speculative nature of potential flow-related effects, potential resultant effects on aquatic species, including special-status fish, are also speculative. Although any reduced flow in streams that occurs due to the Proposed Project could adversely affect certain species, such changes would reflect a return to a more “natural” hydrological flow cycle. Overall, the reduction in discharges of pollutants that is expected to result from the Proposed Project likely would more than compensate for any adverse flow-related effects. As noted in Section 3.9, *Hydrology and Water Quality*, some rivers and streams in the central coast region (e.g., Salinas River) are flow-regulated through discharges from upstream reservoirs by regulatory order. In these situations, flows are maintained at levels that are protective of special-status fish species; as such, any reductions in surface flow discharges to these waterbodies would not reduce flow below levels mandated by existing regulations.

With respect to construction impacts, if special-status plant or animal species were to occur within areas where construction of certain management practices (i.e., those involving ground disturbance) were to take place, this could result in direct impacts to those species (e.g., mortality or injury of individuals by being crushed by vehicles and/or heavy equipment or loss of an active nest or burrow). In general, it is assumed that the majority of construction activities

under the Proposed Project would occur within existing irrigated agricultural lands. These commercial production areas are generally maintained to be free of plants and animals (other than intended crops) and it is considered unlikely that special-status plant or animal species would be present in these areas. Additionally, existing commercial agricultural lands are subjected to repeated disturbance and human activities (e.g., tilling, harvesting, etc.) and thus any plants or animals that may be present in such areas would be accustomed to such disturbance.

For certain types of management practices, it is possible that areas outside of existing irrigated agricultural lands could be disturbed. For example, denitrifying bioreactors or sediment basins could potentially be installed on the periphery of fields (downgradient) such as to capture runoff. Depending on the nature of the land cover/vegetation immediately adjacent to specific ranches where these facilities would be installed, special-status plant or animal species could potentially be present in these areas and could be substantially and adversely affected by construction activities. This could be a significant impact. **Mitigation Measure BIO-1** would require that growers evaluate their specific situation and use the least impactful management practices to meet the water quality requirements of the Proposed Project. If potentially impactful practices are necessary, implementation of additional avoidance and minimization measures would be required. Implementation of this mitigation measure would reduce this potential impact to a level that is less than significant.

In addition to potentially causing direct injury or mortality to special-status species that may be present in areas where management practices may be constructed, Proposed Project construction activities also could indirectly affect species through erosion and sedimentation, or accidental releases or improper management of hazardous materials. As described in Section 3.9, *Hydrology and Water Quality*, Proposed Project construction activities could loosen soils and allow for erosion and off-site discharge of sediments to occur (e.g., a precipitation event washing away loose soils/sediments to nearby waterbodies) if proper precautions are not taken. However, **Mitigation Measure HWQ-1** would require construction best management practices (BMPs) for erosion control for those activities not subject to a grading permit or the Construction General Permit, which would reduce this potential impact. Further, **Mitigation Measure HAZ-1** would require implementation of spill prevention, control, and countermeasures, which would avoid or minimize any potential impacts to special-status species from accidental releases of hazardous materials used in construction activities.

~~Establishment of new riparian vegetation in accordance with the proposed riparian setbacks could result in short term adverse construction effects (e.g., erosion, hazardous materials impacts); however, these would be minimized through implementation of Mitigation Measures HWQ-1 and HAZ-1. Depending on a given ranch's existing operations, construction activities for installation of the setback may also require authorization from CDFW (e.g., if construction activities were to occur within the bed and bank of a stream). In this case, CDFW may impose requirements for the protection of biological resources and water quality during the construction activities. Additionally, implementation of Mitigation Measure BIO-1 would avoid or minimize impacts to biological resources during implementation of the setbacks.~~

~~Agricultural Order 4.0's prohibition on disturbing existing, naturally occurring, and established native riparian vegetative cover in the minimum riparian setbacks, as well as the requirement that all new plants and seeds used to establish the minimum riparian setback be native to~~

~~California and naturally occur in the HUC-8 watershed where the ranch is located, would minimize potential for adverse effects on native plants, including any special-status plant species that may be present in proposed setback riparian areas. If non-native species were used to establish vegetative cover within the setback area and these non-native species aggressively propagated such as to crowd out or displace native species, including possible special-status species, this could result in a significant impact; however, this potential effect would be avoided due to the Agricultural Order 4.0 requirements.~~

Given compliance with existing laws and regulations, including obtaining any needed permits from other agencies, as well as implementation of applicable mitigation measures, this impact would be **less significant with mitigation**.

#### **Mitigation Measure BIO-1: Avoid and Minimize Impacts on Sensitive Biological Resources**

Where construction/installation or routine maintenance and repair of management practices could impact sensitive vegetation communities (e.g., riparian habitat or wetlands adjacent to the construction area) and special-status species, as defined and listed in Section 3.3.3 and Volume 2, Appendix C, enrollees must use the least impactful effective management practice to avoid impacts to such species and habitat. Where application targets and limits, discharge targets and limits, and receiving water, or application limits cannot be achieved without incurring potential impacts, individual enrollees, coalitions, or third-party representatives must implement the following measures to reduce potential impacts to levels that are less than significant.

- Avoid and minimize disturbance of riparian and other sensitive vegetation communities.
- Avoid and minimize disturbance to areas containing special-status plant or animal species.
- Where construction in areas that may contain sensitive biological resources cannot be avoided through the use of alternative management practices, conduct an assessment of habitat conditions and the potential for presence of sensitive vegetation communities or special-status plant and animal species prior to construction. This may include the hiring of a qualified biologist to identify riparian and other sensitive vegetation communities and/or habitat for special-status plant and animal species.
- When conducting maintenance or repair on facilities such as sediment basins, denitrifying bioreactors, or other facilities that may provide habitat for species, ensure that such activities will not disturb any special-status species that may be present. If conducting maintenance or repair activities during the nesting season (generally February 1 to August 31), inspect the facilities to ensure that nesting birds are not present within or adjacent to areas where such activities will occur. If nests or young are identified in such areas, conduct the activities outside of the nesting season.



- Where adverse effects on sensitive biological resources cannot be avoided, undertake additional CEQA review and develop a restoration or compensation plan in consultation with the California Department of Fish and Wildlife to mitigate the loss of the resources.

**Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS. (*Less than Significant with Mitigation*)**

As discussed above under Impact BIO-1, the Proposed Project would have a largely beneficial impact on biological resources by reducing discharges of pollutants from irrigated agricultural lands. ~~Additionally, the riparian setback requirements would result in the creation/restoration of substantial riparian habitat adjacent to irrigated agricultural lands throughout the central coast region. As discussed in Section 3.1, *Agriculture and Forestry Resources*, the setback requirements could result in 4,064 acres of agricultural land potentially being taken out of production and converted to setback areas. While this would result in an impact on agricultural resources, these setback areas would be planted with vegetation and would benefit biological resources by providing riparian habitat.~~

While the majority of activities under Agricultural Order 4.0 would take place within existing cultivated areas, it is possible that certain management practices (e.g., sediment basins, denitrifying bioreactors, vegetated filter strips, etc.) could be installed on the periphery of irrigated agricultural fields where riparian vegetation or other habitat may exist<sup>3</sup>. In these cases, some existing habitat could be displaced; however, **Mitigation Measure BIO-1** would reduce potential impacts by requiring that growers avoid sensitive resources to the extent feasible. ~~The total amount of riparian habitat or other habitat lost through displacement by management practices would likely be more than compensated by the riparian habitat that would be created/restored through the setback requirements of Agricultural Order 4.0.~~

During construction of management practices involving ground disturbance, there would be potential for adverse effects on biological resources, including riparian habitat, through erosion and sedimentation caused by operation of heavy construction equipment and/or accidental releases or improper management of hazardous materials used during construction (e.g., fuel, oil, lubricants, etc.). If eroded soils or leaked hazardous materials were to wash off site to riparian areas or sensitive natural communities adjacent to agricultural areas, this could adversely impact these biological resources.

As discussed in Section 3.9, *Hydrology and Water Quality*, for management practices that would disturb more than 1 acre of land, these activities would be subject to the Construction General Permit, including preparation and implementation of a stormwater pollution prevention plan (SWPPP), which would include erosion control and hazardous materials management measures. Depending on the amount of cut and fill involved, certain management practices also may be subject to local grading ordinances, which would typically require erosion control measures. For construction activities that are not subject to either the Construction General Permit or local

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<sup>3</sup> Irrigated agricultural land is typically bordered by ruderal or grassland vegetation that tolerates the routine vegetation disturbance associated with irrigated agricultural management. Ruderal vegetation and grassland subject to routine disturbance are typically characterized by non-native herbaceous and grasses, and they are not considered sensitive natural communities (CDFW 2019).

grading ordinances, implementation of **Mitigation Measures HWQ-1** and **HAZ-1** would avoid or minimize potential impacts to water quality and biological resources by requiring erosion control and hazardous materials spill prevention, control, and counter-measures.

Overall, the Proposed Project's effect on riparian habitat and sensitive natural communities would be largely beneficial, ~~as it would result in the creation/restoration of riparian habitat adjacent to agricultural lands and would provide greater separation between irrigated agricultural activities and existing sensitive natural communities (e.g., riparian areas, wetlands).~~ Construction activities for certain types of management practices would have potential to cause adverse impacts on riparian habitat and sensitive natural communities, but compliance with existing laws and regulations and/or implementation of applicable mitigation measures would reduce these potential impacts. Therefore, this impact would be **less than significant with mitigation**.

**Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. (*Less than Significant with Mitigation*)**

One of the primary objectives of the Proposed Project is to protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan ~~in part through protecting and restoring riparian and wetland habitat (see Project Objective #1.d. in Chapter 2, Project Description).~~ As discussed above, the Proposed Project would accomplish this through implementation of the setback requirements, which would provide greater separation between agricultural activities and existing riparian or wetland areas and would likely result in the ~~creation/restoration of additional riparian habitat relative to baseline conditions.~~

As such, the Proposed Project's effect on existing state or federally protected wetlands that may occur within or adjacent to irrigated agricultural lands in the central coast region would be largely beneficial. As shown in **Table 3.3-1**, there are roughly 9,068 acres of total wetlands within irrigated agricultural areas of the region, which comprises 1.7 percent of the total irrigated agricultural area. The majority of these wetlands are freshwater emergent wetlands (4,444 acres), although there are also substantial riverine (2,905 acres) and freshwater forest/shrub (1,024 acres) wetlands (CCWB 2018). ~~In general, the Proposed Project would have a beneficial effect on these existing wetlands by increasing the setback distance of agricultural activities from these features, thus reducing potential discharges of agricultural pollutants (intervening vegetation in setback areas can provide passive filtration and detention of pollutants).~~

The Proposed Project would not result in the direct removal or filling of any wetlands; however, it is possible that some hydrological interruption/modification could occur to certain wetlands, depending on site-specific characteristics at individual ranches. ~~Although the setback requirements are designed to protect wetlands~~ For example, the size of some existing wetlands within irrigated agricultural areas could potentially be reduced. Wetlands located immediately adjacent to existing fields may no longer receive the same level of surface flows from agricultural runoff. While this would likely benefit water quality within these wetland areas, it could reduce their size to some degree, depending on certain site-specific factors (e.g., existing level of inflow from irrigated areas, local topography and soils, etc.).

Implementation of certain management practices under the Proposed Project could result in reduced flows/runoff to adjacent waterbodies, including wetlands. As discussed in Section 3.9, *Hydrology and Water Quality*, installation of efficient irrigation systems (e.g., microirrigation) and/or implementation of other irrigation efficiency management practices could result in reduced runoff from irrigated lands, as there is less water applied overall and less water applied that is not taken up by plants. The magnitude of this potential effect, however, is dependent on a number of site-specific and variable factors that cannot be known at this time. Additionally, reporting by growers pursuant to Agricultural Order 3.0 (see Tables 2-5 through 2-8 in Chapter 2, *Project Description*) shows that many growers have already implemented a number of irrigation efficiency measures, such that any potential reduction in runoff flows due to these measures are already largely represented in existing conditions. All of this suggests that indirect hydrological effects on state or federally protected wetlands as a result of the Proposed Project are speculative and likely less than significant.

As discussed under Impact BIO-1 and BIO-2, construction/installation of certain management practices involving ground disturbance (e.g., sediment basins, denitrifying bioreactors, runoff management features, etc.) could result in adverse effects on biological resources, including wetlands, due to erosion/sedimentation and improper management of hazardous materials. Compliance with existing laws and regulations and implementation of **Mitigation Measures HWQ-1** and **HAZ-1** would reduce these potential impacts to a level that is less than significant.

Overall, this impact would be **less than significant with mitigation**.

**Impact BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (*Less than Significant with Mitigation*)**

Streams, associated adjacent wetlands, and riparian habitat are important fish and wildlife movement corridors, as they provide water and food sources, cover refugia, prey hunting opportunities, and other benefits to aquatic and terrestrial species. Several common and special-status fish species rely on streams within the central coast region, many of which run adjacent to irrigated agricultural lands, as migration corridors and for spawning habitat, seasonal movements, or the completion of critical lifecycle stages.

The Proposed Project would largely benefit these important areas ~~by increasing the setback distance of agricultural activities. This would reduce the potential for human activities (e.g., operation of farm equipment) to disturb migratory fish or wildlife species that may be passing through the adjacent habitat areas. Further, the additional vegetation that would be established in riparian setback areas would provide habitat for migratory wildlife species and allow for improved use of migratory wildlife corridors.~~ The reduced pollutant discharges afforded by the Proposed Project through ~~the setback requirements and compliance with the application targets and limits, discharge targets and limits, and receiving water, and application limits also would~~ benefit water quality in streams and wetlands that may serve as wildlife corridors. In particular, the requirements related to sediment and erosion, including preparation and implementation of Sediment and Erosion Management Plans by growers, would reduce potential ongoing impacts to spawning habitats (e.g., through discharge of fine sediments) in streams adjacent to agricultural areas.

The Proposed Project would not involve construction of any new large structures or establish new impassible land uses that would substantially inhibit wildlife movement. Construction activities for certain management practices (e.g., sediment basins, bioreactors, vegetated filter strips), depending on the location of such facilities on individual ranches, could temporarily impact wildlife movement (e.g., wildlife species could avoid construction areas and associated human activity), but this potential impact would not be significant. These construction activities could also impact spawning habitat in adjacent waterbodies due to discharge of fine sediments or hazardous materials, which would be a significant impact. Implementation of **Mitigation Measures HWQ-1** and **HAZ-1** would prevent these adverse impacts on spawning habitat in adjacent waterbodies due to discharge of fine sediments or hazardous materials during construction activities.

This impact would be **less than significant with mitigation**.

**Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*Less than Significant*)**

Numerous regional, county, and city ordinances and policies exist for the protection of biological resources within the central coast region. Examples include ordinances and local zoning that specify setbacks for wetlands, streams, and lakes and regulate the removal of trees. Irrigated agricultural land and immediately adjacent ruderal and grassland vegetation, where Proposed Project activities would primarily occur, generally do not support regulated trees.

~~The riparian setback requirements included in Agricultural Order 4.0 may affect trees and other biological resources that are protected through local policies or ordinances. Actions by CCWB (a State agency) are not required to comply with county, city, or other local ordinances. However, the activities that could occur under the Proposed Project are expected to generally align and be consistent with such local ordinances and policies. Further, the implementation of the setback requirements is expected to result in improved habitat values, functions, and increased numbers of trees. As such, this impact would be less than significant.~~

**Impact BIO-6: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. (*Less than Significant with Mitigation*)**

As described in Section 3.3.2, there are a number of HCPs in effect in the central coast region, including the Santa Clara Valley Habitat Plan, which is a HCP/NCCP (no other known NCCPs were identified). In general, these plans do not cover activities on existing irrigated agricultural land or immediately adjacent ruderal or grassland vegetation areas; however, they may cover streams and riparian areas that may be indirectly affected by discharges from agricultural lands. HCPs in the region would generally support protection of special-status species and habitat, maintaining wildlife movement and habitat connectivity, and protecting and restoring water quality for aquatic ecosystem health. Applicable HCPs also may promote maintenance of surface water flows at acceptable levels for special-status fish species movement and spawning.

The Proposed Project would have a largely beneficial effect on biological resources, and aquatic ecosystems in particular, through reduced discharges of pollutants from irrigated agricultural lands. Growers' compliance with the application targets and limits, discharge targets and limits, and receiving water, and application limits included in Agricultural Order 4.0, along with other

monitoring and reporting requirements, would serve to reduce existing levels of pollutant discharges that are harming biological resources and natural communities. ~~Additionally, implementation of the riparian setback requirements would restore/create additional riparian habitat in the region, which would be beneficial to any number of species as well as water quality.~~

With respect to surface water flow, as discussed in Section 3.9, *Hydrology and Water Quality*, and Impacts BIO-1 and BIO-3 above, there is potential that certain reasonably foreseeable management practices could reduce the volume of water discharged from irrigated agricultural lands, thus potentially reducing flows in adjacent surface waterbodies. While possible, this effect would depend on a number of site-specific factors, as well as the types and locations of specific management practice implementation (which cannot be known at this time). As such, the impact is speculative; and, based on the fact that many growers/ranches have already implemented irrigation efficiency measures under existing conditions, it is unlikely to be significant when compared against baseline (refer to Section 3.9, *Hydrology and Water Quality* for more detailed discussion).

The potential construction-related impacts discussed in previous impact discussions would all be temporary and would be less than significant given compliance with existing laws and regulations and implementation of **Mitigation Measures BIO-1, HWQ-1, and HAZ-1**. As such, these activities would not conflict with the adopted HCPs or NCCP in the central coast region. Therefore, this impact would be **less than significant with mitigation**.

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## 3.4 Cultural Resources

### 3.4.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to cultural resources. Cultural resources include prehistoric archaeological sites, historic-era archaeological sites, historic-era buildings, structures, landscapes, districts, and linear features. Prehistoric archaeological sites are places where Native Americans lived or carried out activities during the prehistoric period, which in California, depending on the region, is generally defined as being before the arrival of Spanish explorers in 1542. Historic-era archaeological sites reflect the activities of people after initial exploration and settlement, depending on the region, beginning in the mid-1500s. With the exception of brief visits by sea-going explorers in the mid-1500s, for the counties in the Project area, exploration and settlement began in earnest during the 1770s. Native American sites can also reflect the historic era. Prehistoric and historic-era sites contain artifacts, cultural features, subsistence remains, and human burials.

Tribal cultural resources (TCRs), specifically, are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe. TCRs are given special status under California law, so although TCRs may include some of the resource types discussed in this section, they are addressed in Section 3.11, *Tribal Cultural Resources*.

### 3.4.2 Regulatory Setting

#### ***Federal Laws, Regulations, and Policies***

##### ***National Historic Preservation Act***

Projects that require federal permits, receive federal funding, or are located on federal lands must comply with 54 USC section 306108, formally and more commonly known as Section 106 of the National Historic Preservation Act (NHPA). To comply with Section 106, a federal agency proposing a federal or federally-assisted project must consider whether the project has the potential to affect historic properties and if so, must “take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places [NRHP].” The implementing regulations for Section 106 are found in Title 36 CFR, Part 800, as amended (2004).

The implementing regulations of the NHPA require the federal agency to identify cultural resources that may be affected by the project and determine whether the cultural resources are listed or eligible for listing on the NRHP. Resources listed or eligible for NRHP listing are called *historic properties*. To evaluate if a site, district, structure, object, and/or building is significant and historic, and eligible for NRHP listing, the NRHP Criteria for Evaluation are applied. A resource is significant and considered a historic property when it:

- A. Is associated with events that have made a significant contribution to the broad patterns of our history; or
- B. Is associated with the lives of persons significant in our past; or

- C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction; or
- D. Yields, or may be likely to yield, information important in prehistory or history.

In addition, 36 CFR Section 60.4 requires that, to be considered significant and historic, resources must also exhibit the quality of significance in American history, architecture, archaeology, engineering, or culture and must possess integrity of location, design, setting, materials, workmanship, feeling, and association.

### ***State Laws, Regulations, and Policies***

#### ***California Environmental Quality Act***

Section 21083.2 of CEQA (PRC Section 21000 et seq.) requires that the lead agency determine whether a project or program may have a significant effect on unique archaeological resources. A unique archaeological resource is defined in CEQA as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:

- Contains information needed to answer important scientific research questions, and there is demonstrable public interest in that information;
- Has a special or particular quality, such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Measures to conserve, preserve, or mitigate and avoid significant effects on these resources are also provided in CEQA Section 21083.2. The State CEQA Guidelines also provide criteria and processes/procedures for minimizing harm to historical and paleontological resources.

#### ***California Health and Safety Code Section 7050.5***

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the Coroner must then contact the Native American Heritage Commission (NAHC), which has jurisdiction pursuant to Section 5097 of the PRC. When human remains are discovered or recognized in any location other than a dedicated cemetery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains may take place until the county coroner has been informed and has determined that no investigation of the cause of death is required, and, if the remains are of Native American origin, either the descendants of the deceased have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 or the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the Commission.



### *California Register of Historical Resources*

The California Register of Historical Resources (CRHR) is established in PRC Section 5024.1. The register lists all California properties considered to be significant historical resources, including all properties listed in, or determined to be eligible for listing in, the NRHP. Resources listed in, or eligible for listing in, the CRHR are referred to as *historical resources*. The criteria for listing are similar to those of the NRHP. Criteria for listing in the CRHR include resources that:

- Are associated with the events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Are associated with the lives of persons important in our past;
- Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

The California Code of Regulations Section 4852 sets forth the criteria for eligibility as well as guidelines for assessing historical integrity and resources that have special considerations.

### ***Local Laws, Regulations, Plans, and Policies***

Many city and county general plans contain goals, policies, and strategies related to cultural resources. Applicable policies and strategies from these general plans generally include requirements to identify cultural resources within a proposed project area through archival research and a field study, and to preserve any significant resources, if feasible. Mitigation is often required before a permit will be granted. Many cities and counties have appointed boards or committees to review projects that have the potential to affect cultural resources, but few have requirements to consult with Native American tribes about impacts on Native American sites or include Native American individuals on their cultural resources review boards. Specific applicable general plan goals and policies for counties within the central coast region are shown in Volume 2, Appendix B.

## **3.4.3 Environmental Setting**

The central coast region includes diverse landscapes, climatic conditions, and land use types. As described in Chapter 2, *Project Description*, Proposed Project activities would occur in areas under active irrigated agricultural production, which are shown in Figure 2-1.

### ***Prehistory***

Archaeological evidence currently indicates that humans arrived in California around 13,000 years ago. Engaged in the hunting of large game and gathering of plant foods, these early nomadic groups entered the region not only by land, but also by sea, following the coastline in boats (Moratto and Chartkoff 2010). There is a minimal record of the earliest inhabitants, but there is evidence that subsistence practices evolved over time from nomadic hunting and gathering to increased sedentism with greater intensification of resource exploitation. This was

paired with changes in technology, such as relinquishing the hunting spear for the bow and arrow, and exchanging handstones and millingstones for mortars and pestles.

The indigenous population grew as sedentism increased and resource availability stabilized, and as subsequent waves of migrants continued to arrive in the area, thereby leaving increased evidence of human activity and changing human behavior. While gradual at first, growth among California's native populations became rapid in the period just before European incursion.

Prehistoric research in the central coast region dates back to the early 1900s, although the bulk of archaeological excavations date to the 1960s and later. Jones et al. (2010) summarize earlier archaeological work that was completed by a number of researchers over the past decades. Based on these studies and later work, Jones et al. (2010) present a synthetic overview of prehistoric adaptive change in California's central coast, a region that includes the coastal and peri-coastal areas from San Mateo County in the north to San Luis Obispo County in the south.

The temporal framework promoted by Jones et al. (2010) spans a period of approximately 10,000 to 12,000 years and is divided into six periods. The periods track perceived changes in prehistoric settlement patterns, subsistence practices, and technological advances. These adaptive shifts are identified by changes in material culture found in the archaeological record. **Table 3.4-1** summarizes the cultural chronology.

**Table 3.4-1.** California Central Coast Chronology

Temporal Period	Date Range
Paleo-Indian	Pre-8000 BC
Millingstone	8000–3500 BC
Early	3500–600 BC
Middle	600 BC–1000 AD
Middle-Late Transition	1000–1250 AD
Late	1250–1769 AD

*Source: Jones et al. 2010*

### *Paleo-Indian Period*

The Paleo-Indian Period represents the initial occupation of the area, and evidence of Native American presence during this period is quite sparse across the region. On the mainland, artifacts dating to this time are mainly isolated artifacts or sparse lithic scatters. In the San Luis Obispo area, fluted points are documented near the towns of Nipomo and Santa Margarita. The traditional interpretation is that people living during this time were highly mobile hunters whose subsistence efforts focused on large mammals.

Erlandson et al. (2010) proposes an alternative perspective, and suggests a “kelp highway” hypothesis for the peopling of the Americas. Proponents of this model argue that the earliest inhabitants of the region focused their economic pursuits on coastal resources. Archaeological sites that support this hypothesis are mainly from the Santa Barbara Channel Islands.

### *Millingstone Period*

Archaeologists report sites dating to the Millingstone Period at several locations across the central coast. As reported by Jones et al. (2010:135), David Banks Rogers first identified this pattern in Southern California as containing abundant handstones, millingstones, cores, and cobble tools, along with a sparse, simple flaked stone assemblage. Wallace further documented the pattern, and Greenwood recognized a Central Coast Millingstone Period component at CA-SLO-2. Since that time, archaeologists have documented sites with Millingstone components along the central coast, and possibly as far north as Tehama County in the Sacramento Valley (Fitzgerald and Jones 1999).

Millingstone Period assemblages are characterized by abundant millingstones and handstones, core and core-cobble tools, thick rectangular *Olivella* shell beads, and a low incidence of projectile points, which, when present, can be lanceolate or large side-notched varieties (Jones et al. 2010). Eccentric flaked-stone crescents are also found in Millingstone Period components. Sites are often associated with shellfish remains and small mammal bone, which suggest a collecting-focused economy. Contrary to these findings, deer remains are abundant at some Millingstone Period sites (cf. Jones et al. 2010), which suggests a flexible subsistence focus. People living during the Millingstone Period appear to have been highly mobile.

### *Early Period*

The Early Period corresponds with the earliest era of what Rogers called the “Hunting Culture” (Jones et al. 2010:138). According to Rogers, the “Hunting Culture” continues through to the time of the Middle-Late Transition, as defined in the present framework. The Early Period is marked by a greater emphasis on formalized flaked stone tools, such as projectile points and bifaces, and the initial use of mortar and pestle technology. Early Period sites are located in more varied environmental contexts than Millingstone Period sites, suggesting more intensive use of the landscape than previously evidenced.

Early Period artifact assemblages are characterized by large side-notched and square-stemmed projectile points, and a wide variety of *Olivella* beads. Other artifacts include less temporally diagnostic contracting-stemmed and long-stemmed points, and bone gorges.

Archaeologists have long debated whether the shift in site locations and artifact assemblages during this time represents population intrusion as a result of mid-Holocene warming trends or an in-situ adaptive shift. The initial use of mortars and pestles during this time appears to reflect a more labor-intensive economy associated with the adoption of acorn processing.

### *Middle Period*

The trend toward greater labor investment is apparent in the Middle Period. During this time range, there is increased use of plant resources, more long-term occupation at habitation sites, and a greater variety of smaller “use-specific” localities. Artifacts common to this era include contracting-stemmed projectile points, a variety of *Olivella* shell beads, and *Haliotis* shell ornaments. Bone tools and ornaments are also common, especially in the richer coastal contexts, and circular shell fishhooks come into use. Grooved stone net sinkers are also found in coastal sites. Mortars and pestles become more common than millingstones and handstones at some sites (Jones et al. 2010:139).

Jones et al. (2010) discuss the Middle Period in the context of Rogers’ “Hunting Culture” because it is seen as a continuation of the pattern that begins in the Early Period. This pattern reflects a greater emphasis on labor-intensive technologies that include projectile and plant processing technologies. Additionally, faunal remains highlight a shift toward prey species that are more labor intensive to capture, which is interpreted as evidence of greater search and processing time or more labor-intensive technologies. These labor-intensive species include small schooling fishes, sea otters, rabbits, and plants such as acorn. Jones and Haney (2005:34) offer that Early and Middle Period sites are difficult to distinguish without shell beads due to the similarity of artifact assemblages.

### *Middle-Late Transition Period*

The Middle-Late Transition marks the end of Rogers’ “Hunting Culture.” Artifacts associated with the Middle-Late Transition include contracting-stemmed, double side-notched, and small leaf-shaped projectile points. The latter are thought to represent the introduction of bow and arrow technology to the region. A variety of *Olivella* shell bead types are found in these deposits, along with notched line sinkers, hopper mortars, and circular shell fishhooks (Jones et al. 2010).

The Middle-Late Transition is a time that appears to correspond with social reorganization across the region. This era is also a period of rapid climatic change known as the Medieval Climatic Anomaly. Jones and colleagues propose the Medieval Climatic Anomaly as an impetus for the cultural change that was a response to fluctuations between cool-wet and warm-dry conditions that characterize the event (Jones et al. 1999). Middle-Late Transition sites seem to represent population aggregations as they can contain extensive bedrock mortar complexes and architectural features.

### *Late Period*

Late Period sites are found in a variety of environmental conditions and include newly occupied task sites and encampments, as well as previously occupied localities. Artifacts associated with this era include Cottonwood and Desert Side-notched arrow points, flaked stone drills, steatite and clamshell disc beads, *Haliotis* disc beads, and new *Olivella* bead types in addition to earlier forms. Millingstones, handstones, mortars, pestles, and circular shell fishhooks also continue to be used (Jones et al. 2010).

Coastal sites dating to the Late Period tend to be more resource acquisition or processing sites, while residential occupation is more common inland (Jones et al. 2010:140).

### ***Ethnography***

The indigenous peoples of California were extremely diverse and populous when Europeans first began to colonize the area. This diversity is reflected in the large number of mutually unintelligible languages that have been identified. At least 64, and possible as many as 80, languages were spoken (Shipley 1978) in California, and, among these languages, hundreds of dialects were present. These different languages and dialects essentially translate to individual tribes or tribelets. Although many ethnographic groups shared cultural traits based on geographic location and available resources, each also had unique expressions of culture.

The territorial boundaries delineated by early ethnographers for Native California groups have varied over time and are often poorly defined. In addition, many tribal boundaries overlapped. The boundaries should not be considered fixed, but reflect general areas in which Native American groups resided. Most groups migrated within these general boundaries throughout the year.

All California indigenous peoples, at the time of colonization, subsisted by hunting and gathering. Coastal groups relied heavily on marine food resources, such as fish, shellfish, and marine mammals, as well as terrestrial resources, while interior groups relied primarily on terrestrial resources for subsistence. Agriculture, in the modern sense, was not generally practiced, although indigenous Californians managed their environment and resources through methods such as fire and the grooming and cultivation of plants in their natural habitats.

The Native populations were greatly affected by colonization of Europeans and Euro-Americans, first through the establishment of the Spanish missions, followed by the expansion of the Mexican rancho system and the arrival of fur traders, and finally by the large number of immigrants during the Gold Rush.

The Proposed Project region was occupied by indigenous populations that represented four language groups at the time of initial colonization. From north to south, these groups are represented by the Costanoan, Esselen, Salinan, and Chumash peoples. Costanoan is a language of the Penutian linguistic stock, while the Esselen, Salinan, and Chumash are languages of the Hokan stock.

### ***Costanoan***

Costanoan, which is a derivative from a Spanish term for *coast people*, consisted of eight known languages and various dialects within those languages. It was spoken over a broad territory that included all of the San Francisco Peninsula and all lands along the east and south of San Francisco Bay, and that extended south to include Monterey Bay, Salinas Valley, and the area around Hollister. Six of the eight languages are represented in the Proposed Project area. From north to south, these include the Ramaytush, Tamyen, Awaswas, Mustsun, Rumsen, and Cholon (Milliken et al. 2009:32).

The Costanoan peoples, also referred to as the Ohlone, Mutsun, or Rumsen, depending on geography, were not a united cultural or political entity (Milliken et al. 2009:2-4). Rather, there were strong differences not only in language, but also in culture, between the San Francisco and Monterey Bay occupants, and political affinity was based on the tribelet, which comprised one or more villages within a specific geographic territory (Levy 1978:487).

Tribelet territory had a range of 10 to 12 miles in diameter and contained a population that consisted of 200 to 400 people living among four or five villages (Milliken et al. 2010:99). Those living in the Santa Clara Valley resided in large villages along permanent streams in locations that allowed access to the diverse resources found in the tidal marshlands, the valley floor, and the hills (Milliken et al. 2010:106; Moratto 2004:225). This area supported one of the highest population densities around the San Francisco Bay, though they were surpassed by the Mutsun population in Pajaro River valley (Levy 1978). Alternately, the Santa Cruz Mountains had one of the lowest population densities among the Costanoans (Milliken et al. 2009:65).

The Costanoan people were among the first of the central coast populations to be affected by the arrival of the Spanish beginning with Mission San Carlos Borromeo de Carmelo, which was established in 1770 at Monterey Bay. Ultimately, seven missions were established throughout their aboriginal territory, and by the early 1800s virtually the entire population (with the exception of those who escaped the area) had been gathered into the missions (Levy 1978). Disease greatly reduced the Costanoan population during the 1800s.

Beginning in the early 1900s, the various Ohlone/Costanoan tribes began petitioning the U.S. Bureau of Indian Affairs for tribal recognition; however, to date, none of the tribes has been successful at establishing federal recognition.

### *Esselen*

The Esselen are a small linguistic group who lived along the Pacific coast, in the Salinas Valley and in the Santa Lucia mountains south of the city of Monterey. Their territory included the coastline from approximately Point Lopez in the south, north to Point Sur, and more northerly to the headwaters of San Jose Creek and the upper reaches of the Carmel River (Hester 1978a). Milliken and Johnson (2003) also note that, based on mission records from Missions San Antonio and Soledad, the Esselen occupied portions of the Salinas Valley around present-day Soledad and Greenfield, and the Arroyo Seco drainage.

The limited territory of the Esselen translated into a small population of a few hundred Esselen speakers at the time the Spanish colonized the region. It appears that the bulk of Esselen speakers were quickly swept into Mission San Carlos Borromeo de Carmelo in Monterey when it was established in 1790 (Hester 1978a). Esselen were also baptized at Mission San Antonio in 1791 (Milliken and Johnson 2003). As a result, very little is known about Esselen aboriginal lifeways. However, it may be surmised that they lived in a similar fashion as the neighboring Salinan groups, as they shared the same environments and habitats.

### *Salinan*

At the time of European contact, the Salinan peoples occupied a portion of the central coast, from Big Creek north of Point Lopez in Monterey County south to near Morro Bay in central San Luis Obispo County. To the east, Salinan speakers held the east slopes of the Coast Range to near the floor of the San Joaquin Valley (Milliken and Johnson 2003). There may have been two mutually intelligible dialects of the Salinan language. The northern one was known as Antoniaño and the southern as Migueleño (Hester 1978b:500). Mission records also indicate the possibility of a third Salinan language group, Playano, thought to be from the coastal areas. Little is known about Playano speakers and some anthropologists infer that the Playano dialect may have been a variant of the northern Chumash and not Salinan (Jones and Haney 1997).

Information about Salinan lifeways can be gleaned from a variety of manuscripts that reference mission records, and salvage ethnographies that were conducted and variably reported by Merriam, Mason, Kroeber, and J.P. Harrington. Diaries from the Gaspar de Portolá expedition record the first documented European contact with the Salinan, and diaries from members of the party describe some early observations (Jones and Haney 2005). Hester (1978b) compiled many of the early documents for a brief ethnography of the Salinan.

The Salinan had a tribelet organization comprised of individual villages that were autonomous governing units. Villages are thought to have been small, generally less than 100 individuals. Larger villages had hereditary chiefs.

Social relations with neighboring groups varied. Mason (1912) noted that the Salinan and Yokuts had positive trade relations with one another. Goods traded included shell beads and unworked shells exchanged for salt grass salt, obsidian, seeds, lake fish, and possibly animal skins. Social interaction between their northern and southern neighbors was somewhat more hostile.

The Salinan were hunter-gatherers who moved seasonally according to the weather and timing of food resources. Mason (1912) reported that there were 20 villages within a 20-mile radius of Mission San Antonio, in addition to occupation sites along the coast or near-coastal stream banks.

### *Chumash*

The ethnohistoric Chumash are typically characterized as a linguistically related series of simple chiefdom societies occupying sedentary or semi-sedentary villages, whose territory extended from Malibu Canyon in Los Angeles County, north to about San Luis Obispo in San Luis Obispo County. Inland, the Chumash spread across the South Coast Range and San Emigdio Mountains to the west edge and south end of the southern San Joaquin Valley. They also occupied the Channel Islands (Grant 1978a).

At least six languages have been identified within the Chumash language family, along with multiple dialects (Shipley 1978). These are associated with nine Chumash regional divisions. The Proposed Project encompasses most of these territories. From north to south within the Project area are the ancestral territories of the Obispeño, Cuyama, Purismeño, Ynezeño, Barbareño, and Ventureño Chumash (Grant 1978a).

Most Chumash communities were comprised of sedentary or semi-sedentary villages that were occupied much of the year. The community occupants would move to seasonal camps to collect foods for storage at the village locations. Early historical accounts commented on the large number of villages along the Santa Barbara coast (Grant 1978b). Other coastal areas were also well inhabited, but not to the same degree. Inland Chumash territories were sparsely populated due to the harsher environment where resources were more limited (i.e., water) or non-existent (i.e., marine resources) (Grant 1978c).

The people along the coast developed a maritime adaptation that was quite complex and efficient. Fishing within the channel waters provided a tremendous amount of meat, and was conducted with the *tomol*, a plank canoe. Shellfish were collected both in estuarine environments, such as the Goleta Slough, and along the sandy beaches, intertidal zones, and

rocky outcrops on the ocean shore. In addition to marine foods, the prehistoric diet included terrestrial plants (most notably acorns and some hard seeds) and terrestrial game (primarily rabbits and deer) (Grant 1978b).

The Chumash developed a rich material culture, which was commented upon by the early Spanish explorers (Grant 1978b). The ocean-going plank canoes of the Chumash, up to 30 or more feet in length, were exquisitely constructed, and other objects of wood (bowls, boxes) were also finely made. Steatite was a favorite medium for a variety of items, including large bowls, flat cooking stones, beads, and pipes. As with other tribal groups in the Proposed Project area, beads and ornaments were made of shell, and bone was used for flutes and whistles, as well as for needles, awls, and fishing equipment. Both twining and coiling basketry techniques were employed. (Grant 1978b). The Chumash also excelled at rock art and elaborate polychrome panels were created throughout their territory, and are particularly prevalent at inland sites (Grant 1978c).

The Chumash had one of the highest populations of aboriginal speakers prior to the arrival of the Spanish, with perhaps as many as 22,000 individuals. However, they also lived in the same area where the Spanish concentrated a large number of missions, and beginning in 1772, the Chumash were conscripted to work at the missions, including San Luis Obispo (1772), San Buenaventura (1782), Santa Barbara (1786), La Purisma Concepcion (1787), and Santa Ynez (1804). The Chumash population was severely diminished during this period, primarily through the introduction of new diseases.

### ***History***

The beginning of the historic era in the Proposed Project region began with explorations by sea. Portuguese captain Juan Rodriquez Cabrillo travelled up the coast in 1542. He toured the Channel Islands and made contact with natives near what is now Goleta before heading up the coast along the length of the state, noting landmarks such as Cape San Martin (now Point Pinos) in Monterey. Later in the century, in 1595, Sebastian Rodriguez Cermeno piloted a Spanish ship up the coast. He did not land in Monterey Bay, but he is credited with giving it its original name, San Pedro Bay. Sebastian Vizcaino accompanied Cermeno on that early voyage and later returned to Monterey Bay in 1602. He is the first European known to land, claiming the bay for Spain (Kyle et al. 2002). None of these first explorers established settlements or had extensive interactions with Native Californians.

Although Spain had a claim on what was known as Alta California by the early 17th century, the Spanish did not begin to have a presence and make an impact on the central coast region until after the Spanish established a mission and presidio in the San Diego area in 1769. That same year, Gaspar de Portola made an overland expedition up the coast from San Diego in search of Monterey Bay. Portola did not recognize the bay when he reached it, though he planted a cross on the beach, and continued northward to San Francisco Bay before retracing his steps back to San Diego. The trip documented landmarks throughout the Proposed Project area, along with encounters with Native Americans. Because Spain was intent on establishing a second mission at Monterey Bay, Portola set out overland, again, for Monterey in 1770. He found the cross he set in the sand decorated with arrows, feathers, and seafood offerings. Father Junipero Serra made the journey by sea, arriving a few weeks after Portola. With his presence, the second Spanish



mission in California, Mission San Carlos Borromeo de Carmelo, and the Presidio of Monterey were established (Kyle, et al. 2002.).

Missions were established throughout the central coast region over the next 30 years. **Table 3.4-2** lists the 10 missions founded within the central coast region and their dates of dedication.

**Table 3.4-2.** Spanish Missions in the Project Area

<b>Mission Name</b>	<b>Date of Dedication</b>	<b>Location</b>
San Carlos Borromeo de Carmelo	1770	Carmel, Monterey County
San Antonio de Padua	1771	Jolon, Monterey County
San Luis Obispo de Tolosa	1772	San Luis Obispo, San Luis Obispo County
Santa Barbara	1786	Santa Barbara, Santa Barbara County
La Purisima Concepcion	1787	Lompoc, Santa Barbara County
La Exaltacion de la Santa Cruz	1791	Santa Cruz, Santa Cruz County
Nuestra Senora de la Soledad	1791	Soledad, Monterey County
San Juan Bautista	1797	San Juan Bautista, San Benito County
San Miguel Arcangel	1797	San Miguel, San Luis Obispo County
Santa Ines	1804	Solvang, Santa Barbara County

*Source: California Mission Guide 2019.*

Despite scattered Spanish occupation, however, California remained largely unsettled throughout this period. The routes used to travel between the presidios and missions provided the outline for today's U.S. Highway 101 and Interstate 5 (Kyle et al. 2002).

The Mexican people took New Spain back from the Spanish in 1822 and renamed it the Republic of Mexico, thus beginning the Mexican Period (1822–1848). During this time, the Catholic missions were secularized and the Native Americans were left to fend for themselves. Large land grants, also known as ranchos, were given to loyal Californios (Mexican settlers of the new territory). Many outsiders who were seeking to take advantage of California's abundant resources arrived during this time. As more settlers arrived, relations between Mexico and the United States grew tense, ultimately resulting in war in 1846. California was formally annexed to the United States by the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War (Kyle et al. 2002).

The end of the Mexican-American War and the discovery of gold marked the beginning of the American Period (1848–present). This discovery drew people from around the world to California, which caused a substantial increase in the local nonnative population and resulted in severe impacts on California's indigenous communities. The U.S. Civil War took place from 1861 to 1865, and although California's involvement was minimal, construction of the Transcontinental Railroad may have been the most important immediate effect of the Civil War

on California. Easy access to rail lines made large-scale agricultural pursuits an important element in the state's economy (Kyle et al. 2002).

Agriculture has continued to play a significant role in the history of the central coast region throughout the 20th and into the 21st century. Wine grapes were brought to the region by the mission founders, and tourism related to the wine industry expanded significantly during the last decades.

### ***Paleontological Resources***

Section 6301 of the Paleontological Resources Preservation Act of 2009 defines a paleontological resource as any fossilized remains, traces, or imprints of organisms, preserved in or on the Earth's crust, which are of paleontological interest and provide information about the history of life on Earth. These resources include fossilized remains of plants and animals (big and small), traces (tracks/imprints) of these organisms, as well as the geological deposits that could contain these types of fossils (County of Santa Barbara 2018). In addition, fossils provide important chronological information used to interpret geological processes and regional history.

In general, fossils are greater than 5,000 years old (i.e., Middle Holocene) and are typically preserved in sedimentary rocks (County of Santa Barbara 2018). Most fossil material is found where bedrock is exposed on the surface, typically in mountainous terrain or in areas where erosion has removed the soil or regolith surface. As a result, paleontological sites are normally discovered in cliffs, ledges, or steep gullies, or along wave-cut terraces where vertical rock sections are exposed (Association of Monterey Bay Area Governments 2014; San Luis Obispo Council of Governments 2019).

The central coast region has various landscapes causing multiple types of geological formations; however, it is dominated by coastal mountain geomorphic province. Due to the region's geologic history of advancing and retreating sea levels, the most prevalent type of fossil found is of marine life forms. Most of the area's fossils are micro-organisms such as foraminifera or diatoms, or assemblages of mollusks and barnacles most commonly found in sedimentary rocks ranging from Cretaceous age (138 to 96 million years old) to Pleistocene age (1.6 million to 11 thousand years old). Fossils can be found throughout the region because of the widespread distribution of marine deposits (ICF 2008).

### ***Cultural Resources in the Proposed Project Area***

Due to the long period of known habitation and rich history in California and the central coast region, there is potential for a variety of known and unknown cultural resources to exist in the Proposed Project area. Such resources may include the following:

- Prehistoric resources such as habitation or village sites, temporary campsites, roasting pits/hearths, burials, bedrock milling features, lithic scatters, rock art, rock features (such as hunting blinds), and isolated artifacts. Prehistoric resources are found in valleys, hills, mountains, deserts, grasslands, and forests, particularly adjacent to watercourses.

- Historic-era archaeological resources such as privy pits, dumps, mining remains, transportation facilities, water conveyance systems, resource extraction facilities (such as quarries), and isolated artifacts. Historic-era archaeological resources often occur in the same places as prehistoric sites because these were the desirable locations for human settlement that provided food, shelter, and other necessary resources.
- Built-environment resources such as barns, churches, administrative buildings, courthouses, forts, houses, libraries, mill buildings, missions, schools, sheds, theaters, and train stations. Above-ground built-environment resources are generally unlikely to occur in areas of active commercial irrigated agriculture, although some farms may have culturally significant barns or other structures on site.
- Human remains from any era. These may be found in Native American sites; in dedicated or unmarked cemeteries associated with the missions; small family plots scattered among the ranchos; or in formal dedicated cemeteries associated with established communities.

### 3.4.4 Impact Analysis

This discussion describes the methodology and significance criteria that were used to analyze cultural resources. It then presents the analysis of the potential environmental impacts of the Proposed Project on cultural resources.

#### ***Methodology***

This impact analysis uses a qualitative approach to evaluate the potential direct and indirect impacts to cultural resources and/or paleontological resources that could result from Proposed Project activities. As described in Chapter 2, *Project Description*, the precise locations and timing of individual actions (e.g., management practice construction/implementation) that could occur under Agricultural Order 4.0 are not known and cannot be known at this time. Additionally, it is not known which management practices might be implemented by which growers/ranches. Therefore, the analysis considers generally the impacts to cultural resources that could occur in irrigated lands in the central coast region based on the various reasonably foreseeable management practices described in Chapter 2.

#### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the State CEQA Guidelines, the Proposed Project would result in a significant impact related to cultural resources if it would:

- A. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5;
- B. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;

- C. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- D. Disturb any human remains, including those interred outside of dedicated cemeteries.

### ***Environmental Impacts of the Proposed Project***

#### **Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5; or cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5. (*Less than Significant with Mitigation*)**

In general, the Proposed Project is designed to address discharges of pollutants from irrigated agricultural lands. The activities that could occur under the Proposed Project would be limited to implementation of management practices to reduce agricultural runoff/pollutant discharges, and the monitoring and reporting activities that would be required under the Order. Refer to Chapter 2, *Project Description*, for detailed discussion.

Many of the activities that could occur under the Proposed Project would have no potential to adversely affect historical resources and/or unique archaeological resources. For example, reasonably foreseeable management practices such as applying less fertilizer, applying pesticides in accordance with label instructions, minimizing tillage and bare soils, etc., would not affect cultural resources. However, construction/installation of management practices that would involve new ground disturbance and excavation could potentially cause damage to, disrupt, or otherwise adversely affect historical resources and unique archaeological resources if they are present. By disturbing subsurface soils (particularly those soils that have previously been undisturbed), these activities could result in the loss of integrity of cultural deposits, loss of information, and the alteration of a site setting.

Although the majority of Proposed Project activities are expected to occur within existing irrigated agricultural fields (i.e., where soils have generally been repeatedly disturbed), it is possible that some management practices could be installed adjacent to existing fields. For example, sediment basins or bioreactors could be installed on the periphery (downgradient) of existing fields in areas where previous soil disturbance has not occurred. Likewise, certain management practices that are installed within existing fields could involve excavation to a depth of soil that has not previously been disturbed (e.g., a sediment basin or vegetated swale could require excavation to 5 feet deep, whereas prior tilling/ground disturbance has only occurred to 2 feet deep). These types of activities would have the potential to adversely affect buried historic or pre-historic archaeological resources that may be within such previously undisturbed soils.

In general, it is considered unlikely that the Proposed Project would result in any direct impacts on built environment historical resources, as the proposed Agricultural Order 4.0 would not require or encourage any physical alterations to existing built structures; however, it is possible that built resources may be removed in order to implement a management practice under Agricultural Order 4.0. In this instance, if the structure(s) to be affected were listed or eligible for listing in the CRHR (i.e., were historical resources), this could result in a significant impact.

Implementation of **Mitigation Measure CUL-1** would address these potential impacts by requiring that Agricultural Order 4.0 enrollees inventory and evaluate potential resources that may be present within the proposed disturbance area, and employ avoidance and/or minimization measures for any significant resources. Provisions must also be made by growers for the accidental discovery of unknown buried cultural resources. Given implementation of this mitigation measure for applicable activities, this impact would be **less than significant with mitigation**.

**Mitigation Measure CUL-1: Cultural Resources Inventory, Evaluation of Resources for Significance, and Implementation of Avoidance and/or Minimization Measures.**

For proposed actions or management practices that involve modifications to previously undisturbed soils (i.e., below the levels of current agricultural practices, or in areas that have not previously been cultivated or developed) or a structure that may qualify as a historical resource, the following steps must be taken to avoid and/or reduce potential impacts on significant cultural resources:

- The enrollee or third party must retain an archaeologist who meets the U.S. Secretary of Interior's professional standards as an archaeologist to conduct a records search at the regional Information Center of the California Historical Resources Information System (CHRIS). The record search must determine if cultural resources have previously been identified in the proposed disturbance area and whether the proposed disturbance area has previously been subject to archaeological pedestrian survey.
- The professional archaeologist must contact the NAHC to request a search of the Sacred Lands files and a list of tribes with a traditional and cultural affiliation with the proposed disturbance area. The archaeologist must contact the tribes identified by the NAHC to request information about sites and resources that may not have been identified during the record search process, including TCRs, and whether the tribes have any concerns about the proposed action.
- If a pedestrian survey has not previously been conducted on the property, a survey must be conducted by a qualified archaeologist. All identified archaeological sites and historic buildings and structures must be recorded on California Department of Parks and Recreation 523 Site Record forms. A Historic Resources Identification Report (HRIR) must be prepared to document the findings of the study; the report must be submitted to the CCWB and the CHRIS Information Center. If the property *has* been subject to previous study, additional survey is not required if no cultural resources, including TCRs, were identified during the study and the age and adequacy of the report are considered sufficient by the consulting archaeologist for the purposes of the present project. The report from the previous survey can then be used to satisfy the CEQA requirements for historical resources. If the property has been subject to previous survey and a cultural resource *has* been identified within the proposed disturbance area, a qualified archaeologist must conduct a pedestrian survey to assess the current condition of the resource relative to the proposed action.

- If cultural resources are identified either by the record search or pedestrian survey, the qualified archaeologist must evaluate the significance of archaeological resources, per the State Water Board Resources Control Board guidelines<sup>1</sup> (2019). Note that buildings that would be impacted by the proposed action would require evaluation for CRHR eligibility by a qualified architectural historian. If the cultural resource(s) are determined to be historical resource(s) (i.e., listed or eligible for listing in the CRHR), the enrollee or third party, in coordination with the qualified archaeologist, must avoid impacting the resource(s) to the extent feasible. This would include relocating or redesigning proposed management practice(s) such as to avoid the resource ~~or leaving structures in place in setback areas~~ or otherwise preserving structure(s) that are listed or eligible for listing. If the historical resource(s) cannot be completely avoided, the qualified archaeologist must develop and implement a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the historical resource(s) that may be impacted by the proposed activity. The data recovery plan must be prepared and submitted to CCWB for approval, and the data recovery plan must be approved by CCWB prior to any excavation taking place that may impact the resource(s). CCWB must ensure that data recovery plans for Native American archaeological sites have the opportunity to be reviewed by consulting tribes. Archaeological sites known to contain human remains must be treated in accordance with the provisions of Section 7050.5 of the Health and Safety Code (see Mitigation Measure CUL-3). For any artifacts removed during project excavation or testing, the professional archaeologist must provide for the curation of such artifact(s). For structure(s) evaluated as a historical resource(s) that cannot be avoided, reconstruction of the structure(s) at an off-site location, consistent with the Secretary of the Interior's Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings, may be an appropriate minimization measure that may be implemented in addition to, or as part of, the data recovery plan.
- Provisions must be made by the enrollee or third party for the accidental discovery of historical or unique archaeological resources during construction of applicable management practices, pursuant to CEQA Guidelines 15064.5(f). If cultural resources<sup>2</sup> are uncovered during construction, work must immediately cease within 50 feet of the finds and the materials must be evaluated by a

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<sup>1</sup> Guidelines for Applicants and their Consultants on Preparing Historic Property Identification Reports for the Clean and Drinking Water State Revolving Fund Programs. Revised 9/12/19. While these guidelines were developed for other SWRCB programs, they provide protocols that can generally be applied to other programs where cultural resources must be addressed.

<sup>2</sup> Native American archaeological materials or indicators may include, but are not limited to, arrowheads and chipped stone tools; bedrock outcrops and boulders with mortar cups; ground stone implements (grinding slabs, mortars, and pestles) and locally darkened midden soils containing some of the previously listed items plus fragments of bone, fire affected stones, shellfish, or other dietary refuse. Historic era archaeological materials may include, but not be limited to: adobe or fired brick; metal objects such as nails, hinges, machine parts, etc.; household wares such as pottery or glass artifacts or shards; tin cans; milled lumber, etc.

qualified archaeologist. If the finds are determined to be a historical or unique archaeological resource, avoidance measures or appropriate mitigation (e.g., data recovery, documentation, and curation) must be implemented.

**Impact CUL-2: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (*Less than Significant with Mitigation*)**

As noted in Section 3.4.3 above, paleontological resources are generally found in sedimentary rock formations. Most of the agricultural lands within the Proposed Project area are in river valleys where sediments are deep; thus, fossils would not be expected in such locations. However, some crops, notably wine grapes, are well suited to rocky slopes, and activities in these areas have a greater potential to uncover paleontological resources during construction. If paleontological resources were uncovered during Proposed Project activities and proper protocols were not followed, this could result in a significant impact. Implementation of **Mitigation Measure CUL-2** would reduce these potential impacts to paleontological resources to a level that is **less than significant with mitigation**.

**Mitigation Measure CUL-2: Comply with State Laws Pertaining to the Discovery of Paleontological Resources.**

If any items of paleontological interest are discovered during construction of management practices or other activities (e.g., installation of monitoring wells), work must be immediately suspended within 50 feet of the discovery site, or to the extent needed to protect the site. Discovered paleontological resources must be evaluated by a qualified paleontologist who meets the Society for Vertebrate Paleontology's professional requirements. If it is determined that the activities could damage a unique paleontological resource, mitigation must be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the State CEQA Guidelines. If avoidance is not feasible, the paleontologist must develop a treatment plan in consultation with CCWB. Work must not be resumed until authorization is received from CCWB and any recommendations received from the qualified paleontologist are implemented.

**Impact CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries. (*Less than Significant with Mitigation*)**

Similar to the potential impacts to historical and archaeological resources discussed under Impact CUL-1, activities conducted under Agricultural Order 4.0 that involve ground disturbance have the potential to disturb previously undocumented human remains. In general, it is considered unlikely that human remains would be present in previously disturbed soils within existing irrigated agricultural fields; however, this possibility cannot be entirely ruled out and human remains must be addressed in accordance with State law regardless of their context in disturbed or undisturbed ground. If human remains were uncovered during ground-disturbing activities, this could result in a significant impact.

Implementation of **Mitigation Measures CUL-1** and **CUL-3**, the latter of which would require compliance with existing state laws pertaining to the discovery of human remains (e.g., Health and Safety Code Section 7050.5), would reduce such impacts to a less-than-significant level. As such, this impact would be **less than significant with mitigation**.

**Mitigation Measure CUL-3: Comply with State Laws Pertaining to the Discovery of Human Remains.**

If human remains are discovered during construction, the requirements of Health and Safety Code Section 7050.5 must be followed. Potentially damaging excavation must halt on the construction site within a minimum radius of 100 feet of the remains, and the county coroner must be notified. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, the NAHC must be contacted by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]). Pursuant to the provisions of PRC Section 5097.98, the NAHC must identify a most likely descendent (MLD). The MLD designated by NAHC must have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. The enrollee must work with the MLD to ensure that the remains are removed to a protected location and treated with dignity and respect. Ground disturbing activities must not resume until these requirements are met.



## 3.5 Economics

### 3.5.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to economics. Economics is not one of the topics included in Appendix G of the State CEQA Guidelines; however, Section 15064(e) of the State CEQA Guidelines states that economic effects of a project may be considered to the extent that they may result in adverse physical effects on the environment. “Where a physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project (State CEQA Guidelines Section 15064[e]).”

Due to the nature of the Proposed Project and public concern regarding potential economic effects of the Proposed Project expressed during scoping and various public outreach forums, the FEIR evaluates potential economic effects in this chapter.

### 3.5.2 Regulatory Setting

#### ***Federal Laws, Regulations, and Policies***

No federal laws, regulations, or policies relate specifically to economics and the Proposed Project.

#### ***State Laws, Regulations, and Programs***

No state laws, regulations, or policies relate specifically to economics and the Proposed Project.

#### ***Local Laws, Plans, Policies, and Regulations***

Numerous local jurisdictions (e.g., cities and counties) are located within the central coast region. Often, irrigated agricultural lands are located outside of city boundaries and are subject to county regulations, but irrigated lands may also occur within cities. Volume 2, Appendix B lists relevant general plan goals and policies for counties within the central coast region. As shown in Volume 2, Appendix B, many counties have goals and policies related to economic development, and the development and prosperity of the agricultural industry, as this is one of the key industries in the region.

### 3.5.3 Environmental Setting

#### ***Regional Agricultural Economic Production***

Refer to Section 3.1, *Agricultural and Forestry Resources*, for information on agricultural production and crop types in the central coast region. Figure 3.1-1 shows the types of crops grown in the central coast region as reported in California Department of Water Resources (DWR) data. Table 3.1-1 shows acreage of Important Farmland, as discussed in Section 3.1, and primary agricultural commodities in the region by county.

As described in Section 3.1, the central coast region is one of the most productive agricultural regions in California and the nation. In 2002, the central coast had \$14 billion in agricultural production and processing output, accounting for 14 percent of the total agricultural industry production in California (Agricultural Issues Center 2009). In total, the agricultural production and processing industry in the central coast region directly accounted for 110,686 jobs. **Table 3.5-1** shows direct and total economic effects of the agricultural industry in the central coast region.

**Table 3.5-1.** Central Coast Region Agricultural Industry – Direct and Total Economic Effects

	Direct Effects				Total Effects <sup>1, 2</sup>		
	Industry Output (sales) <sup>3</sup> (\$million)	Employment <sup>4</sup> (jobs)	Labor Income <sup>5</sup> (\$million)	Value Added <sup>6</sup> (\$million)	Employment (jobs)	Labor Income (\$million)	Value Added (\$million)
Agricultural production and processing	14,028	110,686	3,894	6,728	183,606	7,213	12,594
Agricultural processing <sup>7</sup>	8,371	30,069	1,464	3,023	38,118	3,131	5,673
Agricultural production	5,657	80,617	2,430	3,705	112,098	3,728	6,019
Forestry, fishing, hunting	138	1,589	31	59	2,387	62	105
Ag-support activities	1,217	34,052	1,032	852	45,274	1,507	1,653
Farming	4,301	44,976	1,368	2,794	66,628	2,244	4,318
Grains, oilseeds, cotton	7	241	1	3	293	3	6
Vegetables, fruits, nuts	3,095	30,316	892	1,971	50,423	1,689	3,241
Greenhouse & nursery	882	9,935	442	755	14,439	629	1,082
Other crops	51	547	11	27	881	24	49
Beef & dairy cattle	185	2,447	10	17	3,524	46	81
Other animals	81	1,490	13	21	1,817	26	45
Total central coast economy	506,351	3,666,203	206,648	303,956	-	-	-

**Notes:** Direct and total effects are in nominal dollars.

1. Total effects include direct, indirect, and induced effects.
2. Values that utilize multiplier effects cannot be aggregated to get totals.
3. Industry output: value of production (i.e., total sales) by the group of industries named at the left.

4. Employment: number of jobs directly employed by the corresponding industry.
5. Labor income: value of wages and salaries and other proprietary income paid by industry.
6. Value added equals sum of labor income (employee compensation and proprietor income), property income, and indirect business taxes. This is the same as total sales (industry output) less purchased inputs and services.
7. This group includes animal feed, food, and beverage industries.

Source: *Agricultural Issues Center 2009*

Excluding the “beef and dairy cattle” and “other animals” categories, which would not typically involve irrigated agriculture (although inputs to animal production, such as feedstock, could be grown via irrigated agriculture), farming activities in the central coast region directly resulted in an output of \$4,035,000,000; 41,039 jobs; \$1,345,000,000 in labor income; and \$2,756,000,000 in value added (Agricultural Issues Center 2009). This level of production ranks quite well in comparison to other agricultural regions of California and many of the counties making up the central coast region rank highly among the most productive counties in the state. **Table 3.5-2** shows county-level data from the California Department of Food and Agriculture (CDFA) for 2017.

**Table 3.5-2.** County Rank, Total Value of Agricultural Production and Leading Commodities, 2017

Rank <sup>1</sup>	County	Total Value (\$1,000)	Leading Commodities
1	Kern <sup>2</sup>	7,254,004	Grapes (Table), Almonds, Milk, Pistachios
4	Monterey	4,425,425	Strawberries, Lettuce, Broccoli, Grapes (Wine)
8	Ventura	2,099,889	Strawberries, Lemons, Celery, Raspberries
13	Santa Barbara	1,590,351	Strawberries, Broccoli, Grapes (Wine), Vegetables
15	San Luis Obispo	924,743	Grapes (Wine), Strawberries, Vegetables, Cattle & Calves
23	Santa Cruz	574,123	Strawberries, Raspberries, Blackberries, Vegetables, Nursery Products
27	San Benito	367,453	Vegetables, Lettuce, Peppers (Bell), Grapes (Wine)
29	Santa Clara	315,456	Mushrooms, Nursery (Products), Nursery (Woody Ornaments), Lettuce
33	San Mateo	138,995	Nursery (Plants), Brussels Sprouts, Flowers (Cut), Vegetables

**Notes:**

1. Rank is out of all 58 counties in California.
2. Only a small portion of Kern County is located in the central coast region.

Source: *CDFA 2018*

As shown in Table 3.5-2, Monterey County is one of the top five counties in California in terms of agricultural production (Kern County is the number one county for agricultural production; however, only a small portion of this county is located within the central coast region). Strawberries are a leading commodity for many of the counties within the central coast region, along with broccoli, wine grapes, and vegetables.

### ***Costs of Production for Growers in the Central Coast Region***

Growers in the central coast region incur many costs in producing irrigated agricultural commodities, including land ownership/rental costs, equipment costs, water, labor, fertilizer, pesticide, etc. Additionally, growers are subject to regulatory compliance costs, of which Agricultural Order 3.0 compliance costs (discussed further in the following section) are a part. Production/harvest costs vary by commodity and potentially other factors, and thus it is difficult to generalize across the central coast region.

The University of California (U.C.) Cooperative Extension – Agricultural Issues Center (2019) prepared a detailed analysis of the costs involved in producing and harvesting romaine hearts in the central coast region. Although not necessarily representative of the costs of production for all commodities/crops, the analysis provides a sense of the costs that growers in the central coast region must bear and the returns that may be expected, depending on market conditions.

**Table 3.5-3** and **Table 3.5-4** provide selected results from the U.C. Cooperative Extension study.

**Table 3.5-3.** Costs per Acre to Produce and Harvest Romaine Hearts – Central Coast

Operation	Equipment Time (Hrs/Ac.)	Cash and Labor Cost per Acre (\$)					
		Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom / Rent	Total Cost
<b><u>CULTURAL:</u></b>							
Soil Samples (12 per 250 Ac.)	0.00	0	0	0	0	8	8
Disc & Roll 6X	1.73	51	84	56	0	0	191
Sub-Soil 2X	1.02	30	50	33	0	0	114
Land Plane (1X per 2 Crops)	0.18	5	9	5	0	0	19
Laser Level (1X per 2 Crops)	0.00	0	0	0	0	20	20
Compost-Spread (1X per 2 Crops)	0.00	0	0	0	110	20	130
Chisel 4X	1.42	42	69	45	0	0	157
List Beds 3-Row	0.00	0	0	0	0	23	23
Cultivate-Lilliston 2X	0.40	12	11	8	0	0	31
Power Mulch/Shape Beds	0.48	14	17	7	0	0	38
Fertilizer (Potassium Sulfate)	0.00	0	0	0	137	20	157
Plant/Fertilize (7-0-0-7)	0.57	17	21	18	426	0	482
Herbicide Application	0.00	0	0	0	80	20	100

Operation	Equipment Time (Hrs/Ac.)	Cash and Labor Cost per Acre (\$)					
		Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom / Rent	Total Cost
Sprinkler Setup/Irrigate 4X	0.00	104	0	0	76	0	180
Cultivate-Sled	0.32	9	9	5	0	0	24
Thin Stand-Automated/Fertilize	0.00	0	0	0	50	150	200
Disease/Insect Management	0.00	0	0	0	759	120	879
Cultivate/Break Bottoms	0.22	6	6	4	0	0	16
Hand Weed (2X)/Remove Doubles 1X	16.00	299	0	0	0	0	299
Drip Setup/Irrigate	1.32	205	47	24	490	0	766
Fertigate (20-0-0-5) 2X	0.00	0	0	0	87	0	87
PCA/CCA Fee	0.00	0	0	0	0	35	35
Pickup-3/4 Ton Farm Use	1.00	30	7	5	0	0	42
<b>TOTAL CULTURAL COSTS</b>	<b>24.7</b>	<b>826</b>	<b>331</b>	<b>210</b>	<b>2,214</b>	<b>415</b>	<b>3,997</b>
<b><u>HARVEST:</u></b>							
Harvest/Field Pack	0.00	0	0	0	0	5,400	5,400
Cool/Palletize	0.00	0	0	0	0	1,125	1,125
Market/Sales Fee	0.00	0	0	0	0	900	900
<b>TOTAL HARVESTING COSTS</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7,425</b>	<b>7,425</b>
Interest on Operating Capital at 6.25%							112
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>24.7</b>	<b>826</b>	<b>331</b>	<b>210</b>	<b>2,214</b>	<b>7,840</b>	<b>11,534</b>

Operation	Equipment Time (Hrs/Ac.)	Cash and Labor Cost per Acre (\$)					
		Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom / Rent	Total Cost
<b><u>CASH OVERHEAD:</u></b>							
Land Rent	-	-	-	-	-	-	1,450
Liability Insurance	-	-	-	-	-	-	2
Food Safety Program	-	-	-	-	-	-	50
Regulatory Program	-	-	-	-	-	-	60
Office Expense	-	-	-	-	-	-	375
Field Sanitation	-	-	-	-	-	-	12

Operation	Equipment Time (Hrs/Ac.)	Cash and Labor Cost per Acre (\$)					
		Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom / Rent	Total Cost
Property Taxes	-	-	-	-	-	-	10
Property Insurance	-	-	-	-	-	-	1
Investment Repairs	-	-	-	-	-	-	22
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>	-	-	-	-	-	-	<b>1,981</b>
<b>TOTAL CASH COSTS/ACRE</b>	-	-	-	-	-	-	<b>13,515</b>

NON-CASH OVERHEAD:	Per Producing Acre	Annual Cost Capital Recovery	Total Cost
Building 2400 sq. ft.	64	6	6
Fuel Tanks Overhead	7	1	1
Shop Tools	13	1	1
Sprinkler System	247	20	20
Sprinkler Pipe	759	55	55
Equipment	1,890	265	265
<b>TOTAL NON-CASH OVERHEAD COSTS</b>	<b>2,981</b>	<b>348</b>	<b>348</b>
<b>TOTAL COSTS/ACRE</b>			<b>13,864</b>
<b>TOTAL COSTS PER ACRE – HARVEST COSTS PER ACRE = GROWING COSTS PER ACRE</b>			
<b>\$13,864 - \$7,425 = \$6,239</b>			

Notes: See source document for a description of the inputs/cost categories and assumptions used. Costs per acre can vary considerably depending upon many variables including individual grower, production location and weather conditions, land rent and taxes, soil type, water costs, pest pressures, material inputs, and energy costs.

Source: U.C. California Cooperative Extension – Agricultural Issues Center 2019

**Table 3.5-4. Ranging Analysis – Romaine Hearts**

OPERATING COSTS/ACRE:	Yield (Carton)						
	600.00	650.00	700.00	750.00	800.00	850.00	900.00
Cultural	3,997	3,997	3,997	3,997	3,997	3,997	3,997
Harvest	5,940	6,435	6,930	7,425	7,920	8,415	8,910
Interest on Operating Capital at 6.25%	104	107	109	112	115	117	120
<b>Total Operating Costs/Acre</b>	<b>10,041</b>	<b>10,539</b>	<b>11,036</b>	<b>11,534</b>	<b>12,031</b>	<b>12,529</b>	<b>13,027</b>
<b>Total Operating Costs/Carton</b>	<b>16.74</b>	<b>16.21</b>	<b>15.77</b>	<b>15.38</b>	<b>15.04</b>	<b>14.74</b>	<b>14.47</b>

OPERATING COSTS/ACRE:	Yield (Carton)						
	600.00	650.00	700.00	750.00	800.00	850.00	900.00
Cash Overhead Costs/Acre	1,981	1,981	1,981	1,981	1,981	1,981	1,981
Total Cash Costs/Acre	12,023	12,520	13,018	13,515	14,013	14,511	15,008
Total Cash Costs/Carton	20.04	19.26	18.60	18.02	17.52	17.07	16.68
Non-Cash Overhead Costs/Acre	348	348	348	348	348	348	348
Total Costs/Acre	12,371	12,869	13,366	13,864	14,361	14,859	15,357
Total Costs/Carton	21.00	20.00	19.00	18.00	18.00	17.00	17.00

**Net Return per Acre above Operating Costs for Romaine Hearts**

Price (\$/Carton)	Yield (Carton/Acre)						
Romaine Hearts	600.00	650.00	700.00	750.00	800.00	850.00	900.00
9.00	-4,641	-4,689	-4,736	-4,784	-4,831	-4,879	-4,927
11.00	-3,441	-3,389	-3,336	-3,284	-3,231	-3,179	-3,127
13.00	-2,241	-2,089	-1,936	-1,784	-1,631	-1,479	-1,327
15.00	-1,041	-789	-536	-284	-31	221	473
17.00	159	511	864	1,216	1,569	1,921	2,273
19.00	1,359	1,811	2,264	2,716	3,169	3,621	4,073
21.00	2,559	3,111	3,664	4,221	4,769	5,321	5,873

**Net Return per Acre above Cash Costs for Romaine Hearts**

Price (\$/Carton)	Yield (Carton/Acre)						
Romaine Hearts	600.00	650.00	700.00	750.00	800.00	850.00	900.00
9.00	-6,623	-6,670	-6,718	-6,765	-6,813	-6,861	-6,908
11.00	-5,423	-5,370	-5,318	-5,265	-5,213	-5,161	-5,108
13.00	-4,223	-4,070	-3,918	-3,765	-3,613	-3,461	-3,308
15.00	-3,023	-2,770	-2,518	-2,265	-2,013	-1,761	-1,508
17.00	-1,823	-1,470	-1,118	-765	-413	-61	292
19.00	-623	-170	282	735	1,187	1,639	2,092
21.00	577	1,130	1,682	2,235	2,787	3,339	3,892

**Net Return per Acre above Total Costs for Romaine Hearts**

Price (\$/Carton)	Yield (Carton/Acre)						
Romaine Hearts	600.00	650.00	700.00	750.00	800.00	850.00	900.00
9.00	-6,971	-7,019	-7,066	-7,114	-7,161	-7,209	-7,257
11.00	-5,771	-5,719	-5,666	-5,614	-5,561	-5,509	-5,457
13.00	-4,571	-4,419	-4,266	-4,114	-3,961	-3,809	-3,657

Price (\$/Carton)	Yield (Carton/Acre)						
Romaine Hearts	600.00	650.00	700.00	750.00	800.00	850.00	900.00
15.00	-3,371	-3,119	-2,866	-2,614	-2,361	-2,109	-1,857
17.00	-2,171	-1,819	-1,466	-1,114	-761	-409	-57
19.00	-971	-519	-66	386	839	1,291	1,743
21.00	229	781	1,334	1,886	2,439	2,991	3,543

**Notes:** See source document for a description of the inputs/cost categories and assumptions used. Costs per acre can vary considerably depending upon many variables including individual grower, production location and weather conditions, land rent and taxes, soil type, water costs, pest pressures, material inputs, and energy costs.

*Source: U.C. Cooperative Extension – Agricultural Issues Center 2019*

Table 3.5-3 shows the numerous inputs and activities that go into producing romaine hearts in the central coast, each of which adds some amount of cost. In addition to direct inputs and cultivation activities, there are also cash and non-cash overhead costs, which must be accounted for. Table 3.5-4 additionally shows that production costs vary to some degree based on the yield achieved; generally, the study found that total costs per acre increase as yield increases, although total costs per carton (of romaine hearts) decrease. The net return that growers would obtain for producing an acre of romaine hearts would depend on the price of the commodity at that time and the yield per acre. If prices are low and/or yield is low in a given growing season, the study found that growers could lose money in producing romaine hearts. However, if prices are high and yields are high, growers could also achieve a significant return of up to \$3,543 per acre above total costs, or \$5,873 per acre above operating costs.

If a grower in the central coast region farmed several hundred or more acres of land, it is easy to see how the results from the U.C. Cooperative Extension study could translate into a substantial overall loss or profit in any given growing season. As noted above, however, romaine hearts are not necessarily representative of all crops in the region.

U.C. Cooperative Extension – Agricultural Issues Center performed a similar study for strawberries in 2016, which found significantly higher production costs for strawberries in the central coast, but also the potential for significantly higher returns. Specifically, the total cost per acre for strawberry production and harvesting was \$67,674 (U.C. Cooperative Extension – Agricultural Issues Center 2016) compared to \$13,864 for romaine hearts. Much of this increased cost was due to higher labor and materials costs during harvesting of strawberries. While strawberry farming had the potential to lose money with low yields and/or prices, it also had the potential for larger profits with high yields and favorable market conditions. Specifically, the study found that the net return per acre above total costs could be as high as \$53,002 with yields at 10,000 trays per acre and a price of \$14 per tray (U.C. Cooperative Extension – Agricultural Issues Center 2016).

### ***Costs of Regulatory Compliance for Growers***

Growers in the central coast region and throughout California are subject to a number of regulations, including labor, consumer safety and health, environmental, and transportation-



related regulations. Although these regulations have a positive effect in terms of safety for workers and the public and reducing the impacts of agriculture on the environment, compliance with regulations increases costs for growers. In this respect, the existing Agricultural Order 3.0 is only one of many sets of regulatory programs that growers must comply with.

Although it is difficult to determine specific regulatory compliance costs or generalize across the agricultural industry (which includes many different types and sizes of ranches/farms that grow different types of crops), several studies have attempted to quantify these costs (note that the U.C. Cooperative Extension study included regulatory costs as cash overhead costs; see Food Safety Program and Regulatory Program costs in Table 3.5-3). Generally, regulatory compliance costs include any monitoring and reporting costs, fees, as well as any other capital or operating expenses involved with implementing the relevant requirements, although the costs considered varies by study. One such study (McCullough et al. 2017) looked at 22 farms in the San Joaquin Valley to determine the relative costs of regulatory compliance. **Table 3.5-5** and **Table 3.5-6** show summary results from this analysis.

**Table 3.5-5.** Average Annual Environmental Regulatory Costs by Crop

	<b>Average Total Cash Costs (\$/Acre)</b>	<b>Air Quality Requirements (\$/Acre)</b>	<b>Water Quality Requirements (\$/Acre)</b>	<b>Pesticide Use Requirements (\$/Acre)</b>	<b>Total Environmental (\$/Acre)</b>	<b>Share of Total Cash Costs (%)</b>
Citrus	\$5,862.12	\$41.97	\$9.16	\$15.95	\$67.09	1.14%
Cotton	\$1,089.76	\$0.40	\$45.65	\$1.84	\$47.88	4.39%
Grape	\$6,434.18	\$21.60	\$8.02	\$4.97	\$34.59	0.54%
Tree Nut	\$2,746.40	\$57.99	\$6.45	\$10.81	\$75.25	2.74%
Silage	\$940.97	\$14.58	\$10.93	\$0.76	\$26.27	2.79%
Stone Fruit	\$9,035.73	\$52.89	\$1.98	\$197.57	\$252.43	2.79%
Tomato	\$2,558.47	\$36.43	\$4.67	\$57.34	\$98.44	3.85%

Source: McCullough et al. 2017

**Table 3.5-6.** Average Total Regulatory Costs as a Share of Average Operating Costs

	<b>Average Total Cash Costs (\$/Acre)</b>	<b>Average Total Regulatory Costs (\$/Acre)</b>	<b>Share of Total Cash Costs (%)</b>
<b>Citrus</b>	\$5,862	\$98	1.67%
<b>Cotton</b>	\$1,090	\$61	5.59%
<b>Grape</b>	\$6,434	\$63	0.98%

	<b>Average Total Cash Costs (\$/Acre)</b>	<b>Average Total Regulatory Costs (\$/Acre)</b>	<b>Share of Total Cash Costs (%)</b>
<b>Tree Nut</b>	\$2,746	\$122	4.43%
<b>Silage</b>	\$941	\$33	3.55%
<b>Stone Fruit</b>	\$9,036	\$180	1.99%
<b>Tomato</b>	\$2,558	\$113	4.43%

*Source: McCullough et al. 2017*

As shown in Table 3.5-5, McCullough et al.'s (2017) study found that average annual environmental regulatory costs (including air quality, water quality, and pesticide use regulations), although not insignificant, represented a relatively small portion (less than 5 percent) of the total cash costs for the crops studied. Likewise, the total regulatory costs (also including labor regulatory costs) shown in Table 3.5-6 still represented a relatively small percentage (less than 6 percent) of total cash costs on a per acre basis for the crops studied.

McCullough et al.'s (2017) findings are generally consistent with other studies analyzing this topic, which overall indicate that regulatory costs represent a relatively small portion of total costs or income for a given farm, although this cost can still substantially affect profits. Hurley and Noel (2006) studied regulatory costs (e.g., burning fees, air quality fees, chemical use fees, solid waste fees, water quality fees, and workers compensation costs) in comparison to farm income for different size farm operations. **Table 3.5-7** shows results from Hurley and Noel's (2006) study.

**Table 3.5-7. Estimated Regulatory Cost by Farm Income**

<b>Farm Income Range</b>	<b>Total California Regulatory Cost by Farm Income</b>	<b>Average Regulatory Cost per Farm</b>	<b>Average Regulatory Cost per Acre</b>	<b>Regulatory Cost as a Percentage of Farm Income</b>
Under \$10,000	\$9,306,511	\$262	\$51	5.24%
\$10,000 - \$49,999	\$39,190,084	\$2,447	\$189	8.16%
\$50,000 - \$99,999	\$30,816,042	\$4,708	\$152	6.28%
\$100,000 - \$249,999	\$112,659,422	\$16,078	\$167	9.19%
\$250,000 - \$449,999	\$82,966,217	\$20,721	\$271	5.53%
\$500,000 +	\$1,924,943,890	\$252,518	\$638	6.33%
All Incomes	\$2,199,882,166	\$28,570	\$162	6.41%

**Notes:** This table shows results for Scenario 2 in the study, which used farm income estimates at the median of the income ranges.

*Source: Hurley and Noel 2006*

As shown in Table 3.5-7, Hurley and Noel (2006) found generally similar, although perhaps slightly higher, regulatory costs per acre as compared to McCullough et al. (2017) (note that the Hurley and Noel study compared regulatory costs to farm income, whereas the McCullough et al. study compared regulatory costs to operating costs). Interestingly, Hurley and Noel (2006) found that the average regulatory cost per acre generally increased as farm income increased (e.g., average regulatory cost of \$638 per acre for farms with incomes over \$500,000 compared to \$51 per acre for farms with income under \$10,000); however, larger farms were generally better able to bear the regulatory costs, as these higher costs still often represented a smaller percentage of the farm income.

Paggi et al. (2009) analyzed a representative orange farm in California and found that regulatory costs can have a significant effect on the profitability of a farming operation. It should be noted that Paggi et al. (2009) assumed a total regulatory cost of \$401.51 per acre for the orange farm (which had total cultural<sup>1</sup> costs of \$2,000 per acre), which is on the upper end of the estimates seen from the McCullough et al. (2017) and Hurley and Noel (2006) studies. **Table 3.5-8** shows the effects of regulatory compliance costs on income for the representative orange farm modeled by Paggi et al. (2009).

**Table 3.5-8.** Comparisons of Net Income after Taxes with and without Regulatory Costs Included in the Cost of Production on a California Orange Farm

**Net Income after Taxes when Regulatory Compliance Costs are Included in the Cost of Production, 2008-2012**

Year	2008	2009	2010	2011	2012	Average
Mean	\$35,159	\$58,957	\$82,855	\$130,608	\$174,317	\$96,379

**Net Income after Taxes when Regulatory Compliance Costs are Excluded from the Cost of Production, 2008-2012**

Year	2008	2009	2010	2011	2012	Average
Mean	\$112,784	\$133,211	\$154,697	\$199,226	\$239,942	\$167,972

Source: Paggi et al. 2009

The Paggi et al. (2009) study also modeled the probability distributions of net income after taxes when regulatory costs are included and excluded in the representative orange farm cost of production. This analysis found that the inclusion of regulatory compliance costs in the orange farm cost of production reduces the probability of earning a net income after taxes of over \$300,000 by 7 percent and of earning a net income after taxes between \$0.00 and \$300,000 by 3 percent (Paggi et al. 2009). Taken together, this means that the probability of experiencing a financial loss is increased by 10 percent when regulatory costs are included.

Altogether, the studies reviewed above indicate that substantive regulatory compliance costs are placed on growers in California (estimates range from \$33/acre to \$638/acre, depending on

<sup>1</sup> Cultural costs include costs associated with land preparation, plant/stand establishment, fertilizer and soil amendments, irrigation, and pest management. Essentially, cultural costs are the portion of operating costs not including harvest costs. Cultural costs do not include overhead costs (e.g., land rent, insurance, and equipment).

crop type and other factors, across the studies). Regulatory compliance costs, of which environmental and water quality regulations specifically comprise a part, generally account for a relatively small portion of a farm's operating cost per acre; however, some studies show that these costs still have a significant effect on farms' profitability.

### ***Costs of Compliance with Agricultural Order 3.0***

The cost of compliance with Agricultural Order 3.0 for growers in the central coast region under existing conditions includes the costs associated with any management practices they may have implemented/be implementing pursuant to the Order, as well as permit fees and monitoring and reporting costs. These costs are described further below.

#### ***Management Practices***

As described in Chapter 2, *Project Description*, under Agricultural Order 3.0, growers are not required to implement *specific* management practices. Rather, depending on their assigned tier (i.e., threat to water quality), individual growers are required to monitor, and report on, their discharges and the management practices they are implementing to manage their discharges, including assessing the effectiveness of the management practices. Growers may be required to implement improved or additional management practices, as necessary, and report on the water quality-related outcomes of their management practice implementation. Tables 2-5 through 2-8 in Chapter 2 show self-reported data on the management practices that growers have implemented pursuant to Agricultural Order 3.0.

A ranch's specific cost information is not reported in the Agricultural Order's Annual Compliance Form (ACF), but cost information on typical agricultural management practices is publicly available from several sources. **Table 3.5-9** shows costs of selected example management practices/scenarios in California, as reported by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS).

Table 3.5-9. Selected Example Management Practice (MP) Implementation Cost

No. <sup>1</sup>	MP Name <sup>2</sup>	MP General Practice Description <sup>2</sup>	No.	Scenario <sup>3</sup> Name/Descriptor	Scenario Unit	Feature Measure	Scenario Typical Size	Scenario Total Cost	Scenario Cost Per Unit
327	Conservation Cover	<p>This practice involves establishing and maintaining a permanent vegetative cover on lands that are either not currently in use/production or lands currently in production that would be taken out of production. The practice does not apply to plantings for forage production or to critical area plantings. This practice can be applied on a portion of the field. The Conservation Cover practice may be implemented to reduce erosion and sedimentation, and reduce associated groundwater and surface water quality degradation by nutrients and sediment, as well as other purposes.</p> <p>As shown in the scenarios at right, costs of implementation vary based on the type of vegetative cover species used (e.g., introduced, native, or a mix that provides habitat for pollinators and/or monarch butterflies) and whether the vegetative cover is established in orchard and vineyard alleyways. Foregone income is considered in situations where land is taken out of production to make way for the conservation cover.</p>	1	Introduced species	Acre	Area planted	50	\$6,724.50	\$134.49
			2	Native species	Acre	Area planted	50	\$9,413.50	\$188.27
			3	Orchard or vineyard alleyways	Acre	Area planted	20	\$1,849.56	\$92.48
			4	Pollinator species	Acre	Area planted	1	\$1,088.86	\$1,088.86
			22	Monarch species mix	Acre	Area planted	1	\$1,403.97	\$1,403.97
			27	Introduced with foregone income	Acre	Area planted	50	\$16,016.75	\$320.34
			28	Native species with foregone income	Acre	Area planted	50	\$19,417.75	\$388.36
			29	Pollinator species with foregone income	Acre	Area planted	1	\$1,288.95	\$1,288.95
			56	Monarch species mix with foregone income	Acre	Acre	1	\$1,426.57	\$1,426.57
328	Conservation Crop Rotation	<p>This practice involves growing crops in a planned sequence on the same ground over a period of time (i.e., the rotation cycle). This practice may be implemented to reduce erosion and maintain or increase soil; reduce water quality degradation due to excess nutrients; reduce the concentration of salts and other chemicals from saline seeps, or for other purposes. As shown in the scenarios at right, costs vary based on whether specialty crops are involved.</p>	1	Basic rotation organic and non-organic	Acre	Area planted	100	\$1,330.80	\$13.31
			5	Specialty crops organic and non-organic	Acre	Area planted	50	\$1,774.40	\$35.49
			68	Specialty crops, small farm	Each	Crop rotations developed	1	\$1,153.36	\$1,153.36
332	Contour Buffer Strips	<p>This practice involves establishing narrow strips of permanent, herbaceous vegetative cover around hill slopes, which are alternated down the slope with wider cropped strips that are farmed on the contour. This practice may be implemented to reduce erosion and associated water quality degradation from the transport of sediment and other water-borne contaminants downslope. For the scenarios shown at right, it is assumed that the area of the contour grass strip is taken out of production. Foregone income is included in the calculations.</p>	9	Introduced species, foregone income (organic and non-organic)	Acre	Number of acres	1	\$318.68	\$318.68
			10	Native species, foregone income (organic and non-organic)	Acre	Number of acres	1	\$322.24	\$322.34
			11	Wildlife/pollinator, foregone income (organic and non-organic)	Acre	Number of acres	1	\$404.15	\$404.15
340	Cover Crop	<p>This practice involves planting grasses, legumes, and/or forbs for seasonal vegetative cover. The practice may be implemented to reduce erosion, maintain or increase soil health and organic matter content, reduce water quality degradation by utilizing excessive soil nutrients, or for other purposes. Scenario costs at right vary based on whether organic crop species/methods are used, and whether multiple crop species are implemented. The adaptive management scenario includes implementing replicated strip trials on a field plot to evaluate, identify, and implement a particular cover crop management strategy.</p>	1	Basic (organic and non-organic)	Acre	Area planted	40	\$2,696.00	\$67.40
			6	Adaptive management	Each	Area planted	1	\$2,543.70	\$2,543.70
			11	Multiple species (organic and non-organic)	Acre	Area planted	40	\$3,019.60	\$75.49
			36	Basic organic	Acre	Area planted	30	\$2,482.50	\$82.75

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No. <sup>1</sup>	MP Name <sup>2</sup>	MP General Practice Description <sup>2</sup>	No.	Scenario <sup>3</sup> Name/Descriptor	Scenario Unit	Feature Measure	Scenario Typical Size	Scenario Total Cost	Scenario Cost Per Unit
350	Sediment Basin	This practice involves constructing a basin with an engineered outlet, formed by excavating a dugout, constructing an embankment, or a combination of both. The purpose of the sediment basin is to capture and detain sediment-laden runoff, or other debris for a sufficient length of time to allow it to settle out in the basin.	1	Excavated Basin	Cubic yard	Excavated vol.	1,200	\$5,558.74	\$4.63
			2	Embankment earthen basin with no pipe	Cubic yard	Embankment vol.	1,500	\$7,208.84	\$4.81
			3	Embankment earthen basin with pipe	Cubic yard	Embankment vol.	1,500	\$12,561.66	\$8.37
390	Riparian Herbaceous Cover	This practice involves establishment of riparian herbaceous cover in areas adjacent to streams. Vegetation planted should be tolerant of intermittent flooding or saturated soils (e.g., grasses, sedges, rushes, ferns, legumes, and forbs), and be established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats. The practice may be implemented as part of a conservation management system to improve and maintain water quality; reduce erosion and improve stability to stream banks and shorelines; provide or improve food and cover for fish, wildlife, and livestock; and/or to provide other benefits. As shown in the scenarios at right, costs vary based on whether the riparian herbaceous cover is established through seeding or plug planting or a combination of the two, and whether species conducive to pollinator habitat are used. Foregone income is considered in situations where land is taken out of production to make way for the establishment of the riparian herbaceous cover.	1	Riparian broadcast seeding	Acre	Acres of rip. cover	1	\$1,422.47	\$1,422.47
			2	Plug planting	Acre	Acres of rip. cover	0.5	\$11,056.45	\$22,112.89
			3	Combination broadcast seeding and plug planting	Acre	Acres of rip. cover	1	\$11,242.30	\$11,242.30
			4	Pollinator cover	Acre	Acre	0.5	\$1,342.90	\$2,685.80
			5	Broadcast seeding with foregone income	Acre	Acres of rip. cover	0.5	\$1,100.39	\$2,200.78
			6	Plug planting with foregone income	Acre	Acres of rip. cover	0.5	\$11,281.38	\$22,562.75
			7	Combination broadcast seeding and plug planting with foregone income	Acre	Acres of rip. cover	0.5	\$6,048.24	\$12,096.48
			8	Pollinator cover with foregone income	Acre	Acre	0.5	\$1,542.29	\$3,084.58
391	Riparian Forest Buffer	This practice involves establishment of an area of predominantly trees and/or shrubs located adjacent to and up-gradient from watercourses or water bodies. The practice may be implemented to reduce excess amounts of sediment, organic material, nutrients and pesticides in surface runoff and reduce excess nutrients and other chemicals in shallow groundwater flow; reduce pesticide drift entering the waterbody; restore riparian plant communities; create shade to lower or maintain water temperatures to improve habitat for aquatic organisms; or to provide other benefits. As shown in the scenarios at right, costs vary based on whether riparian forest buffer vegetation is established through seeding, cuttings, bare-root plantings, or small or large containers. For scenarios where land is taken out of production to establish the riparian forest buffer, foregone income is considered.	1	Seeding	Acre	Area of planting	10	\$2,553.30	\$255.33
			2	Cuttings, small to medium	Acre	Area of planting	1	\$1,933.36	\$1,933.36
			3	Cuttings, medium to large	Acre	Area of planting	1	\$4,673.04	\$4,673.04
			4	Bare-root, hand planted	Acre	Area of planting	3	\$4,958.12	\$1,652.71
			5	Bare-root, machine planted	Acre	Area of planting	3	\$4,691.80	\$1,563.93
			6	Small container, hand planted	Acre	Area of planting	3	\$7,730.39	\$2,576.80
			7	Small container, machine planted	Acre	Area of planting	3	\$6,719.22	\$2,239.74
			8	Large container, hand planted	Acre	Area of planting	3	\$20,178.96	\$6,726.32
			23	Cuttings, small to medium, with foregone income	Acre	Area of planting	1	\$2,215.50	\$2,215.50
			24	Small container, hand planted, with foregone income	Acre	Area of planting	3	\$8,376.83	\$2,792.28
393	Filter Strip	This practice involves establishing a strip or area of herbaceous vegetation that removes contaminants from overland flow. Filter strips can be established anywhere environmentally sensitive areas need to be protected from sediment, or other suspended solids, and dissolved contaminants in runoff.	5	Filter strip, native species	Acre	Number of acres	1	\$171.79	\$171.79
			6	Filter strip, introduced species	Acre	Number of acres	1	\$185.11	\$185.11

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No. <sup>1</sup>	MP Name <sup>2</sup>	MP General Practice Description <sup>2</sup>	No.	Scenario <sup>3</sup> Name/Descriptor	Scenario Unit	Feature Measure	Scenario Typical Size	Scenario Total Cost	Scenario Cost Per Unit
441	Irrigation System, Microirrigation	This practice involves implementation of an irrigation system that provides for frequent application of small quantities of water on or below the soil surface (e.g., as drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line. Drip tape, tubing, or microsprayers may be used. This practice may be implemented to prevent contamination of groundwater and surface water by efficiently and uniformly applying chemicals, and to maintain soil moisture by efficiently and uniformly applying irrigation water. As shown in the scenarios at right, costs vary based on the size and type of the farming operation (e.g., orchard-vineyard or row crop). Scenarios are also provided for retrofitting an existing irrigation system and replacing filters in a microirrigation system.	1	Vegetation establishment	Acre	Acres in system	1	\$610.79	\$610.79
			2	Orchard-vineyard, 10 acres or less	Acre	Acres in system	7	\$18,793.27	\$2,684.75
			3	Orchard-Vineyard, >10 acres	Acre	Acres in system	40	\$60,766.00	\$1,519.15
			4	Orchard-vineyard, durable tubing replace	Acre	Acres in system	40	\$30,492.00	\$762.30
			5	Small acreage	Acre	Acres in system	2	\$9,288.64	\$4,644.32
			6	Row crop, buried manifold	Acre	Acres in system	20	\$39,113.64	\$1,955.68
			7	Row crop, above-ground PE manifold	Acre	Acres in system	20	\$73,469.89	\$3,673.49
			8	Retrofit, irrigation automation	Each	Per system	1	\$33,935.77	\$33,935.77
			9	Filter replace	Acre	Acres in system	40	\$16,239.30	\$405.98
			13	Subsurface drip irrigation	Acre	Acres in system	60	\$124,398.62	\$2,073.31
			19	Orchard-vineyard, >10 acres with automation	Acre	Acres in irrigation system	40	\$72,934.91	\$1,823.37
590	Nutrient Management (NM)	This practice involves managing the amount (rate), source, placement (method of application), and timing of plant nutrients and soil amendments. The practice is implemented to minimize agricultural nonpoint source pollution of surface waters and groundwater, among other reasons. Costs associated with this practice include soil testing, analysis, and implementation of the NM plan and recordkeeping. As shown in the scenarios at right, costs vary based on whether manure injection is used, and whether the NM techniques are implemented on a small farm, with or without diversified crops. The adaptive NM scenario includes implementing replicated strip trials on a field plot to evaluate, identify, and implement various nutrient use efficiency improvement methods for timing, rate, method of application, or source of nutrients.	1	Basic NM (non-organic/organic)	Acre	N/A	40	\$389.86	\$9.75
			2	Basic NM with manure injection or incorporation	Acre	N/A	40	\$1,492.29	\$37.31
			3	Small farm NM (non-organic/organic)	Each	N/A	1	\$318.43	\$318.43
			4	NM with manure and/or compost (non-organic/organic)	Acre	N/A	40	\$830.69	\$20.77
			5	Basic precision NM (non-organic/organic)	Acre	N/A	40	\$2,231.22	\$55.78
			8	Adaptive NM	Each	Small plot	1	\$2,994.54	\$2,994.54
			275	Small farm, diversified crops	Each	Field or mgmt. zone	1	\$1,019.46	\$1,019.46

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No. <sup>1</sup>	MP Name <sup>2</sup>	MP General Practice Description <sup>2</sup>	No.	Scenario <sup>3</sup> Name/Descriptor	Scenario Unit	Feature Measure	Scenario Typical Size	Scenario Total Cost	Scenario Cost Per Unit
595	Integrated Pest Management (IPM)	This practice involves implementing a site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies. An IPM approach seeks to prevent or mitigate off-site pesticide risks to water quality from leaching, solution runoff and adsorbed runoff losses; and prevent or mitigate on-site pesticide risks to pollinators and other beneficial species through direct contact; among other goals. The minimum mitigation index score needed is related to the hazard rating identified through the NRCS WIN-PST <sup>4</sup> program. As shown in the scenarios at right, costs for implementing the IPM practice vary based on the mitigation index score; whether the target field has high value crops, and whether the practice is implemented on a small farm.	1	Field crop less than or equal to 20 mitigation score	Acre	Acres of mgmt. applied	40	\$1,044.08	\$26.10
			2	Field crop 21 to 40 mitigation index score	Acre	Acres of mgmt. applied	40	\$1,324.28	\$33.11
			3	Field crop greater than 40 mitigation index score	Acre	Acres of mgmt. applied	40	\$1,642.84	\$41.07
			4	High value crop less than or equal to 20 mitigation index score	Acre	Acres of mgmt. applied	10	\$1,120.80	\$112.08
			5	High value crop 21 to 40 mitigation index score	Acre	Acres of mgmt. applied	10	\$1,439.36	\$143.94
			6	High value crop greater than 40 mitigation index score	Acre	Acres of mgmt. applied	10	\$1,834.64	\$183.46
			7	Small farm, less than or equal to 20 mitigation index score	Each	Fields, typ. ≤10 acre	1	\$1,059.08	\$1,059.08
			8	Small farm, 21 to 40 mitigation index score	Each	Fields, typ. ≤10 acre	1	\$2,053.12	\$2,053.12
			9	Small farm, greater than 40 mitigation index score	Each	Fields, typ. ≤10 acre	1	\$2,371.68	\$2,371.68
605	Denitrifying Bioreactor	This practice involves installation of a structure that uses a carbon source to reduce the concentration of nitrate nitrogen in subsurface agricultural drainage flow via enhanced denitrification. Woodchips are commonly used as the carbon source. The practice is implemented to improve water quality by reducing the nitrate nitrogen content of subsurface agricultural drainage flow.	13	Denitrifying bioreactor	Cubic yard	Volume of pit excavation	333	\$20,324.41	\$61.03
			14	Denitrifying bioreactor, no liner	Cubic yard	Volume of carbon source	222	\$13,065.90	\$58.86
638	Water and Sediment Control Basin	This practice is defined as an earth embankment or a combination ridge and channel constructed across the slope of a minor drainageway. The embankment may be constructed or could be formed through excavation of the basin. The practice is implemented to reduce gully erosion, trap sediment, and/or reduce and manage runoff.	1	Embankment	Cubic yard	Embankment	700	\$3,888.96	\$5.56
			2	Embankment, topsoil stockpiled	Cubic yard	Embankment	700	\$4,107.36	\$5.87
			3	Excavated basin	Cubic yard	Excavated volume	120	\$1,562.57	\$13.02

Notes:

1. The practice number refers to the number assigned by NRCS. See the full list of NRCS Conservation Practices here: [https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/technical/cp/ncps/?cid=nrcs143\\_026849](https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/technical/cp/ncps/?cid=nrcs143_026849)
2. NRCS Conservation Practice
3. Scenarios are developed specifically for California. Refer to the NRCS California Practice Scenarios (<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/?cid=nrcseprd1328227>) for additional information on the parameters of each scenario and a line item breakdown of implementation costs. Costs provided are in 2019 dollars.
4. The Windows Pesticide Screening Tool (WIN-PST) is a pesticide environmental risk screening tool that NRCS field office conservations, extension agents, crop consultants, pesticide dealers and producers can use to evaluate the potential for pesticides to move with water and eroded soil/organic matter and affect non-targeted organisms.

Source: USDA NRCS 2019a

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### *Permit Fees*

The State Water Resources Control Board (SWRCB) sets the fee schedule for irrigated lands regulatory programs (e.g., Agricultural Order 3.0) throughout the state, as specified in Title 23 of California Code of Regulations (CCR), Section 2200.6. All enrolled ranches have to pay the SWRCB fees on an annual basis. Although the SWRCB fees may change from year to year, the fee categories/schedule for 2019-2020 is shown below.

Category<sup>2</sup> 1. If a discharger is a member of a group that has been approved by SWRCB to manage fee collection and payment, then the fee shall be \$100 per group plus \$0.95 per acre of land.

Category 2. If a discharger is a member of a group that has been approved by SWRCB but that does not manage fee collection and payment, then the fee shall be \$250 per farm plus \$1.43 per acre of land.

Category 3. If a discharger is not a member of a group that has been approved by SWRCB, the following fee schedule applies:

Acres	Fee Rate	Minimum Fee	Maximum Fee
0-10	\$511 + \$17.05/Acre	\$511	\$682
11-100	\$1,277 + \$8.53/Acre	\$1,371	\$2,130
101-500	\$3,192 + \$4.26/Acre	\$3,622	\$5,322
501 or More	\$6,384 + \$3.41/Acre	\$8,092	No Max Fee

The vast majority of growers in the central coast region enrolled under Agricultural Order 3.0 choose to participate in the cooperative monitoring program (CMP) for surface water managed by Central Coast Water Quality Preservation, Inc. (CCWQP) (described further below under “Surface Water Monitoring”). CCWQP is approved by SWRCB to collect permit fees (Category 1), and thus most growers pay fees through CCWQP. A small percentage of growers choose to conduct individual surface water monitoring and pay fees individually (Category 3). **Table 3.5-11** provides information on total surface water monitoring fees paid in the central coast region, including SWRCB fees. There are no groups in the central coast region that are approved by SWRCB but that do not manage fee collection and payment; therefore, Category 2 does not come into play.

### *Monitoring & Reporting Costs*

Under Agricultural Order 3.0, growers are required to perform monitoring and reporting, as described in Chapter 2, *Project Description*. All growers are required to conduct surface receiving water quality trend monitoring and groundwater well monitoring, either individually or through a CMP. A subset of growers may be required to conduct additional monitoring and

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<sup>2</sup> Note that 23 CCR Section 2200.6 refers to these as “Tiers.” They are referred to as “Categories” here so as to avoid confusion with Tiers 1, 2, and 3 that are specified under Agricultural Order 3.0 in reference to ranches’ relative threat to water quality.

reporting for their ranch, such as reporting on discharges and management practice implementation through the ACF, preparation and submittal of a total nitrogen applied (TNA) report, and preparation and submittal of an irrigation and nutrient management plan (INMP) and effectiveness report. The costs associated with each of these monitoring and reporting activities are discussed below.

#### ***SURFACE WATER QUALITY TREND MONITORING***

As noted above, all growers are required to monitor surface water and have the option of participating in a CMP. In addition to collecting SWRCB fees, CCWQP charges a monitoring fee and an annual administrative fee. **Table 3.5-10** shows CCWQP's 2018-2019 fee structure.

**Table 3.5-10.** Central Coast Water Quality Preservation, Inc.'s 2018-2019 Fee Structure

Fee Type	Fee Class	Cost
Monitoring Fee	Type 1 – Irrigated Acres Total	\$2.36 per acre
	Type 2 – Off Property Tailwater Acres	\$2.36 per acre
Annual Administrative Fee Per Operator	50 acres or less	\$50.00
	51 acres to 499 acres	\$1.00 per acre
	500 or more acres	\$500.00 plus \$0.20 per acre over 500 acres
SWRCB Fee	N/A	\$0.98 per irrigated acre <sup>1</sup>

**Notes:**

1. This includes \$0.95 per irrigated acre per SWRCB fee Category 1, plus \$0.03 per acre to cover CCWQP administrative costs.

*Source: CCWQP 2018*

For growers who choose not to participate in the CMP, they would need to pay SWRCB fees per Category 3 (see SWRCB's fee schedule described under "Permit Fees" above). Additionally, they would incur any labor, equipment, laboratory, and administrative costs associated with performing the surface water monitoring tasks individually, including the required preparation of a sampling and analysis plan (SAP) and quality assurance project plan (QAPP). **Table 3.5-11** shows total surface water monitoring fees under Agricultural Order 3.0 for Fiscal Year 2018/2019.

**Table 3.5-11.** Surface Water Monitoring Fees – Fiscal Year 2018/2019

	Cooperative Monitoring Program	Individual Monitoring
# of Operations	2,185	21
# of Acres	427,154	1,225
Total SWRCB Fees	\$398,425	\$42,722
Total CMP Fees	\$1,553,656	N/A
Total Fees	\$1,945,194	\$42,722

	<b>Cooperative Monitoring Program</b>	<b>Individual Monitoring</b>
Avg. Fees Per Operation	\$890	\$2,034
Avg. Fees Per Acre	\$4.55	\$34.88

Table 3.5-11 shows that roughly 99 percent of growers/ranches choose to participate in the CMP for surface water monitoring. Although the sample size for individual monitoring is small (only 21 operations), the data in Table 3.5-11 show that individual monitoring is more expensive on average in terms of fees paid (\$2,034 per operation compared to \$890 per operation for CMP participants). Note that individual monitoring fees do not account for the costs borne by individuals conducting the monitoring (e.g., labor, laboratory costs, etc.), whereas CMP fees cover the costs of conducting the monitoring activities. Also note that an operation can have one or many ranches under its oversight.

#### **Individual Surface Water Discharge Monitoring**

A small subset of Tier 3 ranches is required to perform individual surface water discharge monitoring, or “edge-of-field” monitoring under Agricultural Order 3.0. CCWB reached out to technical assistance providers (TAPs) to obtain information on the cost to conduct individual surface water discharge monitoring. The information obtained from two TAPs is provided in Table 3.5-12 below. Although the information comes from only two TAPs and therefore may not be fully representative, it nonetheless provides context for understanding potential costs associated with individual surface water discharge monitoring under Agricultural Order 3.0.

**Table 3.5-12.** Example Costs for Individual Surface Water Discharge Monitoring, as Reported by Technical Assistance Providers in the Central Coast Region

<b>TAP</b>	<b>Monitoring Task / Component</b>	<b>Minimum Cost</b>	<b>Maximum Cost</b>	<b>Notes</b>
#1	Staff time for field sampling	\$80	\$150	Could also be representative of reporting and QAPP/SAP preparation
#2	Two growers splitting costs except on-farm time; cost expressed for each grower.	\$2,073	\$2,749	Includes staff time, mileage, per diem, and meter rentals for two team members (for safety) – approximately 2.5 hours roundtrip travel time
#2	Single grower	\$3,582	\$4,366	Includes staff time, mileage, per diem, and meter rentals for two team members (for safety) – approximately 2.5 hours roundtrip travel time
#2	Lab testing	\$1,632	-	Single sample for required nutrients and toxicity testing under Ag Order 3.0

TAP	Monitoring Task / Component	Minimum Cost	Maximum Cost	Notes
#2	Reporting	\$50	\$250	Costs vary depending on the number of samples collected
#2	QAPP/SAP preparation	\$2,500	\$2,500	Costs vary depending on the number of monitoring locations
#2	Annual Individual Surface Water Monitoring Report	\$2,500	\$5,000	Costs vary depending on the number of samples collected

QAPP = quality assurance project plan; SAP = sampling and analysis plan; TAP = technical assistance provider

### GROUNDWATER MONITORING

Under Agricultural Order 3.0, growers are required to conduct groundwater monitoring for the primary irrigation well and all domestic wells on their property. As described in Chapter 2, *Project Description*, growers have the option of joining a cooperative groundwater monitoring program to assist in their groundwater monitoring requirements or performing the monitoring individually. The region-wide groundwater CMP is run by Central Coast Groundwater Coalition (CCGC).

Prior to 2019, the fee charged by CCGC was \$350 annually; however, in 2019, this fee was increased to \$750. The CCGC membership fee does not cover costs associated with performing the monitoring activities (e.g., labor, laboratory, and administrative fees). **Table 3.5-13** shows total groundwater monitoring fees for Fiscal Year 2018/2019.

**Table 3.5-13.** Groundwater Monitoring Participation and Fees – Fiscal Year 2018/2019

	Central Coast Groundwater Coalition	Individual Monitoring
# of Operations	458	579
# of Acres	197,842	101,918
# of Domestic Wells <sup>1</sup>	736	1,642
# of Agricultural Wells <sup>2</sup>	1,642	2,529
Annual Membership Fee	\$350	N/A
Total Annual Membership Fees	\$160,300	N/A

**Notes:**

1. All domestic wells must be tested.
2. Only the primary irrigation well must be tested.

As shown in Table 3.5-13, roughly 44 percent of operations choose to participate in the CCGC versus conducting individual monitoring, although these operations represent a greater number



of acres than those conducting individual monitoring. Operations conducting individual monitoring represent a significantly larger number of domestic and agricultural wells. Although operations choosing to conduct individual monitoring do not pay membership fees to CCGC, they incur costs associated with performing the monitoring activities (e.g., labor, laboratory, and administrative costs).

CCWB collected individual groundwater monitoring costs from four laboratories that serve the central coast region (Table 3.5-13). These costs include well sampling, laboratory analysis, and administrative costs associated with uploading the results to GeoTracker (the reporting database required under Agricultural Order 4.0). Costs ranged from \$120 to \$305 per sampling event.

#### *ANNUAL COMPLIANCE FORM REPORTING*

Tier 2 and 3 ranches are required to submit ACFs under Agricultural Order 3.0. The ACF provides information about irrigation, tile drain, and stormwater discharge; water containment structures; as well as management practice implementation. Tier 2 and 3 ranches are required to assess the effectiveness of their management practices, implement improved or additional management practices as necessary, and report on the water quality-related outcomes of their management practice implementation. Although not required to do so, many Tier 1 ranches also submit the ACF. Refer to Table 2-2 in Chapter 2 for summary information on Agricultural Order 3.0 enrollment and ACF submittal.

The information required in the ACF is very basic. The form includes dropdown selections for the primary source of irrigation water, whether stormwater/tailwater runoff leaves the ranch, whether there are containment structures on the ranch, and checkboxes to identify methods implemented to manage nutrients, irrigation, pesticides, and sediment, as well as methods used to assess the effectiveness and outcomes of those management measures.

Costs associated with preparing and submitting the ACF vary by ranch depending on a variety of factors (e.g., size, farm characteristics, management practice implementation, etc.). In general, costs include labor hours for ranch employees to obtain/track information and fill out the ACF on an annual basis. TAPs report that a first-time reporter could potentially spend approximately one hour or more to prepare and submit the ACF. Once they have reported a few times, this time reduces to approximately 15 minutes. Hourly rates for TAPs to perform this type of work range between \$75 and \$250 per hour. In-house staff costs range between \$20 and \$75 per hour (Richter, 2019). CCWB estimates that costs associated with ACF submittal ranges between \$5 and \$250.

#### *TOTAL NITROGEN APPLIED REPORTING*

Tier 2 and 3 ranches with high risk crops are required to submit an annual TNA report form under Agricultural Order 3.0. This report includes the total amount of nitrogen applied to their crops from all materials including fertilizer, compost, amendments, other nitrogen-containing materials, and irrigation water, as well as the nitrogen present in the soil. As of April 2019, approximately 1,900 ranches are required to report TNA.

The cost of TNA reporting includes tracking nitrogen applied, such as nitrogen in synthetic fertilizers, compiling this information, and reporting it on a form. CCWB has spoken with

growers regarding the time required to prepare TNA reports and received varied responses. Several growers who routinely track nitrogen applied for each crop grown stated they could complete the form in very little time, while others who have not routinely tracked nitrogen applied stated that completing the task could take several hours.

One TAP estimated the average grower spends four hours on TNA reporting and tracking in the first year, and by the third year spends one hour on the requirement. The TAP reported a cost for TNA reporting and tracking of \$400 per ranch for the first year, declining to \$100 per ranch by the third year (Rose, 2017). In 2017, CCGC offered TNA reporting assistance for an additional cost of \$100 per year for its members (CCGC 2017).

Another TAP estimated it takes between 0.025 hours per acre (experienced and organized grower) to 0.05 hours per acre (inexperienced and disorganized grower<sup>3</sup>) to track and gather the fertilizer (nitrogen) applications needed to submit TNA reporting at an hourly rate of \$20 to \$75 per hour for in-house staff (Richter, 2019). If a TAP is retained for this task, the cost can be from \$3,000 for a small grower (<100 acres) to \$20,000 for a larger grower (>500 acres) (Richter, 2019).

CCWB has spoken with growers who routinely track nitrogen applied for each crop grown; these growers stated they could complete the form in very little time. Other growers have indicated they have not routinely tracked nitrogen applied and completing the task could take several hours.

Some TAPs have indicated that it has taken them two full work days to complete the reporting, whereas one TAP fulfilling the requirement for their clients indicated that for seasoned growers, the requirement takes as little as 45 minutes to an hour (Rose, 2017).

To summarize, the cost and time required for TNA reporting varies based on experience of the preparers and growers, and whether nitrogen applied has been tracked for the reporting period. Growers and agricultural consultants have indicated that since the total nitrogen applied requirement was implemented in Ag Order 2.0, the learning curve has leveled, indicating that many growers are now more routinely tracking nitrogen applied and can complete the requirement more quickly than in the past.

Based on the above information, costs associated with tracking and TNA reporting range between \$3 and \$320 for experienced in-house staff, \$11 and \$1,200 for inexperienced in-house staff, and \$3,000 to \$20,000 if using a TAP. It should be noted that the cost of nutrient management should include tracking fertilizer (nitrogen) use. Growers should already be managing nutrients to operate efficiently and cost-effectively, regardless of any regulatory requirements.

### ***IRRIGATION AND NUTRIENT MANAGEMENT PLAN REPORTING***

Under Agricultural Order 3.0, some Tier 3 ranches are required to develop and implement an INMP. The INMP must consider nitrogen applied from all sources (nitrogen applied as fertilizer

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<sup>3</sup> It was estimated by this TAP that it can take up to four years for an inexperienced and disorganized grower to gain the necessary experience and properly track the information needed to submit TNA reporting.

and in irrigation water), crop nitrogen uptake, nitrogen removed, and irrigation and nutrient management practices. As of April 2019, only 20 ranches (representing 12 operations) were required to submit INMP reports; recall that an operation can have one or many ranches under its oversight. The costs discussed below are estimated based on the INMP requirement included in Agricultural Order 3.0; many growers already track at least a portion of the information that would be included in an INMP through their farm plan.

The cost to develop an INMP varies by complexity of ranch characteristics (e.g., ranch size, types of crops grown, number of crops grown, and the number of times crops are grown over a year). For example, vegetable crops are more complex to grow than crops such as vineyards or orchards, so it would likely be more expensive to prepare and implement an INMP for a vegetable ranch as compared to a vineyard or an orchard. Additionally, as a ranch gets bigger, there are more blocks and more area that must be managed, potentially with different soil types, and more complex irrigation system management, which can increase costs. It should be noted that the 20 ranches required to comply with the INMP requirement under Agricultural Order 3.0 were larger ranches.

One TAP reported that for a 1,000 to 1,500-acre operation the cost is approximately \$15,000 to develop the INMP, \$3,000 per year for annual INMP updates, and \$10,000 for an INMP effectiveness report every five years. The same TAP reported that implementation of an INMP could take a grower two days per month at \$2,000 per day or roughly \$48,000 per year. Data collection software development and maintenance runs on average \$15,000 per year. Use of software by field personnel was estimated at \$72,000 per year. Preparation of data summaries and reporting at \$10,000 per year, and field implementation equipment at \$50,000 initially and \$5,000 per year thereafter. (Richter, 2019).

Another TAP reported a cost to develop an INMP of \$5,000 for a less than 100-acre ranch (\$50 per acre), \$12,000 for a 250-acre ranch (\$48 per acre), and \$25,000 for a 500 plus acre ranch (\$50 per acre). The same TAP reported that the average cost to prepare data summaries and submit reporting is \$75 per hour, but was unable to provide an average number of hours because there are so many variables associated with ranch size, crops grown, field equipment used, and what standard management measures are already in place. (Richter, 2019).

#### *WATER QUALITY BUFFER PLAN REPORTING*

Under Agricultural Order 3.0, a small subset of Tier 3 ranches (total of 10 ranches or 7 operations) adjacent to or containing a waterbody identified on the 2010 Clean Water Act section 303(d) List of Impaired Waterbodies were required to prepare and implement a water quality buffer plan (WQBP) within 18 months of enrollment. The WQBP must include a minimum 30-foot buffer or functional equivalent. Dischargers who submitted a WQBP were required to submit a WQBP Status Report of their plan (or functionally equivalent plan) implementation by March 1, 2019.

The costs associated with preparing and implementing a WQBP will vary depending on ranch size, existing setback conditions, whether a grower's staff prepared the WQBP or the grower hired a consultant, and other related factors. Therefore, costs cannot be accurately estimated.

### *Total Costs to Growers*

As indicated in the discussion above, it is not possible to determine with accuracy the costs associated with every potential component of Agricultural Order 3.0 compliance. For many of the requirements, the cost of compliance depends on the specific characteristics of an individual ranch or operation. Further, not all requirements apply to all ranches/operations; in particular, several of the requirements apply only to a small subset of Tier 3 ranches/operations.

Given this, it is not possible to develop a uniform per acre cost of compliance with Agricultural Order 3.0. Nevertheless, **Table 3.5-14** provides a summary of the total potential costs and, where possible, attempts to provide a sense of the per acre costs for ranches/operations based on their assigned tier.

**Table 3.5-14.** Summary of Costs of Compliance with Agricultural Order 3.0

	<b><u>Costs of Compliance (Ag Order 3.0)</u></b>
<b><u>Management Practices</u></b>	
Implement management practices as needed to reduce discharges. Applies to all tiers. Wide cost range depending on measure.	
<i>Filter Strip</i>	\$172 to \$185 per acre
<i>Micro-Irrigation System</i>	\$611 to \$4,644 per acre
<i>Sediment Basin</i>	\$5,559 to \$12,562 per basin
<i>Bioreactor</i>	\$13,066 to \$20,324 per bioreactor
<b><u>Permit Fees</u></b>	
Permit fees apply to all tiers. Fees differ based on whether discharger participates in CMP (cooperative) or pays individually.	
<i>Cooperative</i>	\$0.098 per acre (average)
<i>Individual</i>	\$34.88 per acre (average)
<b><u>Monitoring and Reporting Costs</u></b>	
<b><i>Surface Water Quality Trend Monitoring</i></b>	Applies to all tiers. Cost differs based on whether discharger participates in CMP (cooperative) or monitors surface water individually. Most (~99%) ranches/operations participate in the CMP. The average cost for cooperative monitoring and reporting is estimated at \$3.64 per acre.
<b><i>Groundwater Quality Monitoring</i></b>	Applies to all tiers. Costs may differ depending on whether dischargers choose to participate in groundwater CMP (cooperative) or monitor individually. Groundwater CMP has charged an annual membership fee of \$350 per operation (changed to \$750 per operation in 2019). Costs associated with monitoring activities (e.g., labor, laboratory, and administrative fees) not included in CMP membership fee.
<i>Cooperative</i>	\$120 to \$350 per sampling event
<i>Individual</i>	\$120 to \$350 per sampling event

	<b><u>Costs of Compliance (Ag Order 3.0)</u></b>
<b><i>Annual Compliance Form</i></b>	Tier 2 and 3 ranches must submit the ACF. Costs associated with preparing and submitting the ACF varies by ranch depending on ranch characteristics. Costs include labor hours for ranch employees to obtain/track information and fill out the ACF on an annual basis.
<b><i>In-house Employees</i></b>	\$20 to \$75 per hour (approximately one hour for first-time reporters and 15 minutes for experienced reporters)
<b><i>Technical Assistance Providers</i></b>	\$75 to \$250 per hour (approximately one hour for first-time reporters and 15 minutes for experienced reporters)
<b><i>Total Nitrogen Applied</i></b>	Applies to Tier 2 and 3 ranches with high risk crops for nitrogen discharge. Cost of TNA reporting varies based on experience of preparer and history of ranch tracking the required information. A reasonable estimate is that costs are roughly \$400 per ranch in the first year, declining to \$100 per ranch by the third year. Given that the average ranch size in the region is roughly 64 acres, this would equate to a cost of \$6.25/acre in the first year, declining to roughly \$1.5/acre by the third year.
<b><i>In-house Employees</i></b>	\$3 to \$320 per ranch, per year (experienced grower) \$11 to \$1,200 per ranch, per year (inexperienced grower)
<b><i>Technical Assistance Providers</i></b>	\$3,000 to \$20,000 per ranch, per year
<b><i>Irrigation and Nutrient Management Plan</i></b>	Only applies to some Tier 3 dischargers (currently 20 ranches or 12 operations).
<b><i>Large operation (greater than 500 acres)</i></b>	\$25,000 – develop INMP \$75 per hour – INMP updates, effectiveness report, implementation, software development/maintenance/use, data summaries and reporting
<b><i>Very large operation (1,000 to 1,500 acres)</i></b>	\$15,000 – develop INMP \$3,000 per year – INMP updates \$10,000 every five years – INMP effectiveness report \$48,000 per year – INMP implementation \$15,000 per year – INMP software development/maintenance \$72,000 per year – INMP software use by in-house employees \$10,000 per year – INMP data summaries and reporting \$50,000 initial, plus \$5,000 per year – INMP field implementation equipment
<b><i>Water Quality Buffer Plan</i></b>	Only applies to small subset of Tier 3 dischargers (currently 10 ranches or 7 operations). Costs vary depending on ranch size, existing setback conditions, and other factors.

Note: the INMP cost estimates include compliance assistance for all aspects of Agricultural Order 3.0, not only compliance costs associated with the INMP.

### ***Costs of Administering Agricultural Order 3.0***

The costs of administering Agricultural Order 3.0 are borne by growers through payment of the SWRCB fees described in the section above. Activities involved in CCWB administering the program include review of reports and plans submitted by growers pursuant to the Order requirements, tracking compliance and managing data, interfacing with growers and other stakeholders, and taking any enforcement actions, as necessary. **Table 3.5-15** shows CCWB's annual cost to administer Agricultural Order 3.0, which is dictated by the positions and staff time that must be dedicated to the effort.

**Table 3.5-15.** Central Coast Water Board Staff Annual Cost to Administer Program

<b>Classification</b>	<b>Cost/Position</b>	<b># of Positions</b>	<b>Total Cost</b>
Environmental Scientist	\$138,368	2	\$276,736
Senior Environmental Scientist, Supervisor	\$198,264	1	\$198,264
Senior Environmental Scientist, Specialist	\$151,748	1	\$151,748
Environmental Program Manager	\$229,876	1	\$229,876
Engineering Geologist	\$175,160	1	\$175,160
Senior Engineering Geologist	\$206,676	.5	\$103,338
Water Resource Control Engineer	\$174,524	4	\$698,096
Sanitary Engineering Associate	\$137,192	1	\$137,192
Office Technician, Typing	\$70,500	0.2	\$14,100
<b>All Positions:</b>		<b>11.7</b>	<b>\$1,984,510</b>

### ***Costs of Existing Water Quality Impacts from Irrigated Agriculture***

As described in Chapter 2, *Project Description*, CCWB has compiled substantial empirical data demonstrating that water quality conditions in the agricultural areas of the region are impaired as a result of waste discharges from irrigated agricultural operations, including nitrate pollution of drinking water, widespread toxicity in many surface waters, and elevated levels of turbidity, sedimentation, erosion, and salts. These existing impacts have social and economic costs associated with them that are important to recognize in the context of potential increased regulatory costs.

### ***Health Effects from Nitrate Pollution of Drinking Water***

As discussed in more detail in Section 3.9, *Hydrology and Water Quality*, there is widespread evidence (see Table 3.9-2) that contaminant concentrations in groundwater exceed the maximum contaminant level (MCL) for nitrate in many areas of the central coast region. The

most significant areas of nitrate contamination occur within the Salinas Valley, Gilroy-Hollister Valley, Pajaro Valley, and Santa Maria River Valley basins, as well as the southern portions of the San Luis Obispo Valley and the Santa Ynez River Valley basins. CCWB has determined that the vast majority of nitrate pollution is from irrigated agricultural waste discharges, though other common sources of nutrients include fertilizer applied to landscaping, seepage from septic systems, and human and animal waste (CCWB 2018).

Excessive nitrate concentrations in drinking water is a significant public health issue resulting in increased health risk to infants, in particular, as well as possibly adults. While acute health effects from excessive nitrate levels in drinking water are primarily limited to infants (methemoglobinemia or “blue baby syndrome”<sup>4</sup>), other adverse health effects on adults, such as potentially increased risk of cancer or thyroid disease, are possible. It is thought that increased formation of *N*-nitroso compounds that occurs when nitrate is ingested in drinking water can increase risk of specific cancers and birth defects (Ward et al. 2018). A 2018 review of studies on potential nitrate health effects found that the strongest evidence for a relationship between drinking water nitrate ingestion and adverse health outcomes (besides methemoglobinemia) is for colorectal cancer, thyroid disease, and neural tube defects (Ward et al. 2018). However, the review also concluded that “to date, the number of well-designed studies of individual health outcomes is still too few to draw firm conclusions about risk from drinking water nitrate ingestion” (Ward et al. 2018).

The costs of adverse health effects from nitrate contamination are difficult to quantify but are certainly quite substantial for any families or infants experiencing any of these illnesses. In addition to the human cost of the disease itself, there are also the potential costs associated with lost wages, medical expenses, and the need to obtain alternate water supplies (see further discussion below).

### *Costs of Obtaining Alternate Water Supplies Due to Nitrate Contamination*

If drinking water supplies are severely contaminated with nitrate, it may be necessary for the household or water supplier to obtain alternate supplies in order to correct or avoid the potential adverse health effects of nitrate exposure. This may include any number of options, such as drilling a new well, buying bottled water, or moving the household altogether. **Table 3.5-16** shows a summary of approximate alternative water supply option costs from a study by individuals at U.C. Davis (Honeycutt et al. 2012).

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<sup>4</sup> Infant methemoglobinemia or blue baby syndrome is a condition where a baby’s skin turns blue due to a decreased amount of hemoglobin in the baby’s blood. Hemoglobin is a blood protein that is responsible for carrying oxygen around the body and delivering it to the different cells and tissues (Medical News Today 2018). When nitrite (reduced form of nitrate) is present, hemoglobin can be converted to methemoglobin, which cannot carry oxygen (Cornell University Cooperative Extension 2012). While adults’ blood has enzymes that continually convert methemoglobin back to hemoglobin, infants have lower levels of these enzymes and thus are much more susceptible to having elevated levels of methemoglobin/reduced hemoglobin. At higher levels of methemoglobin in the blood, symptoms of cyanosis (bluish mucous membranes) usually appear, and at very high levels, brain damage and death can occur (Cornell University Cooperative Extension 2012).

**Table 3.5-16.** Approximate Alternative Water Supply Option Costs for Households and Small Community Public Water Suppliers in the Tulare Lake Basin and Salinas Valley

Option	Estimated Annual Cost Range (\$/year)	
	Self-Supplied Household	Small Community Public Water Supplier (1,000 Households)
<b><u>Improve Existing Water Source</u></b>		
Blending	N/A	\$85,000 - \$150,000
Drill Deeper Well	\$860 - \$3,300	\$80,000 - \$100,000
Drill a New Well	\$2,100 - \$3,100	\$40,000 - \$290,000
Community Supply Treatment	N/A	\$135,000 - \$1,090,000
Household Supply Treatment	\$250 - \$360	\$223,000
<b><u>Alternative Supplies</u></b>		
Piped Connection to an Existing System	\$52,400 - \$185,500	\$59,700 - \$192,800
Trucked Water	\$950	\$350,000
Bottled Water	\$1,339	\$1,340,000
Relocate Households	\$15,090	\$15,100,000
<b><u>Ancillary Activities</u></b>		
Well Water Quality Testing	\$15 - \$50	N/A
Dual System	\$575 - \$1,580	\$260,000 - \$900,000

**Note:** See source document for detailed explanation of the water supply options and how the costs were calculated.

*Source: Honeycutt et al. 2012*

As shown in Table 3.5-16, regardless of which option is pursued, obtaining alternate water supplies as a result of nitrate contamination of primary supplies is expensive, particularly for households or small water suppliers that are in low-income or disadvantages areas, which tend to be the areas hit hardest by nitrate contamination of drinking water.

Overall, the study estimated the highly susceptible population in the Tulare Lake Basin and Salinas Valley to be 254,000 people, of which 220,000 are connected to 85 community public or state small water systems and approximately 34,000 people are served by 10,000 self-supplied households or local small water systems (Honeycutt et al. 2012). The study further estimated the economic cost for providing nitrate-compliant water to the total highly susceptible population in the study area (excluding one very large system) to be \$20 million per year for the short-term, and \$36 million for the long-term (Honeycutt et al. 2012).



### *Costs of Adverse Effects on the Environment from Irrigated Agriculture*

The value of environmental goods is notoriously difficult to quantify because there is no market for clean water or healthy ecosystems where people pay to access or enjoy these goods, such as to establish a price (Swedish Environmental Protection Agency 2019). However, that is not to say that environmental goods do not have significant value. Various methods for valuing the environment have been developed, falling broadly into the two categories of indirect<sup>5</sup> and direct<sup>6</sup> valuation methods (Swedish Environmental Protection Agency 2019).

While a detailed assessment of the value of environmental goods/services in the central coast region has not been performed (to CCWB's knowledge) and is outside the scope of this FEIR, it is instructive to consider the theoretical potential value of those goods/services. For example, following an indirect valuation method, the value of tourism in the Monterey Bay area is at least in part based on the vibrant ecosystem of the Monterey Bay and good water quality suitable for surfing and swimming. As such, the value of the tourism industry (and the amount of money that people pay to stay in Monterey to surf, whale watch, etc.) could, in part, be indicative of the value of the Monterey Bay's water quality and biotic community. As the Monterey Bay receives flows from the Salinas River and Pajaro River (both supporting major agricultural areas upstream), the value of Monterey Bay goods/services is tied, to some degree, to the potential effects of irrigated agriculture.

Although direct valuation methods have not been performed, it is certainly possible that individuals in the central coast region would attribute substantial value to the health of the region's streams, including riparian vegetation and the plants and animals (including special-status species such as steelhead) that are supported by area waterbodies. Certainly, many individuals would also place significant value on uncontaminated groundwater that is capable of providing clean drinking water in the region.

Some relevant information on the costs of environmental impacts caused by agricultural activities is available in the literature, as follows:

- Sedimentation: Taking into account damages or costs to navigation, reservoirs, recreational fishing, water treatment, water conveyance systems, and industrial and municipal use, sediment damages from agricultural erosion have been estimated to be between \$2 billion and \$8 billion per year (Ribaud 1989 in USDA No Date).
- Nutrients: Researchers estimated total consumer willingness to pay for reduced nitrate in drinking water in four watersheds of the U.S. (White River, Indiana; Central Nebraska; Lower Susquehanna; Mid-Columbia Basin) to be about \$314 million per year (Crutchfield

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<sup>5</sup> Indirect valuation methods involve examining the value of an environmental good based on the existing relationship between the quality of the environment and market-priced goods (e.g., rich fishing water and the price of fishing licenses) (Swedish Environmental Protection Agency 2019).

<sup>6</sup> Direct valuation methods determine a value for an environmental good by asking individuals how much they are willing to pay to obtain a certain quality of environment or to avoid a particular change in the environment (Swedish Environmental Protection Agency 2019).

et al. 1997 in USDA No Date). The benefits of nitrate-free drinking water were estimated to be \$351 million (USDA No Date).

- Pesticides: The cost to 11 small water suppliers in the Midwest to install additional water treatment to remove the herbicide atrazine from drinking water was estimated to be \$8.3 million in capital costs, and \$180,000 per year in operating costs (Langemeier 1992 in USDA No Date). USEPA has estimated that total costs for additional treatment facilities needed to meet current regulations for pesticides and other specific chemicals would be about \$400 million, with about another \$100 million required over the next 20 years (USDA No Date).

### 3.5.4 Impact Analysis

#### ***Methodology***

This impact analysis considers whether implementation of the Proposed Project would result in economic effects that would cause significant adverse physical changes to the environment. The analysis is primarily qualitative in nature, although quantitative information and analysis is provided where available and appropriate. The analysis also references the proposed Agricultural Order 4.0's Attachment A, cost analysis section. As described further below, the impact analysis uses project-specific significance criteria, as Appendix G of the state CEQA Guidelines does not provide significance criteria related to economic impacts.

#### ***Significance Criteria***

For the purposes of this analysis, the Proposed Project would result in a significant impact related to economics if it would:

- A. Increase costs for growers to such a degree that it would cause or result in growers going out of business, such that agricultural lands would be converted to non-agricultural uses; or
- B. Disproportionately affect small farms or ranches due to increased implementation, monitoring, or reporting costs, such that these farms would be forced to go out of business, resulting in conversion of agricultural lands to non-agricultural uses.

#### ***Environmental Impacts of the Proposed Project***

**Impact ECON-1: Increase costs for growers to such a degree that it would cause or result in growers going out of business, such that agricultural lands would be converted to non-agricultural uses. (*Less than Significant*)**

As described in Chapter 2, *Project Description*, Agricultural Order 4.0 would result in additional requirements for growers in the central coast region. These requirements are listed in Tables 2-3 and 2-4, and described in detail in Volume 2, Appendix A, and primarily would include the establishment of discharge and receiving water limits and time schedules, which could require growers to implement additional management practices to prevent or reduce their discharges. Additionally, growers may be subject to additional monitoring and reporting requirements (e.g., all growers must and conduct or participate in groundwater trend monitoring). ~~Setback~~

~~requirements would only apply to growers that have waterbodies on or adjacent to their irrigated acres in priority areas, but could require some growers to take a portion of their irrigated lands out of production and plant riparian vegetation if they do not opt for an alternative compliance pathway.~~

Similar to Agricultural Order 3.0 (i.e., existing conditions), the proposed requirements under Agricultural Order 4.0 would not apply evenly to all growers in the region in terms of potential costs of compliance. Although Agricultural Order 4.0 would not have tiers for relative threat to water quality, many of the requirements would be phased in based on a location-specific prioritization system, where certain ranches would have to comply with the requirements sooner than others. ~~Additionally, as noted above, only certain ranches would be subject to the riparian setback requirements, and the requirements would differ based on the stream class or acreage of the waterbody and prioritization based on water quality. All other dischargers with a waterbody on or adjacent to their irrigated acres would be required to have an operational setback.~~ Discharge limits and receiving water limits also could vary for some growers based on whether their irrigated acreage is located in a watershed with a TMDL.

As discussed throughout this FEIR, there are certain elements of the Proposed Project that are speculative in terms of which growers may choose to implement which management practices in which locations. As Agricultural Order 4.0 would not specify the manner of compliance, growers would have considerable discretion as to how they could comply with the requirements. Additionally, there is an individual and cooperative third-party program option ~~for compliance with the riparian setback requirements, as well as~~ several of the monitoring and reporting requirements (e.g., surface water and groundwater trend monitoring). All of these factors render it impracticable to determine the specific costs of compliance, as the type and number of management practices that growers choose to implement, as well as their participation or lack of participation in the cooperative third-party program monitoring and compliance options, affect their total costs of compliance.

There is the additional consideration that growers' existing level of discharges and/or compliance with Agricultural Order 3.0 is not uniform across the region. Some growers may already have implemented significant management practices or taken other measures to prevent or reduce their discharges to comply with Agricultural Order 3.0. As shown in Tables 2-5 through 2-8, a large percentage of the irrigated acres enrolled in Agricultural Order 3.0 have implemented basic management practices such as:

- evaluating how much fertilizer crops need and the timing of the fertilizer application (92 percent);
- maintaining irrigation systems to maximize efficiency and minimize losses (84 percent), and
- implementing IPM to reduce pesticide use (91 percent).

A lesser percentage of growers have taken more significant steps, such as:

- installing more efficient irrigation systems (e.g., microirrigation) (64 percent);

- using filter strips, vegetated treatment or other systems to remove pesticides and pollutants from irrigation runoff or tile drain water (14 percent);
- installing sediment basin(s), pond(s), reservoir(s) or other sediment trapping structures to remove sediments from discharge (23 percent), or
- modifying crop rotation to use beneficial cover crops, deep rooted species, or perennials to utilize nitrogen (46 percent).

For growers who have already implemented these and other management practices and prevented or reduced their discharges, the cost of compliance going forward under Agricultural Order 4.0 may be substantially reduced compared to some of their peers who have not taken significant steps under Agricultural Order 3.0. These growers may not need to implement any additional management practices to meet the new discharge and receiving water limits, and their additional costs may be limited to compliance with the new or expanded monitoring and reporting requirements under Agricultural Order 4.0 (see Table 2-4).

Similar to the discussion of Agricultural Order 3.0, it is not possible to determine with accuracy the increased costs associated with every potential component of Agricultural Order 4.0 compliance relative to the costs associated with Agricultural Order 3.0. For many of the requirements, the cost of compliance under Agricultural Order 4.0 depends on the specific characteristics of an individual ranch or operation. Further, growers may opt to comply with requirements through different methods, e.g. cooperative third-party program or individual groundwater and surface receiving water monitoring ~~and the four compliance pathways for the riparian setback requirements.~~

Given this, it is not possible to develop a uniform per acre increase in the cost of compliance with Agricultural Order 4.0 relative to Agricultural Order 3.0. Nevertheless, **Table 3.5-17** provides a summary of the potential total costs over a five year period for several new or expanded requirements and attempts to provide a sense of the per acre costs. Several new or expanded requirements are not included in the table because total costs cannot be estimated and are discussed below. Additional information on these cost estimates, including key assumptions and limitations, can be found in the proposed Agricultural Order 4.0's Attachment A.

- Ranch-level groundwater discharge and surface discharge monitoring and reporting are not included in the table because the requirements can be avoided by achieving compliance with the numeric discharge and receiving water limits.
- The total cost associated with groundwater trend monitoring is unknown and largely dependent on how many growers elect to perform the trend monitoring ~~cooperatively~~ through a third-party program or individually. If new monitoring wells are installed as part of the groundwater trend monitoring requirement, 150 new monitoring wells could cost an estimated \$2,185,000 (\$5.06 per acre).
- Surface receiving water trend monitoring is not included because it is expected to be largely a continuation of the current trend monitoring program, and therefore is not a new requirement.

- The total cost associated with the follow-up surface receiving water implementation work plan is unknown and is largely dependent on how many growers elect to perform the requirement ~~cooperatively through a third-party program~~ or individually. If new surface receiving water monitoring sites are installed as part of the work plans, 10 new monitoring sites would cost an estimated \$1,525,000 (\$3.57 per acre) over the course of five years.

**Table 3.5-17.** Estimated Total Cost of Agricultural Order 3.0 and Agricultural Order 4.0 Requirements Over Five Years

<u>Requirement</u>	<u>Description</u>	<u>Task / Subcategory</u>	<u>Estimated Total Cost - Ag Order 3.0 (Five Years)<sup>1</sup></u>	<u>Estimated Total Cost - Ag Order 4.0 (Five Years)<sup>1</sup></u>
<u>ACF</u>	The ACF requirement, which includes management practice monitoring and reporting, is expanded from only Tier 2 and Tier 3 ranches under Agricultural Order 3.0 to all ranches under Agricultural Order 4.0.	<u>N/A</u>	\$127,000 to \$509,000 (\$0.30 to \$1.20 per acre)	\$450,000 to \$1,800,000 (\$1.06 to \$4.25 per acre)
<u>Total Nitrogen Applied (TNA)</u>	<u>All ranches are required to track and report TNA under Agricultural Order 4.0. Only a subset of Tier 2 and Tier 3 ranches were required to track and report TNA under Agricultural Order 3.0.</u>	<u>Tracking</u>	<u>\$1,394,000 to \$2,789,000</u> <u>(\$3.29 to \$6.58 per acre)</u>	<u>\$2,705,000 to \$5,410,000</u> <u>(\$6.34 to \$12.67 per acre)</u>
		<u>Reporting</u>	<u>\$431,000 to \$1,724,000</u> <u>(\$1.02 to \$4.07 per acre)</u>	<u>\$1,125,000 to \$4,500,000</u> <u>(\$2.64 to \$10.54 per acre)</u>
		<u>Total</u>	<u>\$1,825,000 to \$4,513,000</u> <u>(\$4.31 to \$10.65 per acre)</u>	<u>\$3,830,000 to \$9,910,000</u> <u>\$8.97 to \$23.22 per acre)</u>
<u>INMP Summary Report (Additional Components)<sup>2</sup></u>	All ranches are ultimately required to submit the INMP Summary report (based on the ranch's groundwater phase) under Agricultural Order 4.0. The INMP Summary	<u>Tracking</u>	<u>N/A</u> <u>\$1,825,000 to \$4,513,000</u> <u>(\$4.31 to \$10.65 per acre)</u>	<u>\$2,705,000 to \$5,410,000</u> <u>(\$6.34 to \$12.67 per acre)</u> <u>\$7,660,000 to \$19,820,000</u> <u>(\$17.94 to \$46.44 per acre)</u>

<u>Requirement</u>	<u>Description</u>	<u>Task / Subcategory</u>	<u>Estimated Total Cost - Ag Order 3.0 (Five Years)<sup>1</sup></u>	<u>Estimated Total Cost - Ag Order 4.0 (Five Years)<sup>1</sup></u>
	report includes <del>nitrogen applied information</del> {TNA} information (see above), as well as nitrogen removed information, and irrigation management information. The INMP Summary report was not required under Agricultural Order 3.0, <del>however a subset of Tier 2 and Tier 3 ranches were required to submit TNA reports.</del>	<u>Reporting</u>	N/A	<u>\$1,125,000 to \$4,500,000 (\$2.64 to \$10.54 per acre)</u>
		<u>Total</u>	N/A	<u>\$3,830,000 to \$9,910,000 (\$8.97 to \$23.22 per acre)</u>
<u>Groundwater Monitoring</u>	Under Agricultural Order 3.0, all growers were required to monitor all domestic wells and the primary irrigation well two times <u>during the life of the permit (once in spring and once in fall)</u> . Under Agricultural Order 4.0, all growers will be required to monitor all domestic wells and <del>all irrigation wells</del> once per year <del>(the irrigation well requirement is based on the ranch's groundwater phase)</del> and the primary irrigation well once per year <u>until trend monitoring begins, based on their ranch location</u> . The total costs under Agricultural Order 3.0 include CCGC membership fees.	<u>Cooperative</u>	<u>\$2,903,000 (\$6.85 per acre)</u> <del>\$3,840,000 (\$9.06 per acre)</del>	<u>\$6,924,000 (\$16.03 per acre)</u> <del>N/A<sup>3</sup></del>
		<u>Individual</u>	<u>\$1,662,000 (\$3.92 per acre)</u>	<u>\$9,158,000 (\$21.20 per acre)</u>
		<u>Total</u>	<u>\$4,564,000 (\$10.77 per acre)</u>	<u>\$9,158,000 (\$21.20 per acre)</u>
	<del>Growers with impermeable surfaces on steep slopes during the winter months must have their SEMP developed by a</del>		<del>Not required.</del>	<u>\$472,000 to \$878,000</u>

<u>Requirement</u>	<u>Description</u>	<u>Task / Subcategory</u>	<u>Estimated Total Cost - Ag Order 3.0 (Five Years)<sup>1</sup></u>	<u>Estimated Total Cost - Ag Order 4.0 (Five Years)<sup>1</sup></u>
	<del>qualified professional under Agricultural Order 4.0. This requirement did not exist under Agricultural Order 3.0.</del>			<del>(\$1.11 to \$1.84 per acre)</del>

Notes:

1. See Agricultural Order Attachment A for more detailed information related to the estimated total costs.
2. Costs associated with TNA tracking and reporting are not included as part of the INMP Summary report cost estimate, since those are already represented above. It was assumed that the additional components of the INMP would take approximately the same amount of time as was required for tracking and reporting TNA. In other words, the INMP Summary report as a whole would take double the amount of time as is shown for either TNA tracking and reporting or the additional components of the INMP Summary report.
- 1-3. Under Agricultural Order 4.0, growers will continue to have the option of performing groundwater monitoring individually or as part of a third-party program. However, it is unknown at this time what the membership cost will be, what the membership fees will cover, or how many growers will join a third-party program. Therefore, for this analysis, the cost estimate is based solely on the cost of sampling all wells that are required to be sampled.

The component of Agricultural Order 4.0 likely with the greatest potential economic impact on growers with waterbodies on or adjacent to their ranch is the setback requirement. Depending on the existing setback at certain farms, growers could be required to take some portion of their irrigated acreage out of production. Not all farms would be affected (e.g., farms not in prioritized areas that already have an acceptable operational setback and/or farms without a waterbody on or adjacent to the farm) and growers in prioritized areas subject to the riparian setback requirements would have the option of four compliance pathways, as described in Appendix A. In many cases, growers would be able to avoid or reduce the amount of acreage taken out of production by following one of the compliance pathways other than the On-Farm Setback pathway. However, some farms may not currently have existing setbacks that meet the standards for the operational setback, or growers in prioritized areas may choose the On-Farm Setback compliance pathway, thus necessitating the conversion of some existing production areas to non-agricultural use.

Taking land out of production to comply with the setback requirements could certainly have an impact on a farm's bottom line, both in terms of the lost production as well as the cost of implementing the requirement. In addition to the cost of removing and disposing of the existing crops/vegetation in the area to be converted to a riparian setback, the grower would also have to establish riparian vegetation in this area. Table 3.5-9 shows that implementation of a riparian forest buffer (NRCS Conservation Practice #391) could be accomplished through seeding at \$255.33/acre, although using cuttings, bare root planting, or containers would cost more.

Similar to For implementation/construction of other most management practices, however, the greatest cost would be the up-front investment costs. The long-term operation and

maintenance costs would be significantly lower. ~~Once the setback is planted/established, the yearly costs after that point would be related to relatively minimal vegetation management and inspection activities. Likewise~~For example, if a grower were to choose to install one or more sediment basin(s) or denitrifying bioreactor(s), the cost of operation and maintenance of these facilities would be greatly outweighed by the up-front investment cost; thus, the cost of such management practice implementation should reasonably be discounted over the life of Agricultural Order 4.0. Table 3.5-9 shows that a 1,200-cubic-yard sediment basin could be installed for \$5,558.74, while a 333-cubic-yard bioreactor could be installed for \$20,324.41. Once installed, the cost of maintaining these facilities would be limited to the cost of periodic removal of sediments, vegetation management, replacement of bioreactor fill material, and related activities, while the facilities would continue to provide water quality benefits and discharge reduction for the foreseeable future.

~~Even assuming that growers may need to take areas of land out of production, along with the~~potentially increased costs of compliance associated with additional management practice implementation and new or expanded monitoring and reporting requirements from Agricultural Order 4.0, the question of whether these increased costs could impact growers in the central coast region to such a degree as to cause them to go out of business or sell their lands is essentially speculative. It would take another speculative leap to determine whether this would then result in the new business or landowner converting these lands to non-agricultural uses or otherwise taking actions to cause an adverse physical change in the environment. The agricultural economy in the central coast region is affected by numerous different factors that are outside the scope of Agricultural Order 4.0 or the jurisdiction of CCWB, including domestic and international markets, labor costs, and climate and weather patterns, among other factors. As such, irrigated acreage may go in and out of production in the region, and agricultural lands may be converted to non-agricultural uses, based on many factors over which CCWB has no control.

The specific impacts of Agricultural Order 4.0 compliance costs would depend on the specific characteristics of individual ranches/operations, including their crop mix, operating costs/capital, cash reserves, and other factors. The impacts would also depend on the price of agricultural commodities, which can change from year to year or season to season for a number of reasons. Due to all of these unknown and variable factors, it would be speculative to conclude that the costs associated with Agricultural Order 4.0 would result in a physical change in the environment.

Nevertheless, historical trends in Important Farmland acreage in the central coast region provide one indication that regulatory costs are not a primary driver in farmland conversion. As discussed in Section 3.1, *Agriculture and Forestry Resources*, and shown in Figure 3.1-3, while Prime Farmland acreage has decreased in the region over the past 20 years (consistent with statewide trends of decreasing Prime Farmland acreage), Farmland of Statewide Importance and Unique Farmland acreage have been increasing. Further, the analysis shown in Figure 3.1-3 shows no discernable change in the long-term trends in Important Farmland acreage as a result of the establishment of the past Agricultural Orders. These trends support the theory that the regulatory compliance costs associated with CCWB Agricultural Orders have not been sufficient to result in significant conversion of agricultural lands to non-agricultural uses.



Overall, this analysis finds that the potential for agricultural lands to be converted to non-agricultural uses as a result of increased costs from Agricultural Order 4.0 is speculative. Agricultural Order 4.0 would result in increased costs for growers, although some growers may be more impacted than others based on (1) the location of irrigated acres with respect to priority watershed areas, waterbodies with TMDLs, and receiving waters; ~~(2) the location of irrigated acres with respect to streams and the class of those streams and/or wetlands (i.e., applicability of setback requirements); and (23) the existing level of management practice implementation/discharges.~~ Because Agricultural Order 4.0 would not mandate the manner of compliance, it is impracticable to determine which growers may implement which management practices in which locations; as well as which growers/ranches may choose to participate in individual or ~~cooperative third-party program~~ approaches.

Even considering all of the potential increased costs for growers, the costs of compliance for most growers would still likely comprise a relatively minor component of their total cash costs per acre. These additional costs could still impact profits, but specific impacts would depend on a number of factors that are impossible to predict (e.g., domestic and international markets). As such, this impact is speculative, and, therefore, **less than significant**.

**Impact ECON-2: Disproportionately affect small farms or ranches due to increased implementation, monitoring, or reporting costs, such that these farms would be forced to go out of business, resulting in conversion of agricultural lands to non-agricultural uses. (*Less than Significant*)**

There is potential for the increased costs of compliance associated with Agricultural Order 4.0 to disproportionately affect small farms or ranches in the central coast region. Small farms/ranches generally have lower cash flows and reduced resources compared to larger holdings, and thus may be less equipped to absorb any increased regulatory compliance costs. The average ranch size in the central coast region is roughly 64 acres, and there are numerous ranches of less than 10 acres in size. As discussed in Impact ECON-1, however, the relative potential impact of the increased costs of Agricultural Order 4.0 compliance on these ranches would depend on a number of factors, many of which may change from year to year or season to season (e.g., commodities prices) and are not possible to predict.

Interestingly, the study by Hurley and Noel (2006) discussed in Section 3.5.3 (see Table 3.5-7) found that the average regulatory cost per farm and per acre was generally lower for small (or lower-income) farms than large (or higher-income) farms. However, the regulatory cost as a percentage of farm income was comparable or slightly higher for some income brackets compared to higher income farms (Hurley and Noel 2006).

Based on the costs of compliance with Agricultural Order 3.0, there is some evidence that compliance could be more costly for smaller farms, which is logical considering that these farms are less able to capitalize on economies of scale. For example, one agricultural consultant contacted during preparation of this FEIR indicated that preparation of an INMP would be more costly on a per acre basis for a smaller operation than a larger operation: the consultant reported that for a 3,000-acre operation the cost is approximately \$18,000 per year (roughly \$6/acre/year), whereas for a 500-acre operation the cost would be approximately \$12,000 per year (\$24/acre/year). However, there is also the consideration that as a ranch gets bigger, there are more blocks and more area that must be managed, potentially with different soil types, and

more complex irrigation system management, which can increase costs of implementation, monitoring, and reporting. Another agricultural consultant reported that it would cost \$5,000 to develop an INMP and \$75 per hour for INMP updates, INMP effectiveness reporting, INMP implementation, INMP software development/maintenance/use, and preparation of INMP data summaries and reporting a 100-acre ranch.

As discussed in Impact ECON-1, the specific impacts of increased compliance costs on small or large farms in terms of potential resultant conversion of agricultural lands to non-agricultural lands is speculative. For all size farms, the phasing in of discharge limits and other requirements under Agricultural Order 4.0 over time and time schedules for achieving increasingly strict limits will allow growers time to come into compliance and reduce the potential for adverse impacts. For example, as shown in ~~Table 2-3~~ Volume 2, Appendix A, the total nitrogen applied minus nitrogen removed requirements will begin as discharge targets through 2025~~4~~, and then will become discharge limits in 2027~~6~~ for Phase 1 ranches, decreasing from 300 lbs/acre/ranch/year in 2027~~6~~ to 50 lbs/acre/ranch/year in 2051~~0~~. This schedule will allow growers to plan for how best to comply with the applicable limits and potentially allow them to implement management practices during years of high yields and favorable prices, when cash is more likely to be available for investment.

An additional mitigating factor is that funding is potentially available for growers through several sources. First, USDA's Environmental Quality Incentives Program (EQIP) provides financial and technical assistance to agricultural producers to improve water quality and address other natural resource concerns (USDA NRCS 2019b). Financial assistance through EQIP covers part of the costs from implementing conservation practices (i.e., management practices) (USDA NRCS 2019b). USDA also provides funding through its Conservation Stewardship Program, which could be used by growers seeking to reduce their discharges in compliance with Agricultural Order 4.0.

The SWRCB also provides grant and loan funding to reduce non-point source pollution discharges to surface waters through its Division of Financial Assistance. Specifically, the Agricultural Drainage Management Loan Program and the Agricultural Drainage Loan Program provide funding for actions that could fall under Agricultural Order 4.0 compliance. Additionally, the Agricultural Water Quality Grant Program and the Clean Water State Revolving Fund also could potentially provide funding for growers seeking to implement management practices in compliance with Agricultural Order 4.0. Other potential funding sources include Integrated Regional Water Management grants, which were authorized and funded by Proposition 50 and then Proposition 84.

Overall, while Agricultural Order 4.0 would increase compliance costs to some degree, the specific costs for individual growers would depend on a number of factors. There is potential for economic impacts to be higher on small farms; however, it is speculative whether any potential impacts would result in physical changes in the environment (i.e., agricultural land conversion). The phasing and time schedules incorporated into Agricultural Order 4.0 would mitigate potential effects by providing growers ample time to comply with the Order requirements. Potential state and federal funding sources for agricultural water quality improvement projects could also ease the economic burden on small and large farms. As such, this impact would be **less than significant**.

## 3.6 Energy

### 3.6.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to energy use. For setting and impact discussions related to greenhouse gas (GHG) emissions, refer to Section 3.7, *Greenhouse Gas Emissions*, of this document.

### 3.6.2 Regulatory Setting

#### ***Federal Laws, Regulations, and Policies***

No federal laws, regulations, or policies are related to energy and the Proposed Project.

#### ***State Laws, Regulations, and Programs***

##### ***California Integrated Energy Policy***

Senate Bill (SB) 1389, passed in 2002, requires the California Energy Commission (CEC) to prepare an Integrated Energy Policy Report (IERP) for the governor and legislature every 2 years (CEC 2019a). The report analyzes data and provides policy recommendations on trends and issues concerning electricity and natural gas, transportation, energy efficiency, renewable energy, and public interest energy research (CEC 2019a). Volume II of the 2018 IEPR Update describes opportunities to improve energy efficiency in agriculture relating to pump efficiency and pumping requirements (CEC 2018a).

##### ***California Renewables Portfolio Standard***

California's Renewables Portfolio Standard (RPS), updated in 2018, sets a goal of obtaining 100 percent zero-carbon electricity for the state by 2045. Interim targets are established to achieve 33 percent electricity produced from renewable sources by 2020 and 50 percent by 2026 (CEC 2019b, CEC 2019c).

##### ***California's 2017 Climate Change Scoping Plan***

The Climate Change Scoping Plan details the State's strategy for achieving its GHG targets and is discussed in greater detail in Section 3.7, *Greenhouse Gas Emissions*. The plan has the following goals and actions related to agricultural energy and water use that may apply to the Proposed Project (CARB 2017):

- Employ a suite of ready-to-implement voluntary practices, such as increasing the efficiency of on-farm water and energy use, managing manure in dairies, and agricultural practices that increase net carbon sequestration and reduce GHG emissions across diverse agricultural systems.
- Increase the number of farms generating on-farm renewable energy (solar, wind, bioenergy, geothermal, etc.).

- Develop and support programs and projects that increase water sector energy efficiency and reduce GHG emissions through reduced water and energy use.
- Increase the use of renewable energy to pump, convey, treat, and utilize water.

### ***Local Laws, Plans, Policies, and Regulations***

#### ***Local General Plans and Climate Action Plans***

Many city and county general plans contain goals, policies, and strategies related to energy. In addition, some cities, counties, and air districts have adopted or drafted climate action plans (CAPs) or GHG emission reduction plans that involve energy-related measures. Many of these are discussed in Section 3.7, *Greenhouse Gas Emissions*. General plans and CAPs may include policies and strategies such as encouraging the use of low-carbon fuels and alternative energy, limiting idling time of vehicles and equipment, and implementation of best management practices for agricultural operations and construction. Refer to Volume 2, Appendix B for applicable general plan goals and policies related to energy for counties in the central coast region.

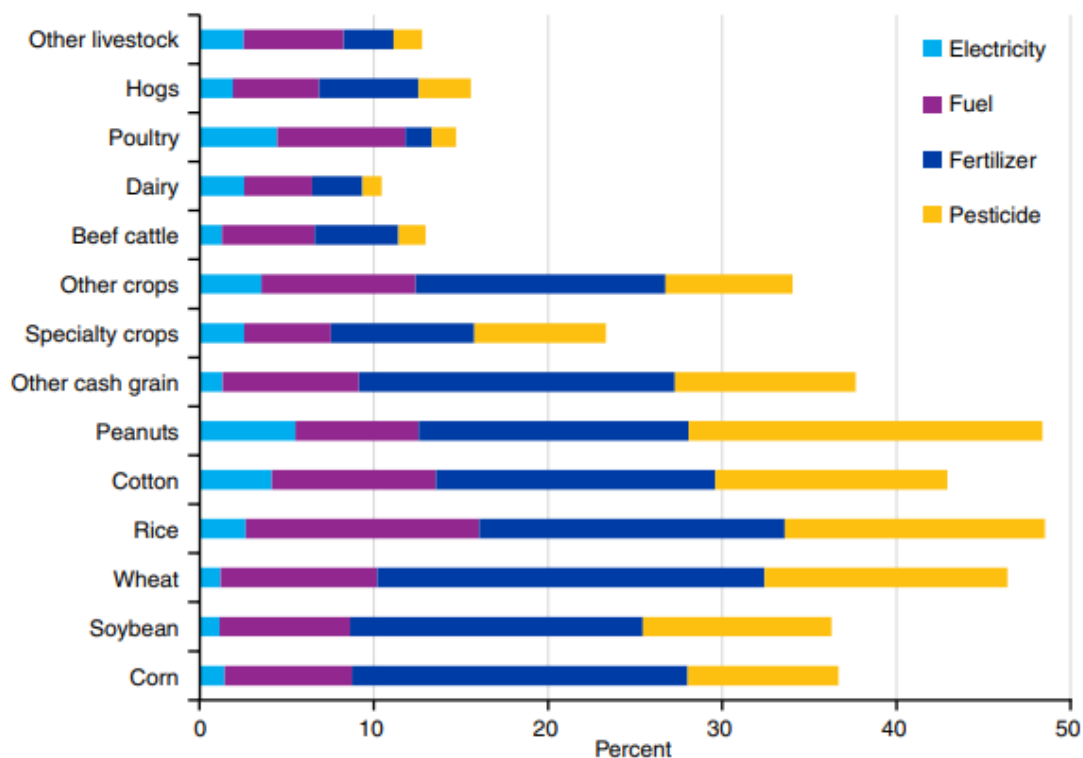
### **3.6.3 Environmental Setting**

As described in Chapter 2, *Project Description*, Proposed Project activities would occur in areas of active commercial irrigated agriculture in the central coast region. These areas are located throughout the region and shown in Figure 2-1. The central coast region includes parts of nine counties, including Kern County, Monterey County, San Luis Obispo County, San Mateo County, Santa Cruz County, San Benito County, Santa Clara County, Santa Barbara County, and Ventura County; however, only a small part of Kern County is located within the region, and this small part has limited agricultural activity.

Energy use in irrigated agricultural activities includes fuel use for operation of farm machinery/equipment (e.g., tractors, harvesters) and transport of materials and harvested produce to market in trucks. Additionally, irrigated agriculture may use electricity for operation of irrigation system pumps and equipment, operation of groundwater wells, or operation of other electrical farming equipment. Indirect energy consumption also occurs from the use of fuel and feedstock (especially natural gas) in the manufacturing of agricultural chemicals such as fertilizers and pesticides (United States Energy Information Administration [USEIA] 2014).

#### ***Energy Use in the Agricultural Industry***

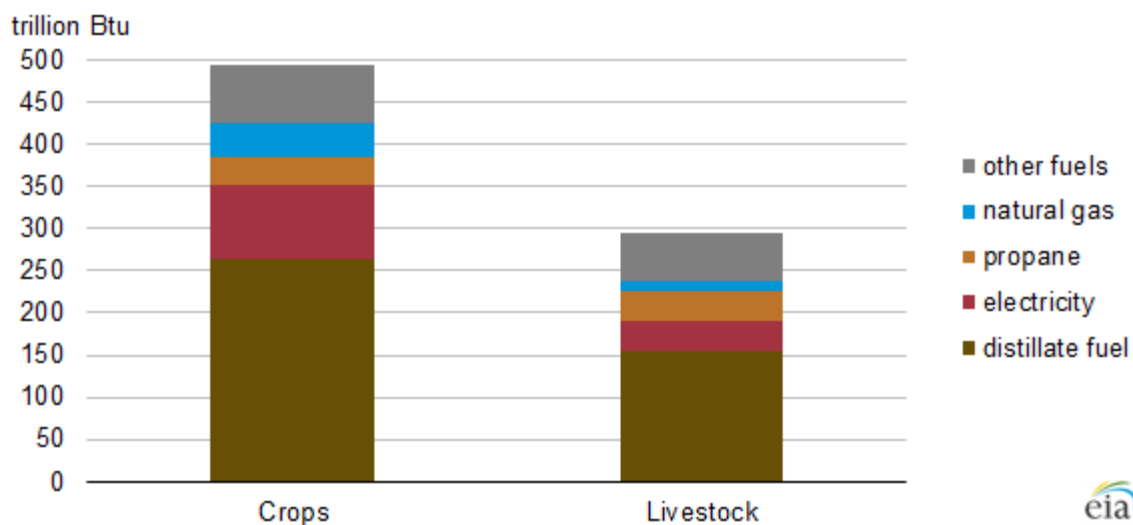
In general, energy consumption varies for different types of crops, and makes up a significant part of operating expenditures for most crops (USEIA 2014). **Figure 3.6-1** shows the relative share of energy-based expenditures as a percentage of total cash costs for various crops and livestock. It is also worth noting that crops use substantially more energy than livestock operations, and energy expenditures for crops account for a higher percentage of farm operating costs (USEIA 2014). **Figure 3.6-2** shows a comparison of crop energy use and livestock energy use, and provides a breakdown of which types of energy sources are used in the respective industries.



**Figure 3.6-1.** Share of Farm Business Energy-Based Expenditures as a Percentage of Total Cash Expenses, by Principal Commodity (2014 Data)

**Notes:** Fuel includes diesel, gasoline, natural gas, liquefied petroleum gas, lubricants, and other fuel. Specialty crops include fruits, nuts, vegetables, and nursery/greenhouse production. Other crops include tobacco, edible beans, edible peas, and other legumes.

*Source: USDA ERS 2016*



**Figure 3.6-2.** U.S. Direct Energy Consumption for Crops and Livestock (2012 Data)

*Source: USEIA 2014*

Four percent of California’s electricity consumption goes towards producing, processing, and storing California’s agricultural products, although some of this includes dairy products (CEC 2018d). Thousands of farms in California generate renewable energy onsite using solar, wind, or small hydropower energy systems.

### ***Electric Service Providers in the Proposed Project Area***

Virtually the entire central coast region is served by Pacific Gas & Electric Company (PG&E), although a small portion of southern Santa Barbara County and Ventura County are provided electric service by Southern California Edison (SCE). Additionally, several Community Choice Aggregators (CCAs) are established in the Project area. Many of these CCAs don’t yet have power content information, but they typically offer options to customers to receive electricity obtained from sources with eligible renewables and large hydroelectric making up 50 to 100 percent of the power mix. **Table 3.6-1** provides a breakdown of PG&E’s and SCE’s energy sources for electricity provided in their service areas, as well as an energy source breakdown for California as a whole.

**Table 3.6-1.** Energy Sources for Central Coast Region Electric Service Providers

Energy Sources	Utility Power Mix (Percentage) (2017 Data)		
	Pacific Gas & Electric	Southern California Edison	California
Eligible Renewable	33	32	29
Coal	0	0	4
Large Hydroelectric	18	8	15
Natural Gas	20	20	34
Nuclear	27	6	9
Unspecified Power <sup>1</sup>	2	34	9
Total	100	100	100

**Notes:**

1. “Unspecified sources of power” is defined as electricity from transactions that are not traceable to specific generation sources.

Sources: CEC 2018b, CEC 2018c

As shown in **Table 3.6-1**, both PG&E and SCE obtain electricity from a variety of sources, including a significant percentage (over 30 percent) from renewables, which is slightly higher than the state as a whole.

### 3.6.4 Impact Analysis

#### ***Methodology***

This impact analysis considers whether implementation of the Proposed Project would result in significant adverse impacts related to energy. Due to the nature of the Proposed Project, it is not feasible to predict the specific actions that will be taken on irrigated lands under Agricultural Order 4.0; therefore, it is not possible to provide a quantitative estimate and analysis of current and future energy use associated with irrigated lands and the Proposed Project. As a result, this section provides a qualitative analysis of the Proposed Project's impacts with regard to energy use.

Effects on energy resources are evaluated based on the energy demand associated with activities that could occur under the Proposed Project (e.g., construction/implementation of management practices, installation and operation of groundwater monitoring wells, vehicle trips to monitoring locations, etc.), including direct consumption of diesel, gasoline, natural gas, and electricity. Additionally, the analysis considered the indirect life cycle of the various products and equipment that may be used during Proposed Project activities, which could include energy consumption embedded in manufacturing and distribution processes. For example, production of chemical pesticides and fertilizers may require substantial energy; these products may then be packaged in petroleum-based materials (e.g., plastic); and then would require fuel consumption for vehicles to transport the finished products to markets/consumers. Other raw materials such as steel and cement contain large amounts of embodied energy to produce the material that may be used on site during construction.

#### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the State CEQA Guidelines, the Proposed Project would result in a significant impact related to energy if it would:

- A. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy during project construction or operation; or
- B. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

#### ***Environmental Impacts of the Proposed Project***

##### **Impact ENE-1: Result in a potential environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. (*Less than Significant*)**

Under the Proposed Project, construction/installation of certain management practices (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors, efficient irrigation systems, etc.) would require the operation/use of gasoline- or diesel-fueled construction equipment (e.g., excavators, trenchers, etc.). Additionally, compliance with the setback requirements may involve removal of existing crops (if farming is conducted up to the stream bank or otherwise within the setback area) and planting/establishment of vegetation. These activities may involve energy use from operation of equipment and off-haul of waste materials to a composting or disposal facility.

Once installed, certain management practices may require some energy use in their operation or maintenance. For example, efficient irrigation systems (e.g., drip, micro-irrigation) may require operation of pumps and/or control systems that use electricity; whereas sediment basins or bioreactors would require periodic removal of accumulated sediments/replacement of organic materials, which would involve energy use in operation of equipment and transportation of materials for disposal. Some monitoring activities under the Proposed Project also could require some energy use, such as vehicle trips to monitoring locations or operation and sampling of groundwater monitoring wells. By contrast, some management practices implemented under the Proposed Project, such as use of less fertilizer, reducing tillage, or improving water use efficiency, could potentially reduce direct and/or indirect energy use.

As noted above under “Methodology,” due to the nature of the Proposed Project, and the fact that growers would have discretion as to which management practices to implement to comply with the Order, these effects cannot be quantified. However, based on the types of activities that are reasonably likely to occur, energy use under the Proposed Project during construction, operation, and maintenance is not expected to be especially substantial, particularly when compared to existing conditions. Various agricultural activities involving energy use are ongoing in the central coast region and would continue to occur following adoption of Agricultural Order 4.0. Additionally, growers in the region are currently subject to Agricultural Order 3.0, which requires implementation of management practices and monitoring activities, many of which would be similar to the expanded requirements under Agricultural Order 4.0.

In general, the energy use that would occur under the Proposed Project would not be wasteful in the sense that construction/installation of management practices, ~~implementation of setback requirements,~~ and monitoring and reporting activities are necessary for the protection and restoration of water quality in the central coast region. Additionally, as discussed in Section 3.2, *Air Quality*, compliance with existing laws and regulations by growers, third parties, or their contractors would prevent unnecessary or wasteful energy use from excessive vehicle idling. Once installed, many reasonably foreseeable management practices under the Proposed Project would require relatively minimal energy use during operation and maintenance, and monitoring activities would use relatively limited amounts of energy. Additionally, as noted above, several reasonably foreseeable management practices (e.g., efficient irrigation systems, minimizing tillage, reducing fertilizer use, etc.) could promote energy use efficiency over the long term.

Overall, this impact would be **less than significant**.

**Impact ENE-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency. (*Less than Significant*)**

As discussed in Section 3.6.2 above, the state’s primary plan for reducing GHG emissions, the Climate Change Scoping Plan, includes goals for agricultural energy and water use efficiency. The state’s RPS also sets goals for renewable energy use. Additionally, numerous jurisdictions in the central coast region have adopted CAPs, which typically include goals for renewable energy use and energy efficiency, as described further in Section 3.7, *Greenhouse Gas Emissions*.

In general, the Proposed Project would serve to protect and restore water quality in the central coast region through WDRs for irrigated agriculture. Many of the reasonably foreseeable management practices that growers may implement to comply with the discharge, receiving



water, and application limits in Agricultural Order 4.0 would promote energy and water use efficiency over the long term (see Impact ENE-1 for further discussion). While construction/installation of certain management practices would require the use of heavy construction equipment, which would use energy, this energy use would be short term and would not substantially conflict with or obstruct any state or local plan for renewable energy or energy efficiency. Compliance with existing laws and regulations would prevent construction equipment and vehicles from idling excessively such as to result in wasteful or unnecessary energy use.

The Proposed Project would not specifically promote the use of renewable energy, but it also would not obstruct or discourage individual farmers from using such energy sources. Many farms in California and the central coast region produce renewable energy (e.g., from wind, solar, etc.), and this energy could potentially be used to operate new facilities (e.g., groundwater monitoring wells) that could be installed under the Proposed Project. The requirements under the Proposed Project also would not reasonably hinder individual farmers' ability to make other energy efficiency or water use efficiency improvements in their operations pursuant to other state or local plans or programs.

Therefore, this impact is considered **less than significant**.

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## 3.7 Greenhouse Gas Emissions

### 3.7.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to greenhouse gas (GHG) emissions. For information on the effects of the Proposed Project related to energy, please refer to Section 3.6.

### 3.7.2 Regulatory Setting

#### ***Federal Laws, Ordinances, Regulations, and Standards***

At the federal level, the U.S. Environmental Protection Agency (USEPA) has developed regulations to improve the efficiency of, and reduce GHG emissions from, motor vehicles and has developed permitting requirements for large stationary emitters of GHGs. On April 1, 2010, USEPA and the National Highway Traffic Safety Administration (NHTSA) established a program to reduce GHG emissions and improve fuel economy standards for new model year 2012–2016 cars and light trucks. On August 9, 2011, USEPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses. In August 2016, USEPA and the NHTSA jointly finalized Phase 2 Heavy-Duty National Program standards to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles for model year 2018 and beyond (USEPA 2019a).

#### ***State Agencies, Laws, and Programs***

In recent years, California has enacted a number of policies and plans to address GHG emissions and climate change. Efforts on a statewide level to regulate and reduce GHG emissions are detailed below but include establishing GHG emission goals, developing vehicle emission standards, and promoting sustainable land use and transportation planning. As with federal requirements, agriculture is not one of the industrial sectors regulated due to the relatively small scale of total emissions compared to other large emission sources.

#### ***Statewide Greenhouse Gas Emission Targets***

In 2006, the California State Legislature enacted Assembly Bill (AB) 32, the Global Warming Solutions Act, which set the overall goals for reducing California’s GHG emissions to 1990 levels by 2020. Subsequent executive orders have revised the overall goal to statewide carbon neutrality by 2045 and net negative emissions thereafter. The First Update to the AB 32 Scoping Plan (approved in 2014) defined climate change priorities for the next 5 years from its adoption and set the groundwork for reaching the state’s long-term GHG emissions reduction goals, including aligning those goals with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

A subsequent 2017 Scoping Plan Update was released to reflect the updated emissions reductions targets (CARB 2017). This Scoping Plan Update includes recommendations such as improving manure management, boosting soil health, generating renewable power, electrifying operations, utilizing waste biomass, and increasing water, fertilizer, and energy use efficiency.

### *Low Carbon Fuel Standard*

The Low Carbon Fuel Standard (LCFS) requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020 and 20 percent by 2030 (CARB 2019a). The LCFS regulation includes annual performance standards for fuel producers and importers, applicable to all fuels used for transportation in California (CARB 2019a). Electricity and fuels such as hydrogen, biodiesel, and biogas have lower carbon intensities than traditional gasoline and diesel. As such, increasing use of these fuels lowers the average carbon intensity of the state's transportation fuels.

### *State Water Resources Control Board's Greenhouse Gas Emission Reduction Actions*

SWRCB is undertaking a number of actions to reduce GHG emissions in the state, including issuing grants to agricultural operations for improvements to irrigation systems that both save water and reduce GHG emissions (CalEPA 2018). Other SWRCB emission reduction strategies include promoting the use of methane capture and stormwater detention and infiltration (SWRCB 2017).

### *Local Laws, Plans, Policies, and Regulations*

Many city and county general plans contain goals, policies, and strategies related to air quality and GHG emissions. In addition, some cities, counties, and air districts in the central coast region have adopted or drafted CAPs or GHG emission reduction plans. General plans and CAPs may include policies and strategies applicable to agriculture and the Proposed Project such as encouraging the use of low-carbon fuels and alternative energy, limiting idling time of vehicles and equipment, recommending best management practices for agricultural operations and construction, and supporting heavy-duty fleet conversions. For example, the San Luis Obispo County EnergyWise Plan 2016 Update has a goal of reducing "emissions in agricultural practices through water conservation, upgrade of equipment technology, and use of best management practices" (San Luis Obispo County 2016). Volume 2, Appendix B shows relevant goals and policies in county general plans for the central coast region.

## **3.7.3 Environmental Setting**

### *Global Climate Change*

"Global climate change" and "global warming" are terms that describe changes in the Earth's climate. A global climate change could be, for example, an increase or decrease in temperatures, the start or end of an ice age, or a shift in precipitation patterns. The term global warming is more specific and refers to a general increase in temperatures across the Earth. Although global warming is characterized by rising temperatures, it can cause other climatic changes, such as a shift in the frequency and intensity of rainfall or hurricanes. Global warming does not necessarily imply that all locations will be warmer. Some specific locations may be cooler even though the Earth, on average, is warming. All of these changes fit under the umbrella of global climate change.

It is widely acknowledged that GHGs play a significant role in the global warming trend that has been observed over the last several decades. GHGs, such as carbon dioxide (CO<sub>2</sub>), methane, and

nitrogen oxide (N<sub>2</sub>O), trap heat that is emitted from the earth's surface, creating a "greenhouse effect" (National Aeronautics and Space Administration [NASA] 2019). Water vapor is the most abundant GHG, but it functions more as a "feedback" since it changes physically or chemically in response to temperature. By contrast, GHGs such as CO<sub>2</sub>, methane, N<sub>2</sub>O, and others may remain semi-permanently in the atmosphere and thereby act as a "forcing" of climate change (NASA 2019). In general, about half the light reaching the Earth's atmosphere passes through the air and clouds to the surface, where it is absorbed and then radiated upward in the form of infrared heat (NASA 2019). About 90 percent of this heat is then absorbed by the GHGs and radiated back toward the surface.

Other potential causes of global climate change include changes in the irradiance of the sun, which is thought to have been the primary cause for the Little Ice Age between approximately 1650 and 1850 (NASA 2019). However, this is not thought to have played a role in the recent warming observed in the 20<sup>th</sup> and 21<sup>st</sup> centuries for several reasons (NASA 2019): (1) since 1750, the average amount of energy coming from the sun either remained constant or increased slightly; (2) if the warming were caused by a more active sun, then scientists would expect to see warmer temperatures in all layers of the atmosphere (instead, they have observed cooling in the upper atmosphere and a warming at the surface and in the lower parts of the atmosphere); and (3) climate models that include solar irradiance changes cannot reproduce the observed temperature trend over the past century or more without including a rise in greenhouse gases.

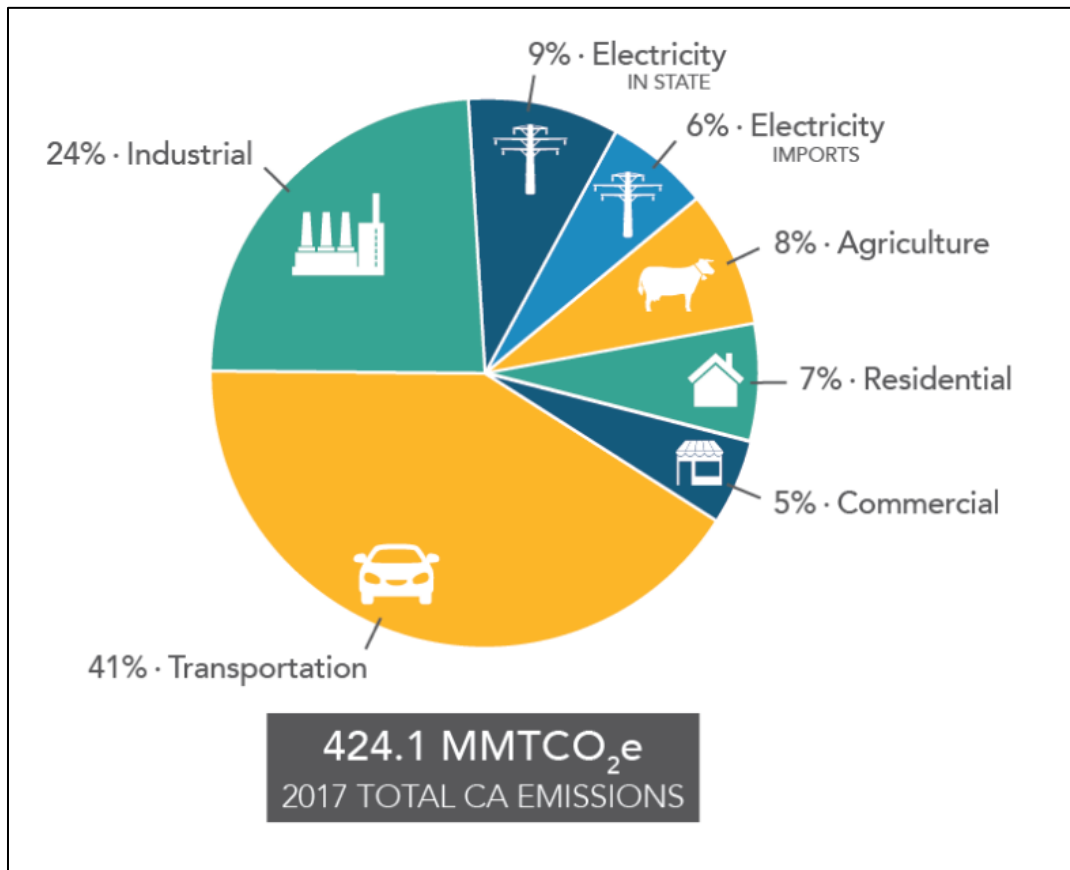
Taken together, the scientific consensus is that present-day global warming is primarily the result of human activity on the planet, and specifically, is the result of increased concentrations of GHGs in the atmosphere due to human activities (International Panel on Climate Change [IPCC] 2014). According to the IPCC's Fifth Assessment Report: Climate Change 2014, the globally averaged combined land and ocean surface temperature data as calculated by a linear trend show a warming of 0.85 degrees Celsius over the period 1880 to 2012. It is *extremely likely* that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (IPCC 2014).

### ***Greenhouse Gas Emissions***

GHG emissions typically are measured in terms of mass of CO<sub>2</sub> equivalents (CO<sub>2</sub>e). CO<sub>2</sub>e is calculated as the product of the mass of a given GHG and its specific Global Warming Potential (GWP). Worldwide emissions of GHGs in 2017 were more than 36 billion metric tons of CO<sub>2</sub>e, with 15 percent of those coming from the United States (Global Carbon Project 2018). In 2017, the U.S. emitted about 6.5 billion metric tons of CO<sub>2</sub>e, which was an increase of about 1.3 percent since 1990, but a reduction of about 13 percent from 2005 inventories (USEPA 2019b). Fossil fuel combustion accounts for approximately 76 percent of the U.S.'s GHG emissions (USEPA 2019b).

In 2017, sources within the state of California emitted approximately 424 million metric tons of CO<sub>2</sub>e, which is a reduction of about 14 percent since 2004 (despite the population growing by about 12 percent during that period) (CARB 2019b). On a per capita basis, California emits about 10.7 metric tons per person, which is among the lowest of the 50 states. **Figure 3.7-1** shows an

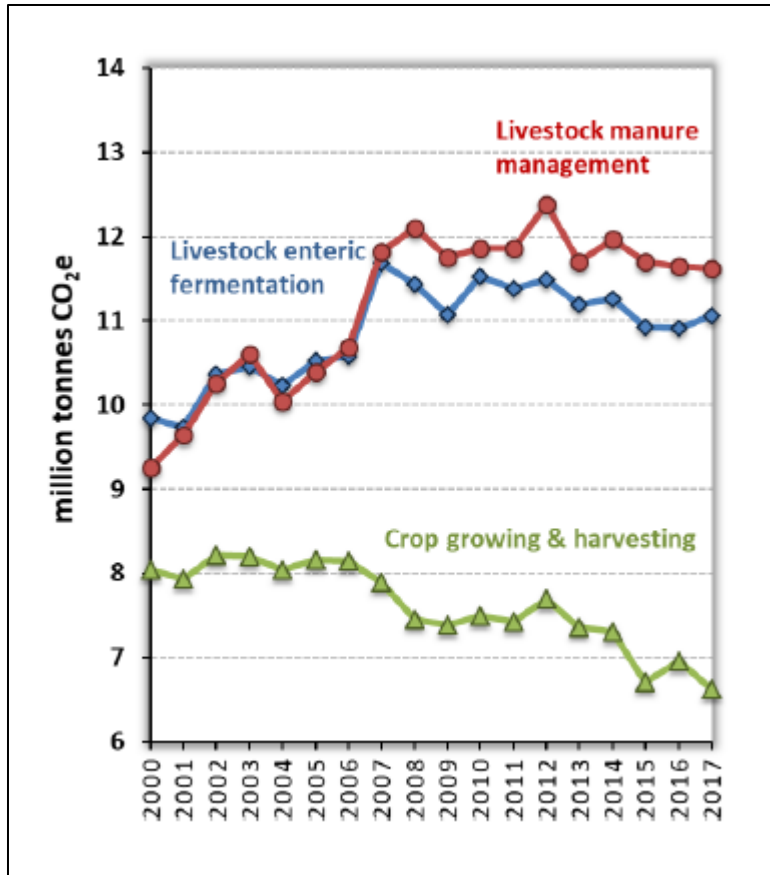
overview of relative GHG emissions in California by source. **Figure 3.7-2** provides details on the emissions from different agricultural sources.



MMTCO<sub>2</sub>e = million metric tons (tonnes) of carbon dioxide equivalents

Source: CARB 2019b

**Figure 3.7-1.** Greenhouse Gas Emissions by Source in California (2017)



Source: CARB 2019b

**Figure 3.7-2. Agricultural Greenhouse Gas Emissions**

Agricultural activities are responsible for approximately 8 percent of California's GHG emissions and the majority of its methane emissions (CARB 2019b, CARB 2017). Crop production accounted for 20 percent of total agricultural emissions in 2017 (CARB 2019b). Emissions from growing and harvesting crops have generally been declining since 2000 due to reductions in crop acreage and synthetic fertilizer use along with changes in irrigation practices (CARB 2019b).

### ***Global Climate Change and Greenhouse Gas Emissions in the Central Coast Region***

As described above, climate change is a global phenomenon, and GHG emissions do not act on a local level, but rather contribute to global processes, regardless of where they occur. Therefore, GHG emissions in Salinas, California, act on the same scale as those in Europe, Africa, or any other part of the world. Likewise, the climate in the central coast region of California could be affected by global processes driven by GHG emissions and other forces that occur around the world.

### *Existing Greenhouse Gas Emissions*

Currently, approximately 538,940 acres of farmland are under irrigated agricultural production in the central coast region. GHG emissions associated with irrigated agricultural activity include:

- N<sub>2</sub>O emissions from application of fertilizers;
- CO<sub>2</sub> emissions from operation of tractors and other on-farm machinery;
- CO<sub>2</sub> emissions from electricity generation for operation of pumps for irrigation systems and groundwater wells;
- CO<sub>2</sub> emissions from transportation of harvested produce to market and other transportation-related activities;
- CO<sub>2</sub> emissions from tilled soils;
- CO<sub>2</sub> emissions from burning of crop residues; and
- Methane emissions from flooded/saturated fields and anoxic decomposition of biological material.

Quantitative data are not available regarding the specific quantities of GHG emissions attributable to irrigated agriculture within the central coast region; however, based on Figure 3.7-1 and Figure 3.7-2, it can be assumed that irrigated agriculture and related activities account for a relatively small portion of the total GHG emissions in the region, particularly since much of the emissions attributed to agriculture in **Figure 3.7-1** are from livestock/dairy operations (e.g., methane), which are not considered part of irrigated agriculture.

### *Vulnerability to Climate Change*

Agriculture is an industry that is particularly dependent on the climate. The primary inputs to agricultural crop production include the sun, rain, temperature, and humidity. Although it is unclear precisely how global climate change will manifest itself in any given location, there is reason to believe that future climate change in the central coast region could have deleterious effects on agriculture. Although increased concentrations of CO<sub>2</sub> are a possible benefit to plant growth, increased temperatures could be harmful to some crops, as could more frequent or extreme droughts or otherwise more variable precipitation patterns (State of California 2018). For example, more intense precipitation can damage sensitive crops such as lettuce and strawberries, rendering the crop unsellable.

## **3.7.4 Impact Analysis**

### ***Methodology***

Because Agricultural Order 4.0 provides growers with flexibility regarding which potential management practices to implement to comply with limits and requirements, it is not possible to quantify the GHG emissions that will result from activities under the Proposed Project. Thus, this section qualitatively analyzes the potential impacts of the Proposed Project with regard to



GHG emissions and climate change. Effects are evaluated with respect to the anticipated changes from baseline conditions in vehicle and equipment usage, fertilizer and pesticide application, and other GHG emitting activities due to the Proposed Project.

Note that many of the products and equipment that could be used during Proposed Project implementation could include “embedded” GHG emissions, which are not directly evident from their end uses. For example, extraction and processing of raw materials used in the manufacturing of construction equipment used during management practice installation may involve fossil fuel combustion and GHG emissions. Likewise, transporting equipment parts and other agricultural inputs/products to markets and ultimately to the consumer could generate GHG emissions. These relationships are complex, but were generally considered in this qualitative analysis.

### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the State CEQA Guidelines, the Proposed Project would result in a significant impact related to GHG emissions if it would:

- A. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or
- B. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Several of the air districts with jurisdiction in the central coast region have drafted or adopted GHG emission significance thresholds for analysis of GHG impacts under CEQA. While a quantitative analysis of GHG emissions is not possible for the Proposed Project, and it is thus not possible to compare emissions to these thresholds, **Table 3.7-1** summarizes the GHG emission significance criteria by applicable air district for the central coast region for informational purposes.

**Table 3.7-1. Greenhouse Gas Emission Significance Criteria for Air Districts within the Central Coast Region**

<b>Air District</b>	<b>Greenhouse Gas Emission Significance Criteria</b>
Bay Area Air Quality Management District	1,100 MTCO <sub>2</sub> e/yr
Monterey Bay Air Resources District	None
Santa Barbara County Air Pollution Control District	<ol style="list-style-type: none"> <li>1) 10,000 MTCO<sub>2</sub>e/yr for stationary source projects, or</li> <li>2) Compliance with approved GHG emission reduction plan or GHG mitigation program, or</li> <li>3) Consistency with AB 32 Scoping Plan emission reduction goals by reducing emissions 15.3 percent below Business As Usual.</li> </ol>
San Joaquin Valley Air Pollution Control District	<ol style="list-style-type: none"> <li>1) Implementation of Best Performance Standards, or</li> <li>2) 29 percent reduction in GHG emissions from Business As Usual.</li> </ol>

Air District	Greenhouse Gas Emission Significance Criteria
San Luis Obispo County Air Pollution Control District	1) Compliance with qualified GHG Reduction Strategy, or 2) 1,150 MTCO <sub>2</sub> e/yr, or 3) 4.9 MTCO <sub>2</sub> e/Service Population/yr (residents + employees).
Ventura County Air Pollution Control District	None

Source: BAAQMD 2017, SBCAPCD 2015, SJVAPCD 2009, SLOCAPCD 2019

### ***Environmental Impacts of the Proposed Project***

#### **Impact GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. (*Less than Significant*)**

A number of the reasonably foreseeable management practices that could occur under the Proposed Project would have negligible or beneficial effects related to GHG emissions. Practices such as crop rotations, applying pesticides in accordance with label instructions, and excluding people and vehicles from areas to protect riparian vegetation would emit negligible amounts of GHGs. Similarly, practices such as managing irrigation to improve efficiency and applying less fertilizer would have the potential to reduce GHG emissions relative to baseline conditions (e.g., through reduced energy/electricity use and reduced use of materials containing embodied emissions).

Construction of certain types of management practices would generate GHG emissions due to operation of gasoline- or diesel-fueled equipment (e.g., excavators, bulldozers, etc.). Management practices such as sediment basins, vegetated filter strips, and denitrifying bioreactors would all involve some amount of excavation/ground-disturbance, and thus construction of these features would require use of GHG-emitting equipment. Additionally, any worker vehicle trips to and from individual construction sites would add some amount of GHGs. ~~Implementation of setback requirements also may require removal of existing crops (if present within setback areas), disposal of organic debris, and planting of riparian or other vegetation, all of which could involve operation of equipment and/or vehicles and emission of GHGs. However, implementation of the riparian setback requirements that results in additional riparian vegetation may also help sequester GHGs and therefore reduce their emissions, and therefore have a net beneficial effect (UCCE 2015).~~

While the specific characteristics of individual management practices are unknown, such individual projects would have no potential, on their own, to exceed applicable GHG emission significance criteria. In comparison to the types of construction projects that regularly occur throughout the central coast region (e.g., housing projects, commercial and industrial development), the management practices that could be constructed at individual farms or ranches as a result of the Proposed Project rank relatively low in terms of GHG emission potential.

From a cumulative standpoint, if all farms/ranches within the region were to construct sediment basins, vegetated filter strips, or other similar types of management practices *at the same time*,

there could be some potential for annual GHG emissions significance thresholds to be exceeded (although, still, this is somewhat speculative). However, this is not likely to occur, particularly given the fact that many of the discharge, receiving water, and application limits (which would drive management practice implementation) and setback requirements would be phased in over time. For example, the most stringent nitrogen discharge limits would not take effect for some areas<sup>1</sup> until 2051<sup>49</sup>, whereas the third party managing the Cooperative Watershed Restoration Program for compliance with the riparian setback requirements would have from 2030 (Priority 1 areas) to 2033 (Priority 4 areas) to achieve the required success criteria. Growers that choose to follow one of the individual compliance pathways for compliance with the riparian setback requirements would have from 2027 (Priority 1 areas) to 2030 (Priority 4 areas) to achieve the success criteria and requirements.

It also should be noted that some amount of GHG emissions is occurring under existing conditions pursuant to Agricultural Order 3.0. Many farmers are implementing, or have implemented, various management practices (see Tables 2-5 through 2-8), and Agricultural Order 3.0 enrollees are required to perform monitoring and reporting, although much of this is done cooperatively, thereby reducing the amount of GHG emissions by reducing the amount of monitoring that would occur if all growers complied with the monitoring requirements individually. As such, while the Proposed Project is anticipated to result in increased management practice construction (and associated GHG emissions) relative to Agricultural Order 3.0, the GHG emissions that occur from the Proposed Project should be considered in light of the existing, ongoing GHG emissions that are occurring under existing conditions.

During Project operation, certain management practices or monitoring equipment/facilities could generate some amount of GHG emissions. Technologies to actively treat irrigation or stormwater discharge could use electricity, which could be generated using fossil fuels (thus emitting GHGs). Similarly, any new monitoring wells installed for groundwater trend monitoring would include pumps that would use some amount of energy/electricity, which could indirectly generate GHG emissions. Additionally, routine maintenance and repair of management practices (e.g., periodic clearing of accumulated sediment from sediment basins) may require operation of fossil fuel-powered equipment, which may generate GHG emissions.

Due to the nature of the Proposed Project and the discretion afforded to growers in how to comply with the proposed requirements, the net increase in GHG emissions due to the Proposed Project cannot be quantified. Based on the reasonably foreseeable activities, the emissions are not expected to be substantial. The Proposed Project would not create any new substantial stationary sources of GHG emissions and many of the routine maintenance and repair and monitoring activities would be relatively infrequent. GHG emissions from construction activities likely would be relatively minor overall (particularly compared to other common types of construction projects) and would most likely be spread out over time due to the prioritization/phasing built into the Proposed Project.

Therefore, this impact would be **less than significant**.

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<sup>1</sup> See the time schedule for nutrient limits in the Revised Agricultural Order.

**Impact GHG-2: Potential to conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of GHGs. (*Less than Significant*)**

The Proposed Project does not conflict with strategies discussed in the First Update to the AB 32 Scoping Plan or the 2017 Climate Change Scoping Plan (CARB 2017) (see Section 3.7.2). The implementation of many reasonably foreseeable management practices in response to the Proposed Project, including actions to improve water efficiency and nutrient management, would align with strategies mentioned in the Scoping Plan and ultimately reduce emissions of some GHGs. As discussed above in Impact GHG-1, while construction of some management practices would generate short-term GHG emissions, these would likely be spaced out over time and would not be significant. Routine maintenance and repair of certain management practices, as well as monitoring activities, could generate some amount of GHG emissions, but these emissions would not be significant and would not conflict with applicable State plans, policies, or regulations.

For similar reasons, the Proposed Project is generally in line with local general plan policies regarding land use, transportation, air quality planning goals, and local CAPs. Therefore, this impact would be **less than significant**.

## 3.8 Hazards and Hazardous Materials

### 3.8.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to hazards and hazardous materials. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such, or if it is toxic (i.e., causes adverse human health effects), ignitable (i.e., has the ability to burn), corrosive (i.e., causes severe burns or damage to materials), or reactive (i.e., causes explosions or generates toxic gases). The term “hazardous material” is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a substantial present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (California Health and Safety Code, Chapter 6.95, Section 25501[o]).

Additionally, although not specifically identified in the standard CEQA Guidelines Appendix G significance criteria, this section evaluates the potential for the Proposed Project to result in impacts related to food safety, such as from implementation of ~~the proposed setback requirements~~ riparian buffer areas as a method of compliance with the proposed Agricultural Order 4.0.

### 3.8.2 Regulatory Setting

#### *Federal Laws, Regulations, and Policies*

##### *Comprehensive Environmental Response, Compensation, and Liability Act*

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also called the Superfund Act) (42 USC Section 9601 et seq.) was established to protect the public and the environment from the effects of past hazardous waste disposal activities and new hazardous material spills. CERCLA created a tax on the chemical and petroleum industries to generate funds to clean up abandoned or uncontrolled hazardous waste sites in which no responsible party could be identified (U.S. Environmental Protection Agency [USEPA] 2019a). CERCLA also granted authority to USEPA to respond directly to hazardous waste spills and required those responsible for a spill or accidental release of hazardous materials to report the release to USEPA.

The Superfund Amendments and Reauthorization Act of 1986 (SARA) (Public Law 99-499) amended some provisions of CERCLA (USEPA 2019b). SARA increased the focus on human health problems posed by hazardous waste releases, stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites, and encouraged greater citizen participation in making decisions on how sites should be cleaned up (USEPA 2019b).

### *Resource Conservation and Recovery Act*

The Resource Conservation and Recovery Act (RCRA) (42 USC Section 6901 et seq.) was enacted in 1976 to address the increasing problems the nation faced from the growing volume of municipal and industrial solid waste. The RCRA sets national goals for protecting human health and the environment from the potential hazards of waste disposal, conserving energy and natural resources, reducing the amount of waste generated, and ensuring that wastes are managed in an environmentally sound manner. To achieve these goals, RCRA established three interrelated programs: the solid waste program, the hazardous waste program, and the underground storage tank program.

The hazardous waste program established a system for controlling hazardous wastes from the time they are generated to the time they are disposed (“cradle-to-grave” management). Under RCRA, owners and operators of hazardous waste treatment, storage, and disposal facilities must follow a set of standards (e.g., facility design and operation, contingency planning and emergency preparedness, and recordkeeping) to minimize risk and impacts on human health and the environment, codified in Title 40 of the CFR Part 264.

### *Federal Insecticide, Fungicide, and Rodenticide Act*

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 USC Section 136 et seq.) was enacted in 1947, but has since been amended by the Federal Environmental Pesticide Control Act of 1972 and the Food Quality Protection Act of 1996. In its current form, FIFRA provides for federal regulation of pesticide distribution, sale, and use. All pesticides distributed or sold in the United States must be registered (licensed) by USEPA. Before USEPA may register a pesticide under FIFRA, the applicant must show that, among other things, using the pesticide according to specifications “will not generally cause unreasonable adverse effects on the environment” (USEPA 2019c).

FIFRA also includes worker protection standards codified in 40 CFR Part 170 that are designed to reduce the risks of illness or injury resulting from occupational exposures to pesticides used in agricultural production activities. The FIFRA standards include a number of different requirements for protection of agricultural workers, including:

- Pesticide safety training;
- Informing workers of the location of pesticide safety information, pesticide application and hazard information, decontamination supplies;
- Excluding unauthorized persons from areas subject to pesticide applications, including enforcing a restricted-entry interval following applications;
- Providing oral and posted notice regarding worker entry restrictions; and
- Providing decontamination supplies for routine washing and emergency decontamination of pesticides.

### *Occupational Safety and Health Administration Regulations*

The Occupational Safety and Health Act of 1970 created the Occupational Safety and Health Administration (OSHA) to ensure safe and healthful conditions for workers by setting and enforcing standards and by providing training, outreach, education, and assistance. To fulfill this purpose, OSHA develops and enforces mandatory job safety and health standards.

These standards, codified in 29 CFR Part 1910, address issues that range in scope from walking and working surfaces, to exit routes and emergency planning, to hazardous materials and personal protective equipment (PPE) (i.e., protective equipment for eyes, face, or extremities; protective clothing; respiratory devices). They include exposure limits for a wide range of specific hazardous materials, including pesticides, as well as requirements that employers provide PPE to their employees wherever it is necessary (29 CFR Section 1910.132).

### *Food Safety Modernization Act*

The Food Safety Modernization Act (FSMA) is a comprehensive food safety law that focuses on prevention of the causes of foodborne illnesses in the United States. Established in 2011, FSMA directs the U.S. Food and Drug Administration (FDA) to create a national food safety system in partnership with state and local authorities and allows FDA to require comprehensive, science-based preventive controls across the food supply. These include mandatory preventive controls for food facilities (as implemented through a written preventive controls plan), as well as mandatory produce safety standards (FDA 2011).

### *Standards for Growing, Harvesting, Packing and Holding of Produce for Human Consumption (Produce Safety Rule)*

As part of its efforts to implement FSMA, FDA issued in 2018 its final Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption (Produce Safety Rule) (80 Federal Register [FR] 74353). This rule sets forth procedures that minimize the risk of adverse health consequences due to contamination of food produce, including:

- standards for agricultural water supplies to ensure that *E. coli* and other microbial contaminants are not present;
- requirements for applications of biological soil amendments (e.g., raw manure must be applied in a manner that does not contact produce during application);
- avoidance of harvesting produce that is likely to be contaminated by domesticated or wild animals;
- worker training and health and hygiene (e.g., ensuring farm workers who handle produce are trained on the importance of health and hygiene); and
- standards related to the sanitation of equipment, tools, and buildings.

Although farmers must avoid harvesting produce that is likely contaminated by wild animals, FDA states that “farms are not required to exclude animals from outdoor growing areas, destroy animal habitat, or clear borders around growing or drainage areas. Nothing in the rule should be interpreted as requiring or encouraging such actions (FDA 2018).”

### ***State Laws, Regulations, and Policies***

#### ***California Health and Safety Code—Hazardous Waste and Hazardous Materials***

Several sections of the California Health and Safety Code deal with hazardous waste and hazardous materials. Division 20, Chapter 6.5 addresses hazardous waste control and contains regulations on hazardous waste management plans, hazardous waste reduction, recycling and treatment, and hazardous waste transportation and hauling. Under Chapter 6.5, Article 6, persons generating hazardous wastes that are to be transported for off-site handling, treatment, storage, or disposal must complete a hazardous waste manifest before transport, indicating the facility to which the waste is being shipped for treatment, disposal, or other purposes.

#### ***Pesticides and Pest Control Operations (3 CCR Division 6)***

Detailed implementing regulations for the California Department of Pesticide Regulation's (CDPR's) pesticide regulatory program are codified in 3 CCR Division 6. CDPR is the state agency with primary responsibility for regulating pesticide use in California. CDPR oversees state pesticide laws, including pesticide labeling, and is vested by USEPA to enforce federal pesticide laws in California. CDPR also oversees the activities of the county agricultural commissioners (CACs) related to enforcement of pesticide regulations and related environmental laws and regulations locally.

As identified in 3 CCR Division 6, CDPR evaluates proposed pesticide products and registers those pesticides that it determines can be used safely. In addition, CDPR's oversight includes:

- licensing of pesticide professionals;
- site-specific permits required before restricted-use pesticides may be used in agriculture;
- strict rules to protect workers and consumers;
- mandatory reporting of pesticide use by agricultural and pest control businesses;
- environmental monitoring of water and air; and
- testing of fresh produce for pesticide residues.

The regulations require that employers of pesticide workers provide protective clothing, eyewear, gloves, respirators, and any other required protection, and also requires employers to ensure that protective wear is worn according to product labels during application. The regulations require that employers provide field workers with adequate training in pesticide application and safety; communicate pesticide-related hazards to field workers; ensure that emergency medical services are available to field workers; and ensure adherence to restricted-entry intervals between pesticide treatments (3 CCR Section 6764).

#### ***Safe Drinking Water and Toxic Enforcement Act (Proposition 65)***

The Safe Drinking Water and Toxic Enforcement Act, or Proposition 65, requires the Governor to maintain and publish a list of chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Once a chemical has been listed, businesses are responsible for providing a warning before knowingly or intentionally exposing their employees or the public to an amount of the chemical that poses a significant risk. The California Office of



Environmental Health Hazard Assessment (OEHHA) is the lead agency responsible for implementing Proposition 65, with input from CDPH and other agencies so that the best scientific information is used in listing chemicals. In its current state, the Proposition 65 list contains a wide variety of chemicals, including pesticides (OEHHA 2019).

### *California Occupational Safety and Health Administration Regulations*

The California Occupational Safety and Health Administration (Cal/OSHA) regulations contain requirements for agricultural operations related to pesticide application. The regulations require that a notice providing precautionary instructions be attached to all storage tanks larger than 100 gallons in capacity that are used for pesticides, and that controls be placed on the tanks to minimize exposure to employees from ruptured or breaking lines (8 CCR Section 3453). Machines, applicators, and other equipment used for pesticide application must be decontaminated before they are overhauled or placed in storage (8 CCR Section 3451).

The Cal/OSHA regulations also contain various provisions that require safe operation of equipment, safety instructions provided in a language that employees understand, and access to first aid.

### *Fire Prevention (California Government Code Sections 51175–51181)*

Sections 51175–51181 of the California Government Code outline the responsibilities of the California Department of Forestry and Fire Protection (CAL FIRE) and local agencies with respect to fire prevention. CAL FIRE is legally responsible for providing fire protection on all State Responsibility Area (SRA) lands. SRA lands do not include lands within city boundaries or under federal ownership.

### *CAL FIRE Defensible Space Requirements*

California law requires that homeowners in SRAs maintain defensible space<sup>1</sup> around their buildings to 100 feet. This requirement is designed to halt the progress of an approaching wildfire, as well as to keep firefighters safe while defending the structure (CAL FIRE 2019). The law also requires that new homes be constructed with fire-resistant materials, such as fire-resistant roofing, enclosed eaves, and dual-paned windows.

### *California Leafy Greens Products Handling Marketing Agreement*

The California Leafy Greens Products Handling Marketing Agreement (LGMA) was established in 2007 following a large-scale outbreak of *E. coli* (LGMA 2019). The goal of the LGMA is to assure that leafy greens are safe for the public, and is a set of food safety practices that are implemented on leafy greens farms throughout the state. LGMA members are companies that ship and sell California-grown lettuce, spinach, and other leafy greens products (LGMA 2019). LGMA's food safety practices/guidelines are referred to as "Metrics," which are updated periodically to align with new science or regulations. Most recently, the Metrics were updated

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<sup>1</sup> Defensible space is generally defined as the natural and landscaped area around a structure that has been maintained and designed to reduce fire danger, such as through fire-resistant plant selection and pruning.

to fully align with FDA's Produce Safety Rule (see discussion under "Federal Laws, Policies, and Regulations" above).

LGMA Metrics relate to such topics as agricultural water use, soil amendments, harvest equipment and field personnel, animal hazards, adjacent land uses, and transportation. Metrics pertaining to prevention of contamination by animals include evaluation and monitoring of animal activity in and proximate to leafy greens fields, and, if necessary, implementation of corrective actions and measures to reduce animals' access to produce areas. Specifically, the LGMA Metrics state the following with respect to fecal material or animal intrusion evidence observed during pre-harvest or harvest inspections:

#### Fecal Material

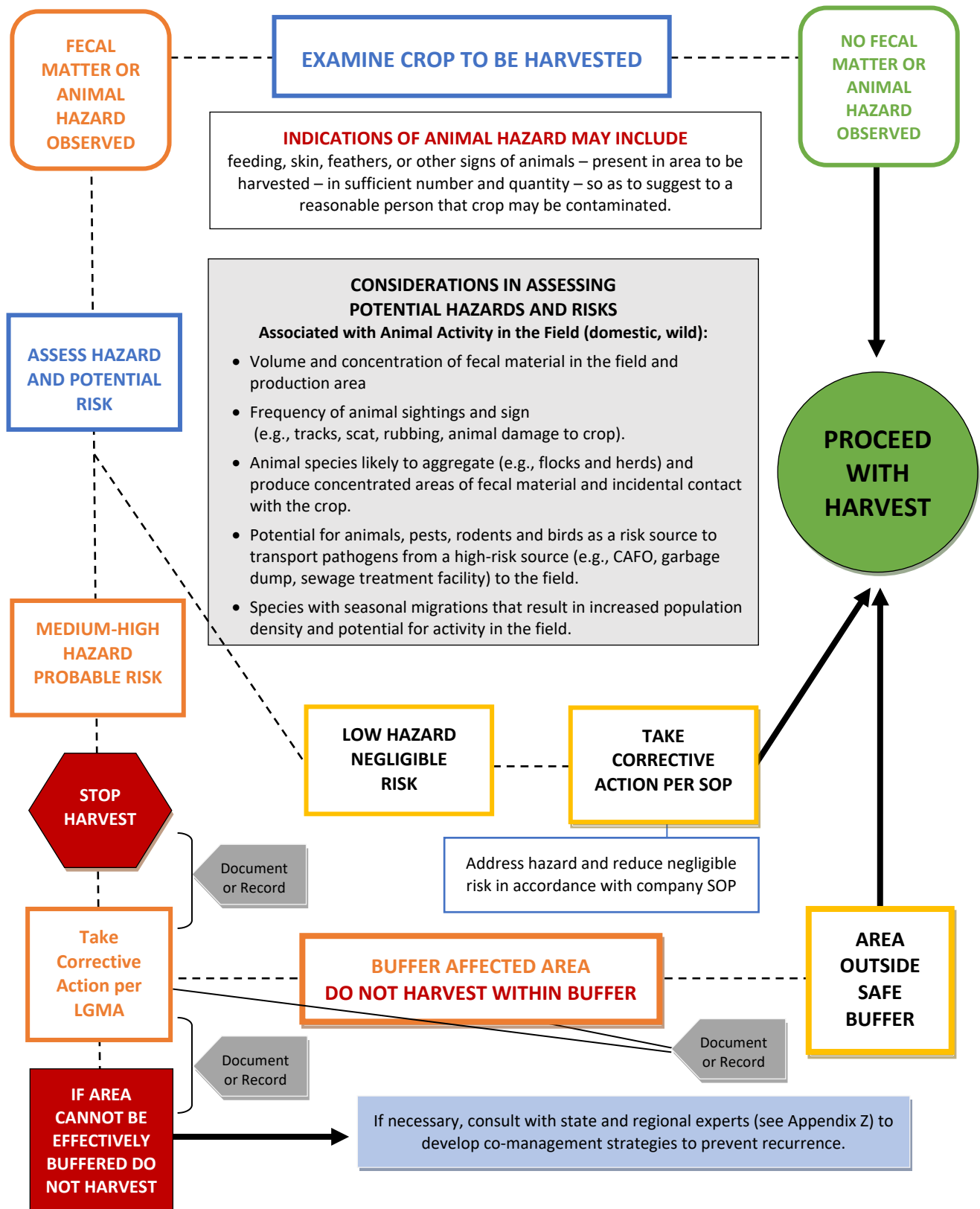
- Do not harvest any produce that has come into direct contact with fecal material.
- If evidence of fecal material is found, conduct a food safety assessment using qualified personnel. Do not harvest any crop found within a minimum 5-foot radius buffer distance from the spot of the contamination unless remedial action can be found that adequately control the risk. The food safety professional can increase this buffer distance if deemed appropriate.

#### Intrusion

- If evidence of animal intrusion is found in a production field, conduct a visual food safety assessment to determine whether the intrusion is a probable (medium/high hazard) or negligible (low hazard) risk. Low hazard (negligible risk) can be corrected by following a company SOP (standard operating procedure). Medium to high hazard (probable risk) intrusion should include a three-foot buffer radius around a do-not-harvest area where the impacted crop has been isolated.

The decision tree for pre-harvest and harvest assessments with respect to potential fecal material contamination or animal intrusion risk is provided in **Figure 3.8-1**.

The Metrics note that fencing, vegetation removal, and destruction of habitat may result in adverse impacts to the environment and recommend that producers check local, state, and federal laws and regulations protecting riparian habitat, restricting removal of vegetation or habitat, etc. (LGMA 2018). Although the LGMA Metrics do not include specific recommended buffer distances between leafy green crops and riparian habitat or vegetation, the Metrics recommend as best practice to locate production blocks such as to minimize potential access by animals. For example, the Metrics suggest considering the proximity to water (i.e., riparian areas), animal harborage, open range lands, non-contiguous blocks, urban centers, etc. (LGMA 2018).



Source: LGMA 2018

**Figure 3.8-1.**  
Leafy Greens Marketing Agreement Decision Tree

### ***Local Laws, Regulations, Plans, and Policies***

#### ***Pesticide Regulatory Program—County Agricultural Commissioners***

Although CDPR is responsible for managing California's statewide pesticide regulatory program, the local enforcement of pesticide use regulations is delegated to CACs. With oversight by CDPR, CACs plan and develop county programs and regulate pesticide use to ensure that applicators comply with label directions and pesticide laws and regulations (CDPR 2017). CACs oversee pesticide use reporting, promote best management practices, and monitor field applications, and they may assist in cleanup of accidental pesticide spills.

CACs inspect operations and records of growers, pest control dealers, agricultural pest control advisers (PCAs), farm labor contractors, and government agencies for compliance with worker protection standards and other pesticide safety requirements. CACs, assisted by CDPR, investigate incidents in which pesticides harm agricultural workers, people nearby, and the environment, including environmental damage (such as fish or wildlife kills) and water quality pollution. When an enforcement action is needed, CACs have the option to revoke or suspend the right of a company to do business in their county or to issue civil or criminal penalties (CDPR 2017).

#### ***Unified Program—Certified Unified Program Agencies***

The Unified Program consolidates and coordinates several regulatory programs in California related to hazardous wastes and materials (California Environmental Protection Agency [Cal/EPA] 2012). Codified in 27 CCR Division 1 and Chapter 6.11 of the California Health and Safety Code, the Unified Program consolidates the following programs: Hazardous Materials Business Plans, California Accidental Release Program, Underground Storage Tank, Aboveground Petroleum Storage Act, Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting), and California Uniform Fire Code Hazardous Materials Management Plans.

The Unified Program also transfers responsibility for implementation of these hazardous waste and materials regulatory programs to local agencies, such as cities and counties (Cal/EPA 2012). After local agencies are certified by Cal/EPA as Certified Unified Program Agencies (CUPAs), they must establish a program that consolidates, coordinates, and makes consistent the administrative requirements, permits, inspection activities, enforcement activities, and hazardous waste and hazardous materials fees associated with programs under the Unified Program. With oversight from Cal/EPA, CUPAs conduct inspections for all program activities according to the standards contained in the relevant statute or regulation (Cal/EPA 2012).

#### ***Local Jurisdiction General Plans***

Numerous local jurisdictions are located within the central coast region. Most, if not all, of these jurisdictions have adopted general plans, which typically include a Safety Element including goals and policies for minimizing potential exposure to hazardous materials. Volume 2, Appendix B lists general plan goals and policies related to hazardous materials and hazards for counties in the central coast region.

### 3.8.3 Environmental Setting

#### ***Proximity to Schools***

Schools are distributed throughout the central coast region, generally in relation to population. Urbanized areas tend to have a large number of schools commensurate with the denser populations, whereas rural/agricultural areas typically have fewer school facilities spaced farther apart. **Figure 3.8-2** shows schools within 0.25-mile of irrigated agriculture in the central coast region.

#### ***Hazardous Waste Sites and Clean-up Sites***

Hazardous waste cleanup sites are located throughout the state and the central coast region. The SWRCB's GeoTracker site identifies thousands of such sites, including leaking underground storage tank sites, military cleanup sites, and other types of hazardous waste contamination sites. These sites are commonly associated with certain types of historical land uses, such as gas stations, dry cleaning facilities, and military bases, that frequently use or store hazardous materials. Figure 3.8-2 shows hazardous materials cleanup sites within 0.25-mile of irrigated agriculture in the central coast region.

#### ***Airports***

Airports are located throughout the central coast region. Local jurisdictions typically site airport uses in accordance with zoning and general plan land use designations, and regulate land uses that are permitted in close proximity to airports. The following airports are located within 2 miles of irrigated agricultural farmland:

- Salinas Municipal Airport
- Mesa Del Rey Airport
- Paso Robles Municipal Airport
- San Luis Obispo County Regional Airport
- Oceano County Airport
- Santa Maria Airport
- Santa Ynez Airport
- Watsonville Municipal Airport
- Hollister Airport
- Christensen Ranch Airport

### ***Fire Hazard***

Wildland fire hazard varies in accordance with vegetation, climatic patterns, development, and other factors. **Figure 3.8-3** shows fire hazard in the central coast region, as mapped by CAL FIRE. In general, irrigated agricultural areas are not particularly susceptible to wildland fire hazard, largely because these areas are irrigated more or less continuously and vegetation is not allowed to become dry and combustible.

### ***Pesticide Usage and Exposure***

Pesticides are commonly used in commercial agriculture in the central coast region and throughout California. The types of pesticides used in California include a wide variety of chemicals of varying levels of toxicity, persistence, fate and transport properties, and other characteristics. While pesticides are supposed to be applied in accordance with label requirements, this does not always occur. Refer to Section 3.9, *Hydrology and Water Quality*, for a detailed discussion of pesticide pollution of water quality. **Table 3.8-1** shows a summary of reported cases of illness from pesticide exposure in the central coast region from 2013 to 2015.

**Table 3.8-1.** Reported Cases of Pesticide Exposure within the Central Coast Region

County	Reported Cases of Pesticide Exposure (2013-2015)
Monterey	206
San Benito	14
San Luis Obispo	28
Santa Barbara	66
Santa Clara	2
Santa Cruz	56
Total	372

Source: CDPR 2018

### ***Food Safety***

A number of food-borne disease outbreaks in the past several decades have been traced back to fresh produce in the central coast region. Between 1995 and 2006, there were 20 outbreaks of food-borne illness from *E. coli* 0157:H7 on lettuce or leafy greens, and of these outbreaks nine were linked to produce from the central coast region (Stuart 2006).

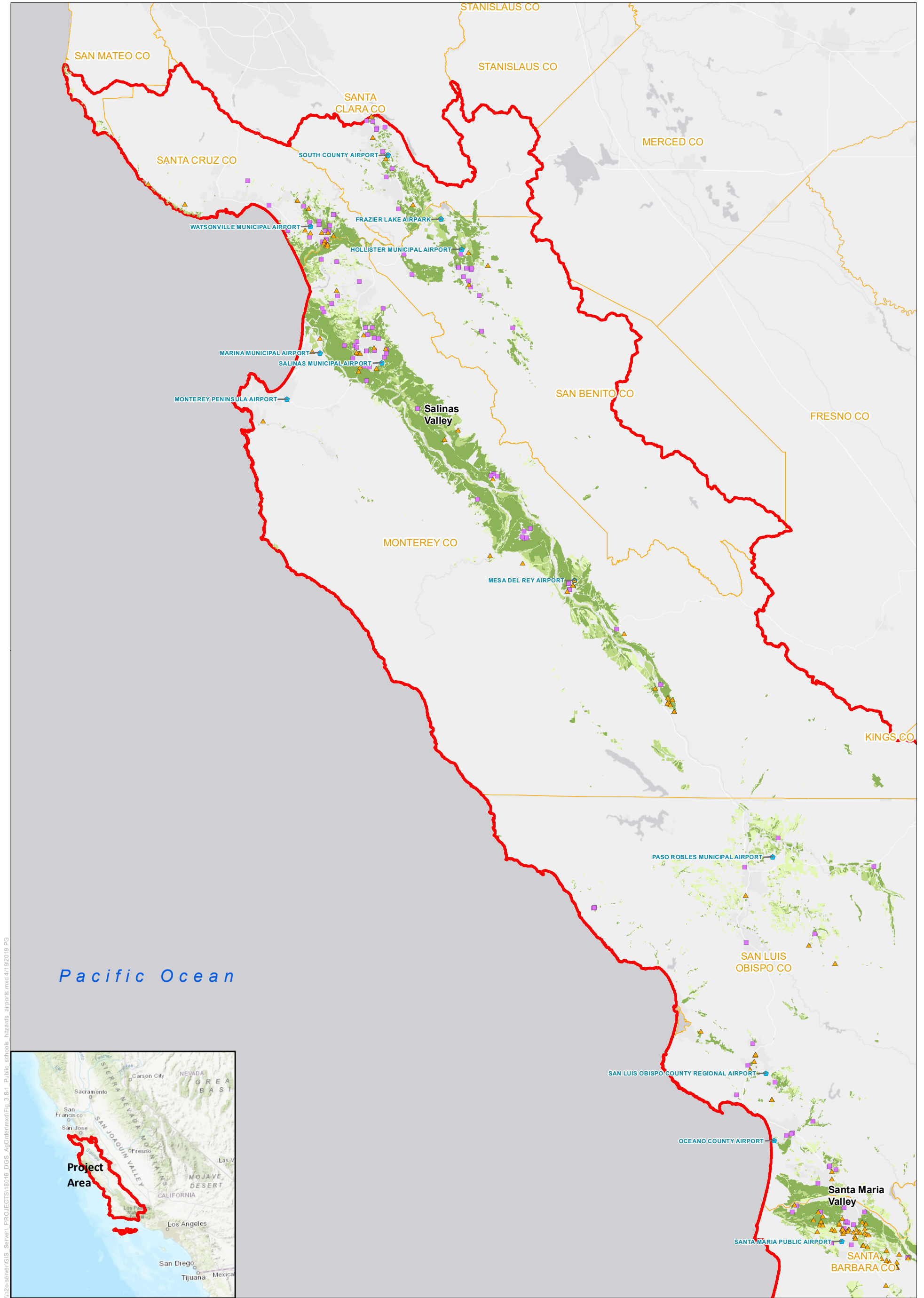
The most high-profile of these outbreaks occurred in fall 2006 when an outbreak of *E. coli* 0157:H7 sickened over 200 people (causing three deaths) in 26 states. The cause of the outbreak was ultimately traced back to several spinach fields on a farm in San Benito County (Stuart 2006; Center for Infectious Disease Research and Policy [CIDRAP] 2007). Although FDA did not determine precisely how the *E. coli* 0157:H7 bacteria got onto the spinach, officials found the outbreak strain in river water, cattle feces, and wild pig feces at the farm. A grass-fed

cattle operation was located on the ranch, less than a mile from the spinach field, and investigators found evidence of wild pigs in and around the cattle, growing, and irrigation well areas (CIDRAP 2007). As noted in Section 3.8.2, this outbreak spurred the launch of the LGMA and led to more stringent food safety requirements among producers in the region.

More recently, an outbreak of *E. coli* 0157:H7 was declared over the United States by the Centers for Disease Control and Prevention (CDC) in late 2018. In total, there were 62 reported illnesses in 16 states and the District of Columbia, resulting in 25 hospitalizations (no deaths) (FDA 2019). The cause of the outbreak was determined to be contaminated romaine lettuce, which was ultimately traced back to at least one farm in Santa Maria in Santa Barbara County, where a sediment sample taken from an on-farm water reservoir tested positive for the outbreak strain (FDA 2019). The investigation team did not identify any obvious route for contamination of the on-farm reservoir; however, the team found evidence of extensive wild animal activity, including waterfowl, rodents, coyotes, etc., which the team said likely warrants consideration as a possible source(s) of the contamination (FDA 2019). Other potential sources of contamination cited in the FDA report include the use of soil amendments and animal grazing on nearby land by cattle and horses (FDA 2019).

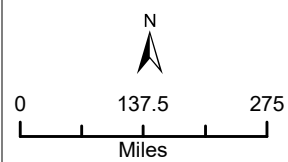
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\\12c-srver\GIS-Server\PROJECTS\18016-DGS-AgOrder\mxd\Fig 3.8-1 Public schools hazards airports.mxd 4/19/2019 PG

Basemap Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

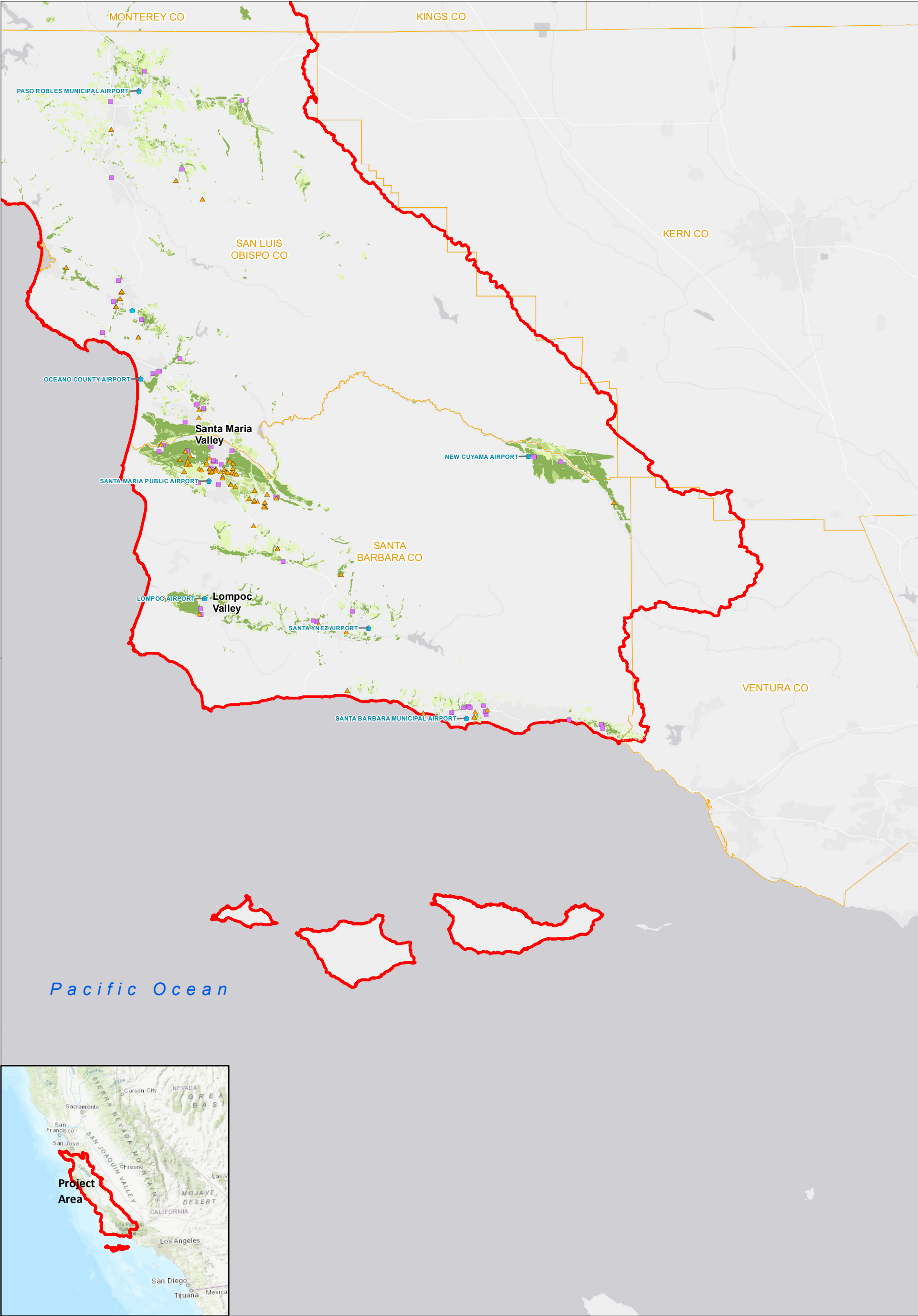


Source: CDOC 2014; CDOC 2016; SWRCB 2019; CDE 2017; DTSC 2019; and CALTRANS 2016

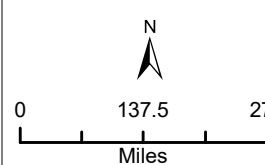
- | Irrigated Farmland FMMP Categories |                                  |   |  |
|------------------------------------|----------------------------------|---|--|
| Hazardous Materials Clean-up Site* | Prime Farmland                   | Central Coast Water Board Jurisdictional Boundary |  |
| Airport                            | Farmland of Statewide Importance | Counties  |  |
| Public School*                     | Unique Farmland                  |   |  |
- \*within 0.25 miles of mapped farmland

**Figure 3.8-2.**  
Schools, Airports, and Hazardous  
Materials Clean-up Sites

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Baseemap Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,



Source: CDOC 2014; CDOC 2016; SWRCB 2019; CDE 2017; DTSC 2019; and CALTRANS 2016

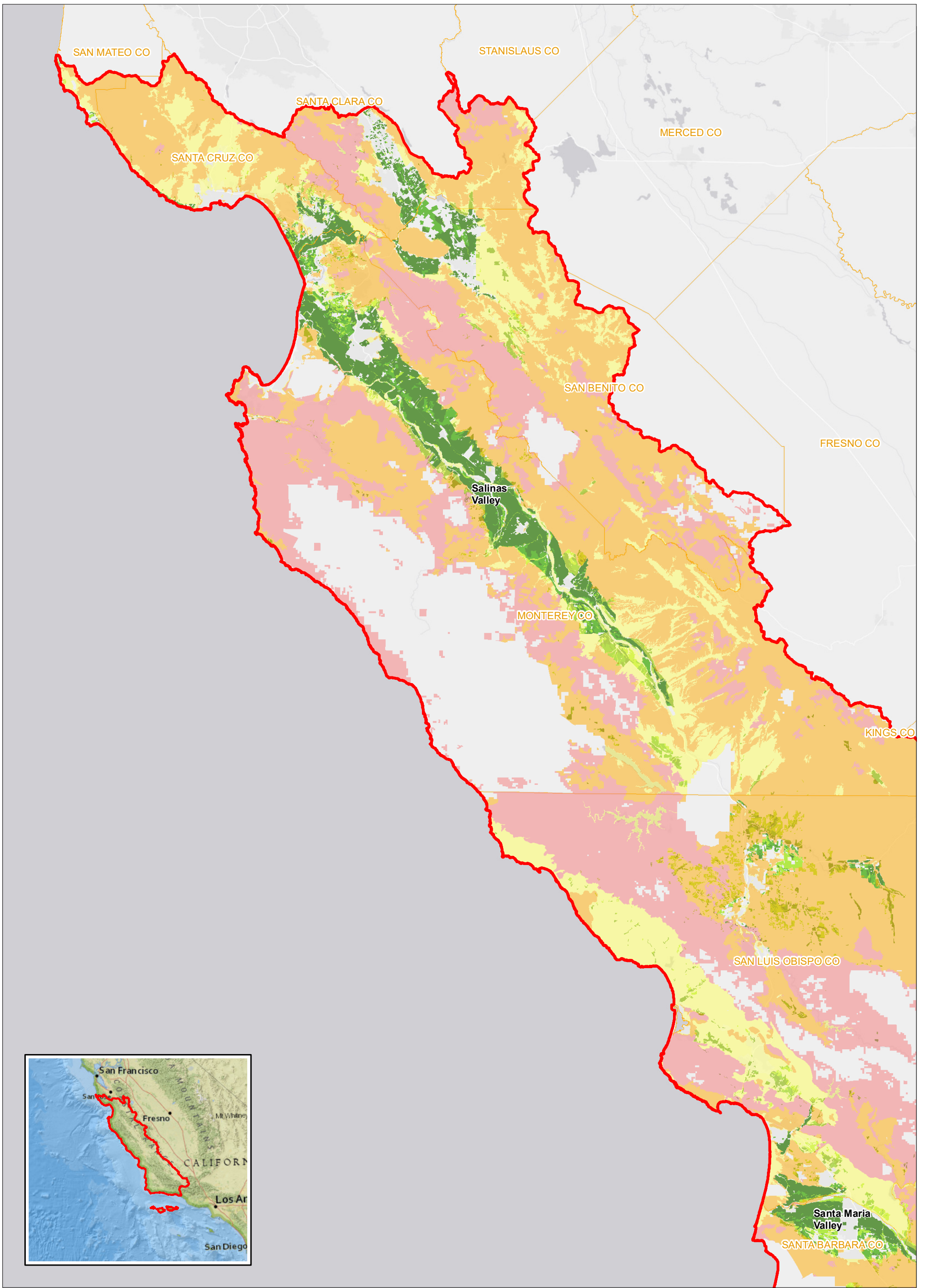
- |                                    |                                  |   |          |
|------------------------------------|----------------------------------|---|----------|
| Hazardous Materials Clean-up Site* | Prime Farmland                   | Central Coast Water Board Jurisdictional Boundary |          |
| Airport                            | Farmland of Statewide Importance |   | Counties |
| Public School*                     | Unique Farmland                  |   |          |
- \*within 0.25 miles of mapped farmland

**Figure 3.8-2.**  
Schools, Airports, and Hazardous  
Materials Clean-up Sites

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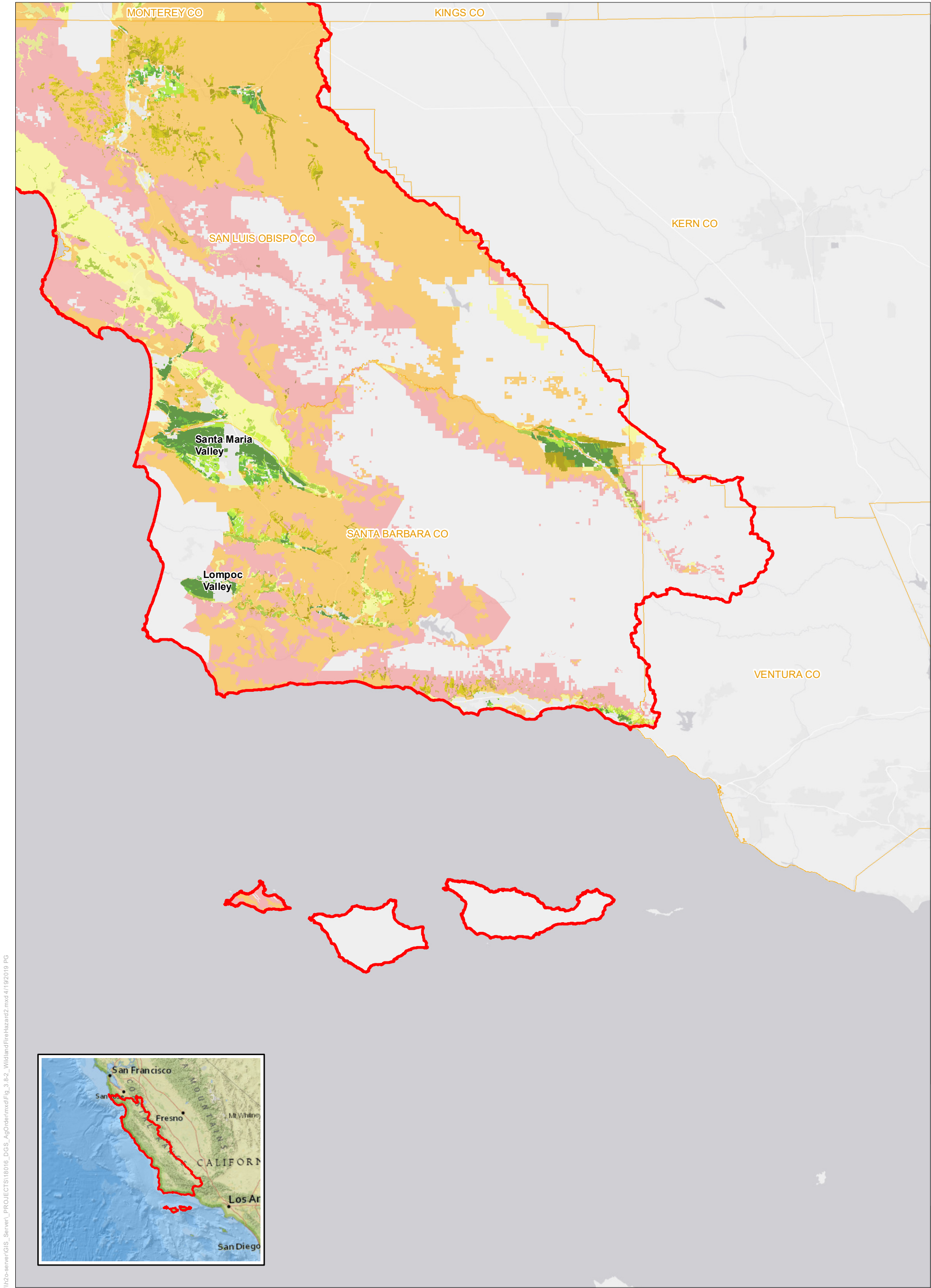


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**Figure 3.8-3.**  
Wildland Fire Hazard

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**Figure 3.8-3.**  
Wildland Fire Hazard

**Fire Hazard Severity Zones**  
State and Local  
Responsibility Areas

- Moderate
- High
- Very High

**Irrigated Farmland  
FMMP Categories**

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland

- Central Coast Water Board  
Jurisdictional Boundary
- Counties



0 25  
Miles

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### 3.8.4 Impact Analysis

This section describes the methodology and significance criteria that were used to analyze impacts of the Proposed Project related to hazards and hazardous materials. It also presents the analysis of the potential environmental impacts of the Proposed Project.

#### ***Methodology***

Impacts related to hazards and hazardous materials were analyzed qualitatively based on a review of the management practices and associated equipment and materials that may occur under Agricultural Order 4.0. The analysis focused on the Proposed Project's potential to create hazards to humans through the transport, use, exposure, or accidental release of hazardous materials and exposure to other hazards such as fires, as well as potential food safety impacts. These were analyzed in the context of applicable existing laws and regulations.

#### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact related to hazards and hazardous materials if it would:

- A. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- B. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- C. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- D. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Section 65962.5 of the Government Code and, as a result, create a significant hazard to the public or the environment;
- E. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area;
- F. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- G. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Additionally, the following project-specific significance criterion was used for evaluation of potential impacts related to food safety that may be caused by the Proposed Project:

- H. Increase potential for contamination of agricultural produce or crops, such as to expose people to a significant food safety hazard.

### ***Environmental Impacts of the Proposed Project***

#### **Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (*Less than Significant*)**

Construction/installation of certain management practices may involve transport, use, and disposal of hazardous materials (e.g., fuel, oil, lubricants, etc.). Many pieces of construction equipment use hazardous materials in their operation and these hazardous materials may be stored on site during construction activities. During the construction period, these hazardous materials also may need to be replenished or disposed of, and transported to the site or an appropriate disposal facility. Without adequate precautions, such routine transport, use, and disposal of hazardous materials could expose construction/agricultural workers, the public, or the environment to hazards.

Under existing federal and state law (see discussion of OSHA and Cal/OSHA regulations under Section 3.8.2 above), Agricultural Order 4.0 enrollees (or contractors conducting management practice installation/construction activities) would be required to ensure that construction workers are not exposed to hazardous materials in excess of established limits. Where appropriate, enrollees or their contractors would need to provide workers with PPE to prevent potential exposure to hazards associated with any routine transport, use, or disposal of hazardous materials. Additionally, some construction activities (e.g., installation of management practices) under Agricultural Order 4.0 that disturb greater than 1 acre of land and that are not solely for agricultural purposes, would require enrollment in the Construction General Permit (see discussion in Section 3.9, *Hydrology and Water Quality*). This permit would require preparation and implementation of a SWPPP, including BMPs for proper storage and handling of hazardous materials, which would serve to minimize potential risks to workers, the public, and the environment from routine activities.

Over the long-term, Agricultural Order 4.0 would not create any new land uses that would involve substantial routine transport, use, and disposal of hazardous materials. If anything, hazardous materials use under Agricultural Order 4.0 may decrease, as some reasonably foreseeable management practices include reducing pesticide applications, such as through an integrated pest management (IPM) strategy, using beneficial insects in lieu of chemical pesticides, spot-treating infestations, etc. As shown in Table 3.8-1, pesticide exposure cases have routinely occurred in the central coast region, many of which are associated with irrigated agriculture. Compliance with Agricultural Order 4.0, which would serve to minimize discharges of pesticides to surface waters and groundwater, may also have the beneficial effect of reducing excessive pesticide use overall and thereby reducing pesticide exposure to agricultural workers.

Overall, routine transport, use, and disposal of hazardous materials under the Proposed Project would be relatively minor and would be primarily related to common materials (e.g., fuel, oil, lubricant, etc.) used in construction/installation of certain management practices. Pesticide use in irrigated agriculture occurs under existing conditions, and, if anything, would be conducted more safely under Agricultural Order 4.0. Therefore, this impact would be **less than significant**.

**Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (*Less than Significant with Mitigation*)**

As described in Impact HAZ-1, construction/installation of certain reasonably foreseeable management practices under Agricultural Order 4.0 would likely use hazardous materials, such as fuel, oil, lubricant, and other materials commonly used in construction equipment. These materials could be stored on site for the duration of construction activities and may need to be transported to an appropriate disposal facility at the end of, or during, construction. It is possible that these hazardous materials could leak from construction equipment or spill from storage containers, which, in the absence of appropriate countermeasures, could create a significant hazard to the public or the environment.

For some management practices that would disturb greater than 1 acre of land and not otherwise exempt, these growers would be subject to the Construction General Permit. This permit would require preparation and implementation of a SWPPP, which would include hazardous materials spill prevention measures and countermeasures in the event that a spill occurs. Likely, this would include keeping spill cleanup materials on site and protocols for notifying the proper authorities in the event of a hazardous materials spill. The SWPPP would also include BMPs for hazardous materials storage and good site housekeeping measures, which may reduce the likelihood of a spill occurring. Compliance with the Construction General Permit and implementation of a SWPPP would prevent significant impacts associated with accidental release of hazardous materials during construction of management practices that are not solely for agricultural purposes and that disturb greater than 1 acre of land under Agricultural Order 4.0.

For management practices that disturb less than 1 acre of land or that are solely for agricultural purposes, these activities may not be subject to the Construction General Permit and thus Agricultural Order 4.0 enrollees implementing these practices would not be required to implement a SWPPP. Although these activities would be smaller, they may still require hazardous materials use and storage, which could leak or spill and thereby expose the public or the environment to hazards. **Mitigation Measure HAZ-1** describes measures that growers or their contractors could implement so as to minimize potential for hazards due to accidental releases of hazardous materials. Implementation of this mitigation measure would minimize potential impacts to a less-than-significant level.

Over the long term, Agricultural Order 4.0 would not introduce any new land uses or practices involving storage of substantial quantities of hazardous materials. Once installed, management practices such as sediment basins, vegetated filter strips, bioreactors, riparian buffer areas, etc. would not require or use hazardous materials in their operation, other than potentially applying herbicides for vegetation management. Herbicide and pesticide use occur on most farms within the central coast region under existing conditions, and nothing within Agricultural Order 4.0 would substantially increase existing herbicide/pesticide use or make accidental releases of such materials more likely. If anything, chemical use on farms/ranches in the central coast region could decrease as a result of Agricultural Order 4.0 due to implementation of reasonably foreseeable management practices designed to minimize pesticide applications and compliance with the pesticide discharge limits in Agricultural Order 4.0.

This impact would be **less than significant with mitigation**.

**Mitigation Measure HAZ-1: Hazardous Materials Spill Prevention, Control, and Counter-Measures for Land Disturbance Activities**

For Agricultural Order 4.0 land disturbance activities that are not subject to the Construction General Permit, Agricultural Order 4.0 enrollees or their contractors must maintain/implement the following:

- A list of hazardous materials present on site during construction, to be updated as needed along with product safety data sheets and other information regarding storage, application, transportation, and disposal requirements;
- A hazardous materials communication plan, which lists contacts for emergency services, hazardous materials spill response agencies, and wildlife agencies, as well as protocols for communication in the event of a spill;
- Standards for secondary containment of hazardous materials stored on site;
- Spill response procedures based on product and quantity. The procedures must include spill response/clean-up materials to be used, location of such materials within the construction site, and disposal protocols.

**Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. (*Less than Significant*)**

As described in Section 3.8.3 and shown in Figure 3.8-2, numerous schools are within 0.25-mile of existing irrigated agricultural land. Because management practices could reasonably be implemented on any portion of an individual ranch's acreage, activities under Agricultural Order 4.0 could occur within 0.25-mile of a school. As discussed under Impact HAZ-1 and -2, construction/installation of certain management practices under Agricultural Order 4.0 would involve use, storage, transport, and disposal of hazardous materials (e.g., fuel, oil, lubricant, etc.) that are commonly used in construction. Operation of construction equipment also would likely emit diesel particulates and other potentially hazardous emissions.

Due to the nature of the Proposed Project, it is impossible to determine which management practices may be implemented in which locations within the central coast region. Therefore, it is not possible to evaluate impacts on specific schools or model emissions from specific Proposed Project activities. In general, however, the hazardous materials that would be used during management practice installation/construction would not be considered acutely hazardous and, even if they were to spill or be accidentally released, would not be expected to pose a substantial hazard to anyone outside of the immediate construction area. The construction activities/hazardous materials use under Agricultural Order 4.0 that may occur in proximity to schools also would not be substantially dissimilar from ongoing, existing activities that would typically occur on irrigated agricultural lands, such as use of diesel equipment for tilling, harvesting, etc.

Over the long term, the Proposed Project would not introduce any new land uses or practices that would involve substantial hazardous materials use or storage, and which could be located within 0.25-mile of a school. Pesticide use on irrigated agricultural lands occurs under existing conditions and may occur within 0.25-mile of a school. Nothing in Agricultural Order 4.0 would serve to substantially increase pesticide/herbicide use, or increase the potential for accidental releases of hazardous chemicals from containment vessels on existing farms, which could impact a school. On the contrary, as discussed under Impacts HAZ-1 and HAZ-2, pesticide use may ultimately decrease on farms in the central coast region as a result of Agricultural Order 4.0 due to reasonably foreseeable management practices designed to reduce pesticide applications and/or compliance with the pesticide discharge limits in the Order.

This impact would be **less than significant**.

**Impact HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Section 65962.5 of the Government Code and, as a result, create a significant hazard to the public or the environment. (*Less than Significant with Mitigation*)**

Numerous hazardous materials contamination/cleanup sites exist in the central coast region in proximity to irrigated agricultural land (see Figure 3.8-2). In general, such sites would not be expected to occur on irrigated agricultural lands; however, it is possible that hazardous materials contamination could be located on irrigated lands or in areas where management practices could be implemented (e.g., adjacent to existing fields) under the Proposed Project. In such situations, Proposed Project activities (e.g., construction/installation of management practices involving excavation) could potentially encounter contaminated soils or materials, which could expose construction workers, the public, or the environment to significant hazards.

Implementation of **Mitigation Measure HAZ-2** would minimize potential for adverse impacts from siting of management practices on existing hazardous materials sites. Given implementation of this mitigation measure, this impact would be **less than significant with mitigation**.

**Mitigation Measure HAZ-2: Review Proximity to Existing Known Hazardous Materials Cleanup Sites and Conduct an Environmental Site Assessment if Proposed Activity is Located on or in Close Proximity to an Area of Hazardous Materials Contamination.**

Agricultural Order 4.0 enrollees proposing construction/installation of management practices involving excavation or ground disturbance must evaluate the proximity of proposed management practices to existing known hazardous material cleanup sites. Prior to final design, Agricultural Order 4.0 enrollees, or their contractors, must review the planned management practice facility footprint in relation to records of hazardous materials sites in the SWRCB's GeoTracker database and the California Department of Toxic Substances Control's EnviroStor database.

If the proposed management practice is located on or within 100 feet of a documented hazardous material contamination site, for which cleanup activities have not been completed or been successful, the enrollee or its contractor must commission a Phase I environmental site assessment (ESA) to more fully characterize the past land uses and

potential for soil and/or groundwater contamination to occur at or in close proximity to the site.

If the Phase I ESA demonstrates a reasonable likelihood that contamination remains within the management practice's area of disturbance, the enrollee or its contractor must commission a Phase II ESA, including soils testing, to characterize the extent of the contamination and develop ways to avoid the contaminated areas during management practice facility design and construction. The enrollee and/or its contractor must follow all recommendations of the Phase II ESA and, to the extent feasible, design the management practice to avoid areas of contamination. In the event that it is not feasible to avoid all areas of contamination, the enrollee and/or its contractor must follow all applicable laws regarding management of hazardous materials and wastes. This includes proper disposal of any contaminated soil in a hazardous waste landfill and ensuring that workers are provided with adequate personal protective equipment to prevent unsafe exposure.

**Impact HAZ-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area. (No Impact)**

A number of public airports are located in the central coast region, many of which are located in relatively close proximity to areas under irrigated agricultural production. The Proposed Project would not include any new housing or occupied structures that could be subjected to a safety hazard or excessive noise due to being located near an airport. As described in Chapter 2, *Project Description*, the Proposed Project would be limited to WDRs for irrigated agriculture. A number of reasonably foreseeable management practices may be implemented by growers on existing irrigated agricultural acreage in order to comply with the Agricultural Order 4.0 requirements, but none of these management practices would place people within an airport land use plan area or within 2 miles of a public airport. Likewise, none of the reasonably foreseeable management practices would include tall structures or land use changes (e.g., land uses that could generate significant dust or smoke) which could interfere with aircraft, and thereby increase the risk to people living near the airport. As such, **no impact** would occur.

**Impact HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)**

Management practices implemented under the Proposed Project would occur within existing irrigated agricultural lands and would not involve activities that would disturb an existing roadway or require closure of any roads. Usually, irrigated lands are in rural areas where traffic congestion (such as to potentially inhibit timely evacuation) is not a significant issue. Therefore, construction/installation of management practices, even if it were to temporarily impact a roadway (e.g., from delivery of materials or operation of construction equipment on a public roadway), would not be anticipated to result in substantial congestion such as to significantly affect emergency response or evacuation. Agricultural Order 4.0 would not include any new housing or structures, land use changes, or other components that could potentially affect emergency response or emergency evacuation. Therefore, this impact would be **less than significant**.

**Impact HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. (*Less than Significant*)**

The Proposed Project would not include any new housing or structures and would be limited to WDRs for irrigated agriculture, which could result in a number of reasonably foreseeable management practices being implemented by growers in order to comply with the discharge requirements (see Chapter 2, *Project Description*). As such, the Proposed Project would not place any new people or structures in locations where they could be exposed to loss, injury, or death involving wildland fires. As shown in Figure 3.8-3, there are many areas within the central coast region designated as High or Very High Fire Hazard Severity Zones by CAL FIRE; in some cases, these areas are in close proximity to, or overlap with, areas of irrigated agriculture.

In general, irrigated lands are not typically considered susceptible to fire risk since these lands are often more or less continuously irrigated and dry brush (i.e., fuel) is not usually allowed to accumulate. While the risk cannot totally be discounted, Agricultural Order 4.0 would not include, or indirectly result in, new people or structures being located in fire hazard areas. Therefore, this impact would be **less than significant**.

**Impact HAZ-8: Increase potential for contamination of agricultural produce or crops, such as to expose people to a significant food safety hazard. (*Less than Significant*)**

As described in Section 3.8.3 above, produce grown in the central coast region has been identified as the cause of a number of food-borne disease outbreaks in recent years. (Note: meat, poultry, cheese, and milk are also frequent culprits of food-borne illness, but these commodities are not directly related to irrigated agriculture). These outbreaks have caused substantial harm, not only in terms of the suffering of those afflicted, but also in terms of economic impacts and lost production for growers.

While such disease outbreaks have led to more stringent food safety requirements (voluntary and non-voluntary) (see discussion of FSMA and LGMA in Section 3.8.2), they have also had the unintended consequence of the widespread removal of riparian vegetation/habitat near farms. Although the Produce Safety Rule and LGMA Metrics do not specifically require or encourage clearing of vegetation near crops, they have largely been read as such by producers. Research by Dr. Karp of U.C. Davis (Karp 2019) has found that vegetation removal has occurred widely in California and central coast farms since 2005. A survey of 588 California produce growers found that 40 percent reported clearing vegetation for bare ground buffers (Karp 2019). Likewise, an analysis of land use changes showed a substantial increase (roughly 30 percent) in bare ground cover at the expense of other natural ground covers in the area of production agricultural fields (Karp 2019).

CCWB has long been concerned about the effects of this increasing removal of riparian vegetation and on-farm vegetation on water quality (CCWB 2006). It is widely accepted that such riparian buffers and vegetation are beneficial for water quality (North Carolina State University Extension 2019; Virginia Tech Cooperative Extension 2019; U.S. Forest Service 1997); conversely, evidence has not been presented that removal of vegetation is beneficial for food safety. On the contrary, Karp actually found an association between habitat removal and increases in Enterohemorrhagic *E. coli* (EHEC) (Karp 2019). Karp's research found that while EHEC increases near grazeable land, it does not increase near non-grazed natural habitat (Karp 2019). At the same time, *Salmonella* is not affected by surrounding land use. Other studies have

found cattle and other domesticated animals to be much greater sources of pathogens compared to wild animals; of the wild animals that do harbor harmful bacteria or diseases at higher rates, these animals tend to be dependent on human waste for food (Stuart 2006). Studies have also shown vegetated buffers, vegetated treatment systems, and constructed wetlands to be effective in reducing the presence of water-borne pathogens (Stuart 2006).

Nevertheless, the concern with respect to wild animals potentially contaminating produce in agricultural fields is logical. Even if wild animals may have less potential to carry harmful pathogens, fecal matter from wild animals could still increase risks to humans from food-borne illnesses. Two of the most serious outbreaks of *E. coli* 0157:H7 linked to central coast agriculture (2006 and 2018; see Section 3.8.2) implicated wild animal intrusion as at least a *possible* cause of the contamination. As such, the concerns of the agricultural community with regard to food safety and the proposed Agricultural Order 4.0 do not appear to be unreasonable.

~~As described in Chapter 2, *Project Description*, the Proposed Project would implement setback requirements following either an individual or cooperative approach that would be based on the class of the stream adjacent to a given ranch. Overall, it is estimated that the proposed setback requirements could result in a worst-case scenario conversion of up to 4,064 acres of agricultural land to riparian vegetation/setback (see Section 3.1, *Agriculture and Forestry Resources*). An additional amount of currently bare ground being maintained adjacent to agricultural fields may need to be planted with riparian or other vegetation due to the setback requirements. As such, due to the Proposed Project, there would be a substantial increase in the amount of riparian habitat/vegetation in the central coast region and adjacent to farms that have acreage near a waterbody.~~

~~Due to the nature of the Proposed Project, which would not mandate a manner of compliance, it is not practicable to determine specific impacts on specific ranches or farms. As noted above, not all ranches would be subject to the more robust riparian setback requirements and those that are would have the option of following one of four compliance approaches, including the Cooperative Approach (participation in a Cooperative Watershed Restoration Program plus a buffer of 1.5 times the width of the waterbody on each side), On-Farm Setback approach, (up to 310 foot buffer if adjacent to Class 6 stream and with 24 to 25 percent slopes), Rapid Assessment Method to determine functional setback width, or submission of an Alternative Proposal. Therefore, not all ranches would have additional riparian habitat areas near production fields as a result of the Proposed Project, while others would have some discretion as to how much riparian habitat/vegetation to install. Other ranches may be adjacent to streams or wetlands but already have an acceptable riparian setback and thus would not be affected by the new requirements. Implementation of riparian buffer areas as a method of compliance with Agricultural Order 4.0 could increase the amount of riparian vegetation in proximity to production fields.~~

The extent to which new or additional riparian vegetation could increase potential food safety risks due to increased wild animal activity would also depend on a number of site-specific factors. For example, proximity of new riparian areas to other larger tracts of habitat, water and food abundance at a given site, human activities in the area, presence of livestock, predator-prey relationships, soil characteristics and plant species assemblages, and other factors could all play a role in the actual types and abundance of wild animals that may inhabit riparian areas created by the Proposed Project. Additionally, a given ranch's existing animal intrusion



prevention techniques and infrastructure (apart from bare ground buffers) could determine whether wild animals in riparian ~~setback~~buffer areas are able to enter fields. Certain crop types also may be more susceptible than others to animal intrusion and/or contamination from fecal matter.

All of these factors suggest that determining potential increases in food safety risk at any given site due to the requirements in Agricultural Order 4.0 is speculative. At this time, CCWB has not been presented with sufficient evidence to conclude that ~~the any~~ additional riparian vegetation that ~~would~~ be established under the Proposed Project would result in food safety impacts. Numerous agencies (e.g., USDA, CDFA) continue to recommend and/or fund use of on-farm vegetation, riparian buffers, and other related conservation practices on farms to reduce water quality impacts. Additionally, there are many food safety audits that allow non-crop vegetation on a farm and even encourage habitat restoration, including the OnFarmFoodSafety.org self-audit and the USDA food safety audit.

As has been discussed, the FSMA Produce Safety Rule and LGMA Metrics are not explicitly in conflict with the presence of on-farm vegetation and riparian buffers. The FSMA Produce Safety Rule specifically states that “farms are not required to exclude animals from outdoor growing areas, destroy animal habitat, or clear borders around growing or drainage areas. Nothing in the rule should be interpreted as requiring or encouraging such actions (FDA 2018).” LGMA Metrics recommend as best practice to locate production blocks such as to minimize potential access by animals; however, they do not require or recommend removing riparian habitat or on-farm vegetation (LGMA 2018). Even with the possible implementation of the setback requirements~~requirements~~riparian buffer areas under Agricultural Order 4.0, the continued compliance of central coast growers with the FSMA and LGMA (if applicable) requirements will help to mitigate any potential effects related to food safety.

As part of the Agricultural Order 4.0 development process, CCWB convened a panel of diverse interests to share information on the topic at the September 2019 Board Meeting, which was a helpful first step in working towards resolution of the perceived conflict between food safety and vegetated ~~setback~~buffer areas. CCWB acknowledges that this is a difficult issue and that risk aversion by buyers of agricultural produce may cause them to not purchase crops if they are grown adjacent to a vegetated ~~areasetback~~areasetback. As indicated above, CCWB does not believe that this position is supported by scientific research and such action is not required by any regulatory mechanism imposed on commercial irrigated lands or the LGMA.

Overall, specific impacts with respect to potentially increased food safety risk as a result of Agricultural Order 4.0 are speculative. The available evidence suggests that wild animals that might live in riparian and on-farm vegetated areas are less likely to act as vectors of disease than other sources (e.g., livestock). ~~Additionally, the proposed setback requirements do not explicitly conflict with the FSMA Produce Safety Rule or LGMA Metrics.~~ Therefore, this impact would be **less than significant**.

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## 3.9 Hydrology and Water Quality

### 3.9.1 Introduction

This section presents the regulatory and environmental setting and potential impacts of the Proposed Project related to hydrology and water quality. Although the analysis focuses on the potential adverse effects of Proposed Project activities on hydrology and water quality, this section also describes the existing adverse impacts on hydrology and water quality being caused largely by irrigated agriculture, which are intended to be ameliorated through the Proposed Project.

### 3.9.2 Regulatory Setting

#### *Federal Laws, Regulations, and Standards*

##### *Clean Water Act and Associated Programs*

The Federal Water Pollution Control Act of 1972, also known as the Clean Water Act (CWA), is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." States, territories, and authorized Tribes establish water quality standards that describe the desired condition of a waterbody or the level of protection, which are then approved by the U.S. Environmental Protection Agency (USEPA); these standards form a legal basis for controlling pollution that enters the waters of the United States. Water quality standards consist of the designated beneficial uses of the waterbody, criteria to protect those designated uses, antidegradation requirements to protect existing uses and high-quality waters, and general policies regarding implementation.

USEPA is responsible for implementing the CWA, although some sections are implemented by other federal agencies under USEPA's oversight, such as Section 404 dealing with discharge of dredged and fill material into waters of the United States (which is implemented by the U.S. Army Corps of Engineers [USACE]). USEPA also has the option to delegate implementation of certain programs to a state agency. In California, the State Water Resources Control Board (SWRCB) and its nine regional water quality control boards (RWQCBs) administer various sections of the CWA.

The discussion below specifies provisions of the CWA that may relate to activities conducted under Agricultural Order 4.0. Of particular relevance are CWA Sections 401, 402, 404, and 303.

#### Section 401

CWA Section 401 requires an evaluation of water quality when a proposed activity requiring a federal license or permit could result in a discharge to waters of the United States. In California, USEPA has delegated the authority to issue water quality certifications to SWRCB and the RWQCBs. Each RWQCB is responsible for implementing Section 401 in compliance with the CWA and that region's water quality control plan (also known as a Basin Plan). Applicants seeking a federal license or permit to conduct activities that might result in a discharge to waters of the

United States must also obtain a Section 401 water quality certification to ensure that any such discharge would comply with the applicable provisions of the CWA.

#### Section 404

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States, which include all navigable waters, their tributaries, and some isolated waters, as well as some wetlands adjacent to the aforementioned waters (33 CFR Section 328.3). Areas typically not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial waterbodies such as swimming pools, and water-filled depressions (33 CFR Part 328). Areas meeting the regulatory definition of waters of the United States are subject to the jurisdiction of USACE under the provisions of CWA Section 404. Construction activities involving placement of fill into jurisdictional waters of the United States are regulated by USACE through permit requirements. No USACE permit is effective in the absence of state water quality certification pursuant to Section 401 of the CWA.

#### Section 402

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES). Under Section 402, a permit is required for point-source discharges of pollutants into navigable waters of the United States (other than dredge or fill material, which are addressed under Section 404). In California, the NPDES permit program is administered by the SWRCB and the RWQCBs. Permits contain specific water-quality-based limits and establish pollutant monitoring and reporting requirements. Discharge limits in NPDES permits may be based on water quality objectives designed to protect designated beneficial uses of surface waters, such as recreation or supporting aquatic life.

#### **General Permit for Construction Activities**

Most construction projects that disturb 1 acre or more of land are required to obtain coverage under the SWRCB's NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ – "Construction General Permit"). The Construction General Permit requires the applicant to file a notice of intent to discharge stormwater and prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must include a site map and a description of the proposed construction activities; demonstrate compliance with relevant local ordinances and regulations; and present a list of best management practices (BMPs) that will be implemented to prevent soil erosion and protect against discharge of sediment and other construction-related pollutants to surface waters.

Enrollees in the Construction General Permit are further required to conduct monitoring and reporting to ensure that BMPs are implemented correctly and are effective in controlling the discharge of construction-related pollutants. Additionally, if a project that receives coverage under the Construction General Permit is located in an area that is not subject to a municipal stormwater permit, the project must implement post-construction stormwater controls in accordance with permit Section XIII, Post-Construction Standards.

### **Municipal Stormwater Permitting Program**

The SWRCB and RWQCBs regulate stormwater discharges from municipal separate storm sewers (MS4s), in accordance with Section 402 of the CWA and federal MS4 permitting regulations. The MS4 permitting requirements were developed in two phases: Phase I and II. MS4 permits continue to be issued under Phase I or Phase II depending on the size of the MS4 seeking authorization. Phase I permits for medium and large MS4s (i.e., serving 100,000 people or more) are issued by the RWQCBs and require the discharger to develop and implement a storm water management plan/program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP), including identifying what BMPs will be used to address specific program areas. The SWRCB has adopted a general permit for Phase II MS4s that applies to small municipalities and other facilities (e.g., non-traditional MS4s, such as community service districts, military bases, state parks, water agencies, etc.). Among other requirements, the Phase II general permit requires implementation of construction site storm water runoff control measures.

Phase II enrollees within the central coast region include numerous cities and non-traditional MS4s, as well as Monterey County, San Luis Obispo County, Santa Barbara County, Santa Clara County, and Santa Cruz County. Generally, pollutants from nonpoint source agricultural activities are exempt from the NPDES storm water regulations.

### **Section 303**

Section 303 of the federal CWA (as well as the State-level Porter-Cologne Act, discussed further below) requires that states adopt water quality standards. In addition, under CWA Section 303(d), states are required to identify a list of “impaired waterbodies” (i.e., those not meeting established water quality standards), identify the pollutants causing the impairment, establish priority rankings for waters on the list, and develop a schedule for preparation of control plans to improve water quality. USEPA then approves or modifies the state’s recommended list of impaired waterbodies. States must update their Section 303(d) list every 2 years. Waterbodies on the list are defined to have no further assimilative capacity for the identified pollutant, and the Section 303(d) list identifies priorities for development of pollution control plans for each listed waterbody and pollutant.

The pollution control plans mandated by the CWA Section 303(d) list are called Total Maximum Daily Loads (TMDLs). The TMDL is a “pollution budget,” designed to restore the health of a polluted waterbody and provide protection for designated beneficial uses. The TMDL also contains the target reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed (i.e., point sources, nonpoint sources, and natural sources) (40 CFR Section 130.2). A TMDL is unique to a specific waterbody and its surrounding pollutant sources and is not applicable to other waterbodies.

The current effective USEPA-approved Section 303(d) list for waterbodies in California is the 2014/2016 list, which received final approval by USEPA on April 6, 2018 (USEPA 2018).

### *National Toxics Rule and California Toxics Rule*

USEPA issued the National Toxics Rule (NTR) in 1992. The goal of the NTR is to establish numeric criteria for specific priority toxic pollutants to ensure that all states comply with the requirements in CWA Section 303.

In 2000, USEPA promulgated the California Toxics Rule (CTR), which contains additional numeric water quality criteria for priority toxic pollutants for waters in the state. The CTR fills a gap in California water quality standards that was created in 1994 when a state court overturned the state's water quality control plans containing water quality criteria for priority toxic pollutants. These federal criteria are legally applicable in California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA.

### *Federal Antidegradation Policy*

The federal antidegradation policy includes minimum criteria to protect existing beneficial uses, ensure that the level of water quality is offset to maintain existing uses, and prevent degradation of water quality. This policy stipulates that states must adopt the following minimum provisions and allows states to adopt even more stringent rules (40 CFR Part 131):

- (1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
- (2) Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the state finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.
- (3) Where high quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Permits issued by the SWRCB and RWQCBs for waste discharges into navigable waters, including any permits for activities that may be conducted in accordance with Agricultural Order 4.0, must incorporate provisions to ensure this policy is met. The state antidegradation policy described below complies with this requirement and incorporates the federal policy by reference.

### *Safe Drinking Water Act*

The Safe Drinking Water Act (SDWA) is intended to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and groundwater wells that serve more than 25 individuals. The goal of the SDWA is to ensure that drinking water is safe for human consumption and will not have adverse health effects on the typical person who drinks water. Under the SDWA, USEPA has set drinking water standards for chemical, microbiological, radiological, and physical contaminants in its National Primary Drinking Water Regulations (40 CFR Part 141). Runoff and discharges

from irrigated lands has potential to contain water quality constituents that are regulated under the SDWA, such as nutrients, pesticides, sediment, and nitrate.

### ***State Agencies, Laws, and Programs***

#### ***Porter-Cologne Water Quality Control Act***

Effective in January 1970, the Porter-Cologne Act (California Water Code Division 7) created water quality regulation on the state level, establishing the SWRCB, and dividing California into nine regions, each overseen by an RWQCB. The act established regulatory authority over waters of the state, defined as “any surface water or groundwater, including saline waters, within the boundaries of the state.” More specifically, the SWRCB and RWQCBs have jurisdiction over any surface water or groundwater to which a beneficial use may be assigned. Following enactment of the federal CWA in 1972, the Porter-Cologne Act assigned responsibility for implementing CWA Sections 303, 401, and 402 to the SWRCB and RWQCBs.

The Porter-Cologne Act requires the RWQCBs to adopt water quality control plans (Basin Plans) for the protection of surface water and groundwater quality. The act also authorizes the RWQCBs to issue WDRs for discharges of waste to waters of the state, including NPDES permits. Any activity, discharge, or proposed activity or discharge from a property or business that could affect California’s surface water, coastal waters, or groundwater will (in most cases) be subject to a WDR. The California Water Code authorizes the SWRCB and RWQCBs to conditionally waive WDRs if this is in the public interest. Agricultural Order 4.0 would establish WDRs for discharges from irrigated agricultural lands within CCWB’s jurisdiction.

#### **Water Quality Control Plan for the Central Coastal Region**

CCWB oversees the central coast region, which includes the Proposed Project area. The Water Quality Control Plan for the Central Coastal Basin (Basin Plan) (CCWB 2017) identifies beneficial uses for surface waters and groundwater within the central coast region, and establishes narrative and numerical water quality objectives (WQOs) to achieve the beneficial uses for those waters. Beneficial uses represent the services and qualities of a waterbody (i.e., the reasons that the waterbody is considered valuable). WQOs reflect the standards necessary to protect and support those beneficial uses. Basin Plan standards are primarily implemented by regulating waste discharges so that WQOs are met.

#### ***State Drinking Water Standards***

California Code of Regulations (CCR), Title 22, Division 4, Chapter 15 establishes parameters for safe drinking water throughout the state. These drinking water standards are similar to, but in many cases more stringent than, federal standards. Title 22 contains both primary standards, and secondary standards related to aesthetics (taste and odor).

#### ***Policy for Implementation of Toxics Standards in Inland Surface Waters, Enclosed Bays, and Estuaries of California***

In 1994, SWRCB and USEPA agreed to a coordinated approach for addressing priority toxic pollutants in inland surface waters, enclosed bays, and estuaries of California. In March 2000, SWRCB adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters,

Enclosed Bays, and Estuaries of California, commonly referred to as the State Implementation Policy. This policy implements NTR and CTR criteria and applicable Basin Plan objectives for toxic pollutants. When an RWQCB issues any permit allowing the discharge of any toxic pollutant(s) in accordance with the CWA or the Porter-Cologne Act, the permit's promulgation and implementation must be consistent with the State Implementation Policy's substantive or procedural requirements. Any deviation from the State Implementation Policy requires the concurrence of USEPA if the RWQCB is issuing any permit under the CWA.

### *California Antidegradation Policy*

SWRCB enacted the Statement of Policy with Respect to Maintaining High Quality of Waters in California, which is also referred to as the California Antidegradation Policy. This policy is used to ensure that high-quality water is maintained, and it limits the discharge of pollutants into high-quality water in the state (Resolution Number 68-16), as follows:

- (1) Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.
- (2) Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

### *California's Plan for Pesticide Water Quality Management*

The California Department of Pesticide Regulation (CDPR) and SWRCB's 2019 Statewide Implementation Plan is a joint effort between the CDPR, county agricultural commissioners (CACs), SWRCB, and the RWQCBs to protect water quality from pesticide pollution. CDPR and the SWRCB also adopted a Management Agency Agreement (MAA) in 2019. A key goal of the MAA and implementation plan is for both agencies to respond to detections of pesticides in surface waters. To reduce the possibility of pesticides entering groundwater or surface water, a process for identifying and responding to *general* pesticide water quality issues and concerns was developed by CDPR and SWRCB (CDPR and SWRCB 2019). This process involves communication between the agencies at both a staff and management level. Communication includes planned projects, policies, and interagency requests related to pesticides and water quality. Specifically (CDPR and SWRCB 2019; pg. 15):

CDPR has the authority to address potential adverse impacts to water caused by pesticide use by adopting regulations, designating a pesticide as a state-restricted material, recommending permit conditions for use of restricted materials, directing registrants to mitigate, or canceling registration where no mitigation is available.



The Water Boards have the regulatory authority to issue waste discharge requirements and conditional waivers of waste discharge requirements, take enforcement action, issue notice to comply, and develop total maximum daily loads (TMDLs) and other Basin Plan regulatory requirements for dischargers.

Regardless of approach, it is important to measure and report effectiveness of the regulatory action through executive communication channels (annual meeting or dedicated interagency meetings). Modeling tools may be used to evaluate the length of time expected for any particular regulatory approach to achieve the desired result.

Routine annual updates will provide a venue to measure and evaluate progress towards water quality improvements and discuss where additional regulatory controls may be necessary.

Additionally, a new process for corresponding and responding to *high priority* surface water quality concerns is also outlined in the implementation plan (CDPR and SWRCB 2019; pgs. 16-17):

For high priority pesticide water quality issues, either locally or statewide, the State Board or Regional Board should prepare a formal transmittal summarizing the waterway(s) known to be impacted. The report must also include:

- a. Pesticide concentrations in surface water or sediment that exceed specific adverse effects thresholds or threaten beneficial uses including habitat for sensitive aquatic organisms
- b. Toxicity results and other findings that support the determination where available
- c. Discussion of the full extent of the problem
- d. Discussion of the State or Regional Board's potential response to the issue.

In response to such a transmittal from a State Board or Regional Board, CDPR will prepare a timely response with CDPR staff's initial determination if the issue is likely to trigger agency action, what the likely extent of the issue is, and what CDPR's potential response could be.

Following the CDPR response, the Water Boards and CDPR will meet and evaluate regulatory and non-regulatory action to address the issue.

Development of regulatory action may occur in coordination or through individual efforts of either agency. Effective communication about pesticide-related water quality priorities and planned regulatory action will enable agencies to effectively direct resources. Therefore, for high priority issues, the agencies should attempt to agree on a general plan for coordinating actions including milestones, and for assessing progress and continuing communication.

### Surface Water Protection Program

CDPR protects surface waters from pesticides through its Surface Water Protection Program. The Surface Water Protection Program is designed to characterize pesticide residues, identify contamination sources, determine flow of pesticides to surface water, and prepare site-specific mitigation measures. The program addresses both agricultural and nonagricultural sources of pesticide residues in surface waters. It has preventive and response components that reduce the presence of pesticides in surface waters. The preventive component includes local outreach to promote management practices that reduce pesticide runoff. Prevention also relies on CDPR's registration process, in which potential adverse effects on surface water quality, and particularly those in high-risk situations, are evaluated. The response component includes mitigation options to meet water quality goals, recognizing the value of self-regulating efforts to reduce pesticides in surface water as well as regulatory authorities of CDPR, SWRCB, and the RWQCBs (CDPR 2019).

### *Pesticide Contamination Prevention Act*

The Pesticide Contamination Prevention Act, approved in 1985, was developed to prevent further pesticide contamination of groundwater from agricultural pesticide applications. The act defines pesticide pollution as “the introduction into the groundwaters of the state of an active ingredient, other specified product, or degradation product of an active ingredient of an economic poison above a level, with an adequate margin of safety that does not cause adverse health effects.” CDPR has compiled a list of pesticide active ingredients on the Groundwater Protection List that have the potential to pollute groundwater. These various pesticides are reviewed and their use is modified when they are found in groundwater (CDPR and SWRCB 2019).

### Groundwater Protection Program

CDPR implements the Pesticide Contamination Prevention Act through its Groundwater Protection Program. The Groundwater Protection Program identifies pesticides that have the potential to pollute groundwater from legal agricultural use, requires sampling to determine if those pesticides are present in groundwater, directs CDPR to maintain a database of all wells sampled by all agencies for pesticides, and requires CDPR to conduct a formal review to determine whether the use of the detected pesticides can be modified to protect groundwater (CDPR and SWRCB 2019).

### *State Water Rights System*

SWRCB administers a water rights system for the diversion of surface waters (springs, streams, and rivers), including diversion of water from subterranean streams flowing in known and definite channels. The granting of a water right provides permission to withdraw water from a river, stream, or groundwater source for a “reasonable” and “beneficial” use (e.g., irrigation). Water right permits and licenses identify the amounts, conditions, and construction timetables for a proposed diversion. Before issuing the permit, SWRCB must take into account all prior rights and the availability of water in the basin, as well as the flows needed to preserve instream uses such as recreation and fish and wildlife habitat (SWRCB 2019). Water rights are administered using a seniority system based on the date of applying for the water right—commonly referred to as “first in time, first in right.” Junior water rights holders may not divert

water in a manner that would reduce the ability of senior water rights holders to exercise their water right.

### *Sustainable Groundwater Management Act*

The Sustainable Groundwater Management Act (SGMA) became law in 2015 and created a legal and policy framework to manage groundwater sustainability at a local level. SGMA allows local agencies to customize groundwater sustainability plans (GSPs) to their regional economic and environmental conditions and needs and establish new governance structures, known as groundwater sustainability agencies (GSAs). SGMA requires that GSAs develop GSPs for groundwater basins designated as high and medium priority by the Department of Water Resources (DWR). GSPs are intended to facilitate the management of groundwater supply and use in a manner that avoids specific undesirable results. Undesirable results are defined as the following:

- Chronic lowering of groundwater levels (not including overdraft during a drought if a basin is otherwise managed);
- Significant and unreasonable reduction of groundwater storage;
- Significant and unreasonable seawater intrusion;
- Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies;
- Significant and unreasonable land subsidence that substantially interferes with surface land uses; and
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

GSPs are required to include measurable objectives and minimum thresholds, as well as interim milestones in 5-year increments, to achieve the sustainability goal for the basin for the long-term beneficial uses of groundwater. Additionally, GSPs are required to include components related to groundwater quality monitoring, the monitoring and management of groundwater levels within the basin, mitigation of overdraft, and a description of surface water supply used or available for use for groundwater recharge or in-lieu use. Specifically, Section 354.34(c)(6) of the final GSP regulations (23 CCR Division 2, Chapter 1.5, Subchapter 2) requires that, where interconnected surface water conditions exist, monitoring networks must characterize the spatial and temporal exchanges of surface water and groundwater, including “surface water discharge, surface water head, and baseflow contribution.” With respect to water quality, SGMA requires that groundwater be managed to avoid significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water quality. GSAs are not required to address historic groundwater quality problems, but rather established 2015 water quality conditions as a baseline against which changes due to GSP implementation will be compared. GSP requirements must consider agricultural activities that use groundwater as a source.

There are currently 40 GSAs in the central coast region, 18 of which have submitted Initial Notifications to prepare a GSP (DWR 2018a). SGMA requires GSAs in medium- and high- priority basins to submit GSPs to DWR for approval. The due date for the first phase of GSPs to be

submitted to DWR is January 31, 2020 for medium- and high-priority basins identified by DWR as critically overdrafted. All other medium- and high-priority basins must provide GSPs to DWR by 2022.

### *California Statewide Groundwater Elevation Monitoring Basin Prioritization*

In 2009, the California State Legislature amended the California Water Code with SBx7-6, which mandates a statewide groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California. Under this amendment, DWR established the CASGEM program, which establishes the framework for regular, systematic, and locally managed monitoring in all of California's groundwater basins. The CASGEM program is essential to DWR's ranking all of California's basins by priority: High, Medium, Low, and Very Low. DWR's basin prioritization is based on the following factors:

1. Population overlying the basin
2. Rate of current and projected growth of the population overlying the basin
3. Number of public supply wells that draw from the basin
4. Total number of wells that draw from the basin
5. Irrigated acreage overlying the basin
6. Degree to which persons overlying the basin rely on groundwater as their primary source of water
7. Any documented impacts on the groundwater within the basin, including overdraft, subsidence, saline intrusion, and other water quality degradation
8. Any other information determined to be relevant by DWR

At the time the Proposed Project was initiated (February 2018), DWR had designated eight central coast region groundwater basins as high-priority and 16 as medium-priority (out of a total of 60 basins; DWR 2014a). **Figure 3.9-6** in Section 3.9.3 illustrates basin prioritization within the central coast region based on DWR's designation. DWR reserves the right to adjust basin boundaries and prioritization status if new and compelling information becomes available regarding groundwater basin characteristics and/or modifications to sustainable basin management. It is highly unlikely such changes to boundaries or prioritization would result in significant changes to overall total basin acreage within the central coast region.

### ***Local and Regional Laws and Plans***

#### ***General Plans***

Numerous local jurisdictions (i.e., cities and counties) are located within the central coast region. Most, if not all, of these jurisdictions have adopted general plans, which identify goals and policies related to land use, habitat conservation, pesticides, noise, etc. Volume 2, Appendix B lists potentially applicable general plan goals and policies for counties in the central coast region. Refer to this appendix for goals and policies related to hydrology and water quality that are relevant to this section.

### *Grading Permits*

Numerous local jurisdictions in the central coast region have grading ordinances, which regulate construction activities involving excavation or filling of material. Although specific requirements/processes vary by jurisdiction, grading permits will typically require implementation of BMPs (e.g., erosion control measures) to minimize potential impacts to water quality. Grading plans prepared by a licensed architect or engineer usually are required. The minimum requirements for obtaining a grading permit also vary by jurisdiction; for example, in Monterey County a grading permit is required when the total disturbance (i.e., cut and fill on site and/or import or export of soil) from a site equals or exceeds 100 cubic yards, whereas in San Luis Obispo County a grading permit is typically needed when disturbance exceeds 50 cubic yards.

### *Irrigated Lands Program*

The existing Irrigated Lands Program for the central coast region (also known as Agricultural Order 3.0) regulates waste discharges from irrigated agricultural lands to prevent such discharges from impairing the receiving surface waters and groundwater. As described in Chapter 2, *Project Description*, this existing program requires monitoring of surface water and groundwater quality and implementation of management practices to reduce discharge effects. Discharges from agricultural lands include irrigation return flow, flows from tile drains, infiltration to groundwater, and stormwater runoff. In general, these discharges can affect water quality by transporting sediment, nutrients, pesticides, and other pollutants into waters of the state. Many surface waterbodies are impaired and groundwater quality in many areas has been degraded due to pollutants from agricultural sources.

### *Central Coast Ambient Monitoring Program*

The Central Coast Ambient Monitoring Program (CCAMP) is CCWB's regional water quality monitoring program, funded in part by the SWRCB's Surface Water Ambient Monitoring Program (SWAMP). CCAMP divides the central coast region into five watershed rotation areas and conducts sampling each year in one of the areas, such that each watershed is monitored and evaluated over a 5-year period. Permanent watershed sites are monitored monthly for conventional water quality parameters, and once during the year for sediment chemistry, toxicity, and benthic invertebrate assemblages. Additional monitoring sites may be established in each rotation area to provide focused attention on watersheds and waterbodies known to have water quality impairments (CCAMP 2019).

### *Central Coast Cooperative Monitoring Program for Agriculture*

CCWB's first Agricultural Order specified monitoring that led to development of the Central Coast Cooperative Monitoring Program for Agriculture (CMP), which is managed by Central Coast Water Quality Preservation, Inc. (CCWQP). The CMP focuses monitoring in agricultural areas with impaired waters, while CCAMP monitors throughout the region. Since 2005, the CMP has collected baseline data from 50 long-term trend monitoring sites in waters impaired by agricultural pollutants.

### *Flow Regulations*

Certain rivers and streams in the central coast region have regulations in place that govern surface water flows. Such regulations are often established on rivers with upstream dams/reservoirs and are designed to protect endangered species of fish. For example, the Salinas Valley Water Project Flow Prescription (Monterey County Water Resources Agency [MCWRA] 2005) establishes flow regulations on the Salinas River to protect steelhead trout. Additionally, a minimum bypass flow requirement of 2 cubic feet per second (cfs) was established for San Gregorio Creek during most of the summer and fall (Natural Heritage Institute 2010).

## **3.9.3 Environmental Setting**

### *Surface Water*

#### *Regional Topography, Climate, and Hydrology*

The Central Coast Hydrologic Region spans approximately 7.2 million acres, encompassing all of Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara counties; most of San Benito County; and portions of San Mateo, Santa Clara, Ventura and Kern counties. The vegetation and topography of the central coast is highly variable and includes redwood forests, foggy coastal terraces, chaparral-covered hills, green cultivated valley floors, stands of oak, warm and cool vineyards, and semi-arid grasslands (DWR 2014a). The region features a rugged seacoast and three parallel ranges of the Southern Coast Mountains, including the Diablo, Gabilan, and Santa Lucia Ranges (CCWB 2017).

West of the Coast Ranges, the climate of the region is dominated by the Pacific Ocean and is characterized by small daily and seasonal temperature changes and high relative humidity. As distance from the ocean increases, the maritime influence decreases, resulting in a more continental type of climate that generates warmer summers, colder winters, greater daily and seasonal temperature fluctuations, and lower relative humidity (DWR 2014a). Annual average precipitation in the region ranges from 14 to 45 inches throughout most of the region, although the southern interior basins typically receive 5 to 10 inches per year, with the mountain areas receiving more rainfall than the valley floors. Most precipitation occurs between late November and mid-April (CMP 2018).

Major waterbodies in the Central Coast Hydrologic Region include the Salinas River, Pajaro River, Santa Maria River, and Santa Ynez River, and their associated tributaries, as well as reservoirs such as the Nacimiento, San Antonio, Lake Cachuma, and San Luis. The Central Coast Hydrologic Region is comprised of 12 watersheds or hydrologic units, each of which is described briefly below. **Figure 3.9-1** shows watershed boundaries and surface water bodies near irrigated agricultural areas in the Central Coast Hydrologic Region. Figure 3.9-2 shows CWA Section 303(d) listings for nutrients, pesticides, sediment, and toxicity (i.e., the types of impairments being targeted in Agricultural Order 4.0) in the central coast region.



Figure 3.9-1.  
Watersheds and Surface Waterbodies

Streams/Rivers\*

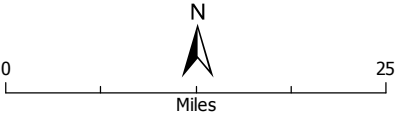
- Perennial
- Intermittent
- Unnamed streams

- Watersheds (HUC 8)
- Central Coast Water Board Jurisdictional Boundary

\*Only streams containing segments within 1000 ft of farmland are mapped

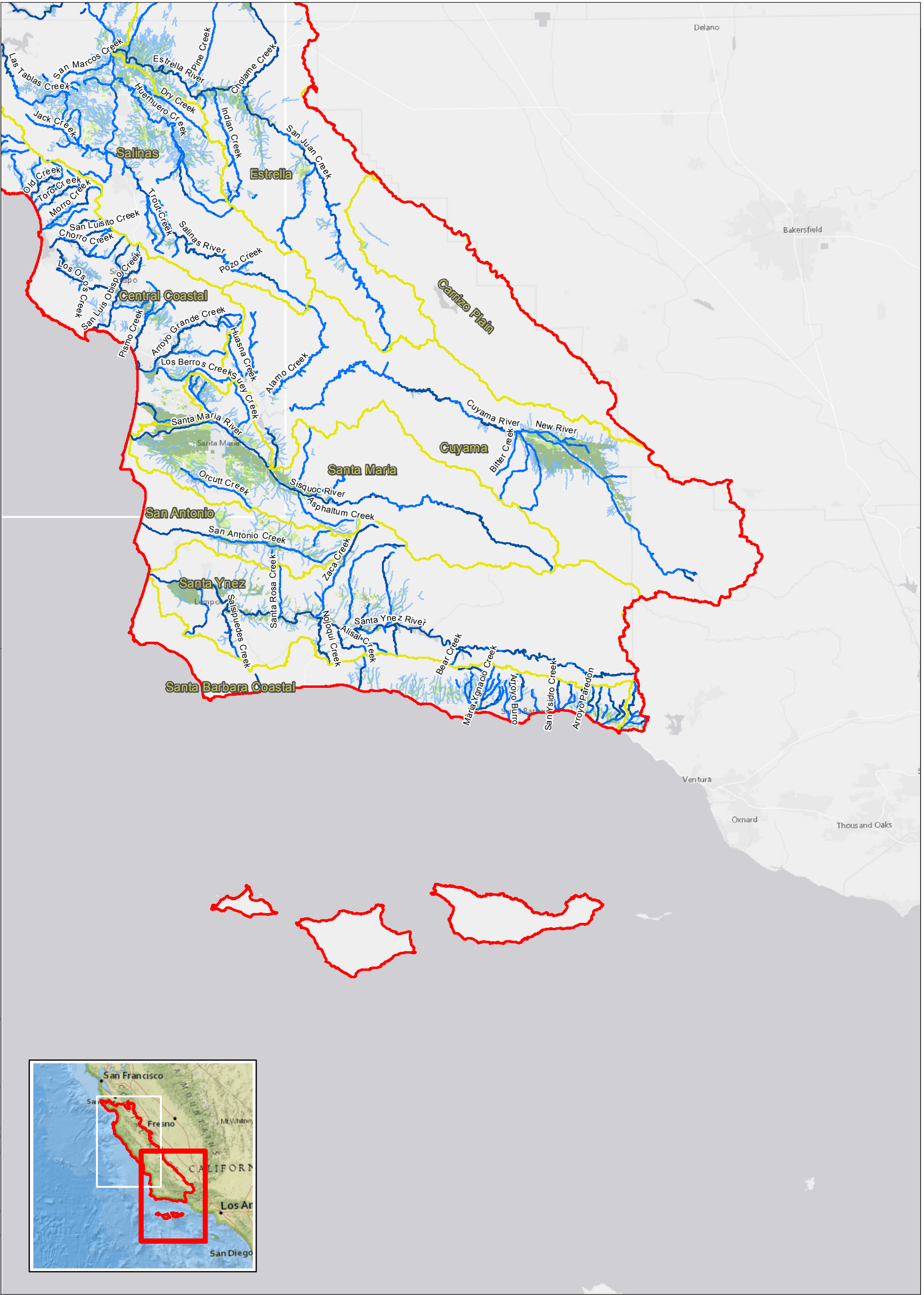
Land Use

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland



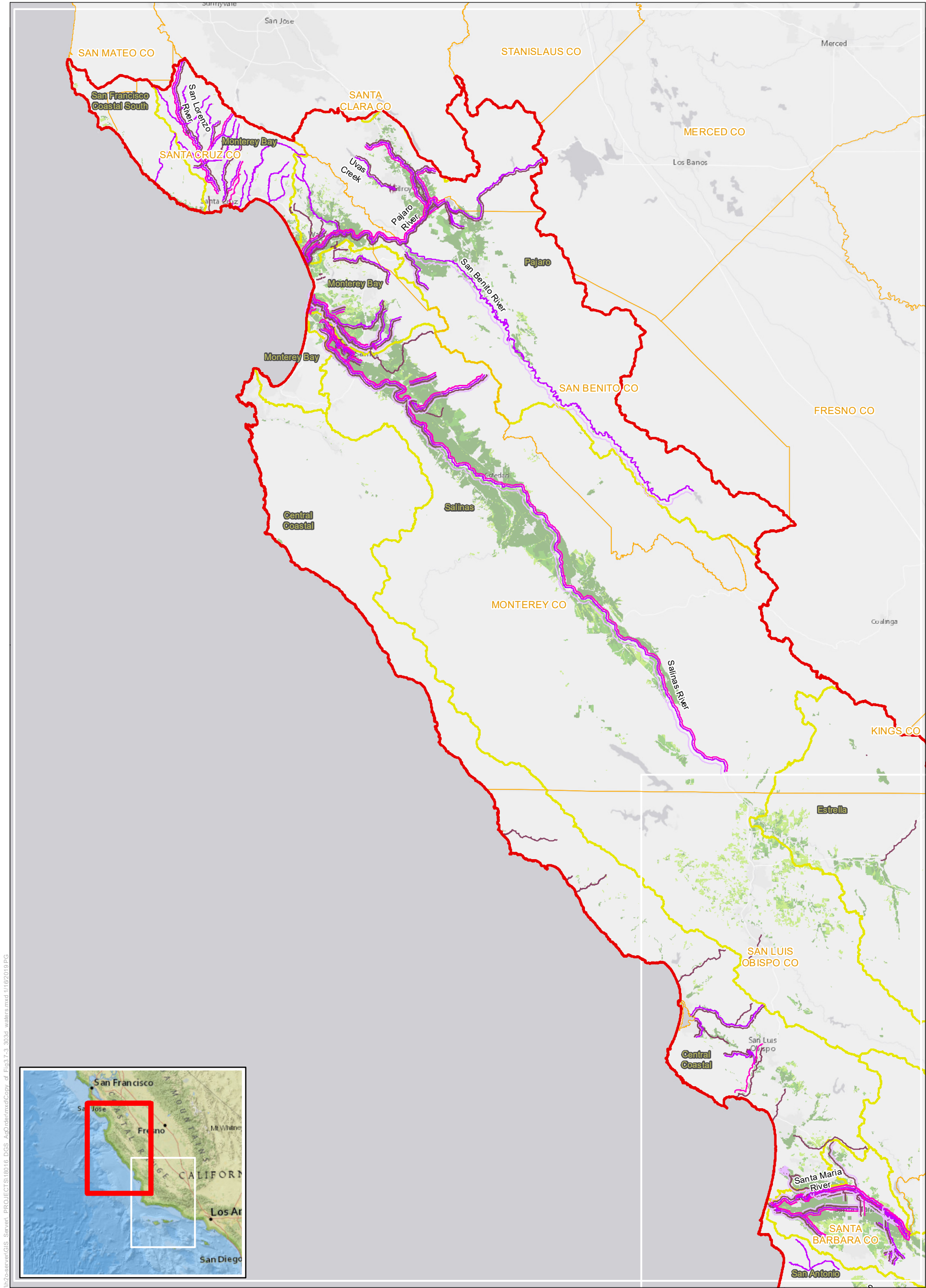
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**Figure 3.9-1.**  
Watersheds and Surface Waterbodies

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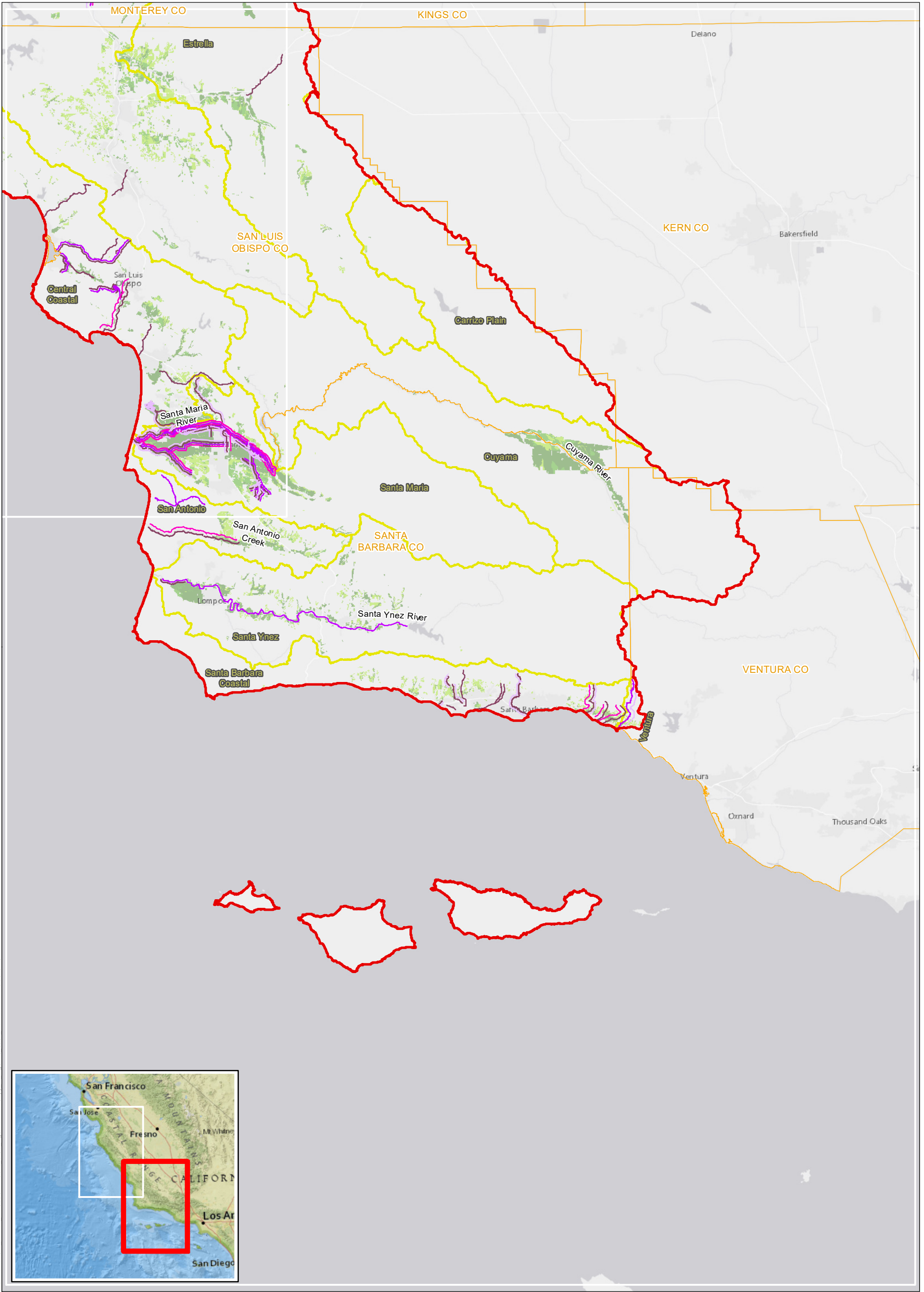


**Figure 3.9-2.**

Clean Water Act Section 303(d)  
Category 4 and 5 Listings for Nutrients,  
Pesticides, Sediment, and Toxicity

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**Figure 3.9-2.**

Clean Water Act Section 303(d) Category 4  
and 5 Listings for Nutrients, Pesticides,  
Sediment, and Toxicity

**Pollutant Category**

- Nutrients
- Pesticides
- Sediment
- Toxicity

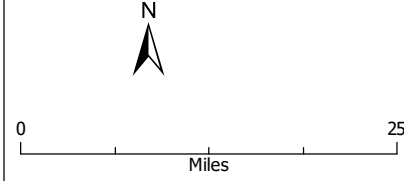
**Land Use**

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland

- Central Coast Water Board Jurisdictional Boundary
- Counties
- Watersheds (HUC 8)

\*Water body/pollutant symbols  
are off-set in order to show multiple  
pollutant listings per stream segment

Source: CDC 2014; CDC 2016; DWR 2014b; and USEPA 2019.



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### *Watersheds Descriptions*

#### San Francisco Coastal South

The San Francisco Coastal South Watershed occupies approximately 143 square miles in the western portion of San Mateo County and a portion of Santa Cruz County. This watershed includes a number of coastal streams that drain to the ocean, including Mill Creek, Molina Creek, Liddell Creek, Majors Creek, and Meder Creek. There is relatively limited irrigated agricultural production in this watershed.

#### Monterey Bay

The Monterey Bay Watershed is divided into three drainage basins, which together cover an area of approximately 475 square miles in Monterey and Santa Cruz counties.

- The northern basin covers the area generally north of Monterey Bay including central Santa Cruz County. Surface waterbodies in this basin include Two Bar Creek and Trout Creek. In general, there is limited irrigated agriculture within this basin.
- The middle basin covers a portion of northern Monterey County, including the area north of the City of Salinas. This middle basin includes Carneros Creek, Mud Creek, and a number of named and unnamed streams near irrigated agricultural areas, as shown in Figure 3.9-1.
- The southern basin covers the area off the southern coast of Monterey Bay. There is little irrigated agriculture within this southern basin and few surface waterbodies.

#### Pajaro

The Pajaro River Watershed covers an area of roughly 1,300 square miles, including parts of San Benito, Santa Clara, Santa Cruz, and Monterey Counties. The defining feature of this watershed is the Pajaro River. Major tributaries to the Pajaro River include San Benito River, Pacheco Creek, Llagas Creek, Uvas Creek, and Corralitos Creek. The watershed contains a wide variety of land uses, including row crop agriculture, livestock grazing, forestry, industrial, and rural/urban residential. Nutrient pollution in surface waters of the Pajaro River Watershed has long been recognized as a problem, with irrigated agriculture likely contributing the majority of controllable nutrient loads to streams in the Pajaro River Watershed (CCWB 2016). Other impairments include sediment and toxicity, for various waterbody segments, as shown in Figure 3.9-2.

#### Salinas

The Salinas River Watershed is the largest watershed in the Central Coast Hydrologic Region, covering an area of approximately 3,330 square miles within San Luis Obispo and Monterey counties. This watershed includes the Salinas River and all of its tributaries (with the exception of the Estrella River) (e.g., Chualar Creek, Arroyo Seco Creek, San Lorenzo Creek, San Antonio River, San Marcos Creek, and Huerhuero Creek). The Salinas River headwaters in the Los Padres National Forest is generally undeveloped open space. Land use along the rest of the Salinas River Valley is predominantly agricultural or urban. This area is one of the most productive

irrigated agricultural regions in the state. As shown in **Figure 3.9-2**, numerous waterbody segments within the Salinas River Watershed are listed as impaired under Section 303(d) for target pollutants, such as toxicity, pesticides, and nutrients.

### Estrella

The Estrella River Watershed covers an area of approximately 945 square miles primarily within San Luis Obispo County. The watershed includes the Estrella River and its tributaries, such as Cholame Creek, Pine Creek, San Juan Creek, and Indian Creek. As noted above, the Estrella River is a tributary to the Salinas River. This watershed is generally a rural, sparsely-populated area. Agriculture accounts for a small percentage of the land use at just 3 percent of the total acreage (primarily vineyards and alfalfa production) (CCWB 2013).

### Carrizo Plain

The Carrizo Plain Watershed covers approximately 444 square miles within the eastern portion of San Luis Obispo County and a small portion of Kern County. Very little, if any, irrigated agriculture occurs in this watershed.

### Cuyama

The Cuyama Watershed covers approximately 1,143 square miles primarily within Santa Barbara and San Luis Obispo counties, as well as a portion of Ventura County. This watershed includes the Cuyama River and its tributaries, such as New River and Bitter Creek. The watershed also includes Alamo Creek, which is a tributary to the Salinas River. The Cuyama Watershed includes irrigated agricultural land near the confluence of New River with Cuyama River. None of the surface waterbodies in the Cuyama Watershed are listed as impaired under Section 303(d) for nutrients, pesticides, sediment, or toxicity, as shown on **Figure 3.9-2**.

### Santa Maria

The Santa Maria River Watershed covers approximately 684 square miles within Santa Barbara and San Luis Obispo counties, and includes the Santa Maria River and its tributaries (e.g., Sisquoc River and Orcutt Creek). The Santa Maria Valley is a major irrigated agricultural region on the central coast, with vegetables and strawberries accounting for almost one-half of the valley's irrigated acreage (City of Santa Maria 2010). As shown on **Figure 3.9-2**, numerous waterbody segments have been listed under Section 303(d) as impaired for target pollutants.

### Santa Ynez

The Santa Ynez River Watershed covers approximately 897 square miles within Santa Barbara County, and includes the Santa Ynez River and its tributaries (e.g., Salisipuedes Creek, Santa Rosa Creek, Zaca Creek, Nojoqui Creek, Alisail Creek, and Bear Creek). A variety of crops are grown within the Santa Ynez River Watershed, including various types of truck nursery and berry crops, as well as wine grapes. Towards the ocean, the Santa Ynez Watershed includes the Lompoc Valley, which is a productive region. As shown in **Figure 3.9-2**, the Santa Ynez River is listed as impaired for sediment and a portion of the lower river is listed as impaired for nutrients.



### Santa Barbara Coastal

The Santa Barbara Coastal Watershed covers approximately 364 square miles and is wholly located in Santa Barbara County. This watershed includes coastal streams originating in the southern Los Padres National Forest that drain to the ocean, such as Maria Ygnacio Creek, Arroyo Burro Creek, San Ysidro Creek, and Arroyo Paredon Creek. Irrigated agriculture in this watershed primarily includes citrus, subtropical crops, and greenhouse crops, including cannabis. Several waterbody segments in this watershed are listed as impaired for target pollutants, particularly pesticides and nutrients.

### San Antonio

The San Antonio Creek Watershed covers approximately 217 square miles and is located in the west-central portion of Santa Barbara County. It includes San Antonio Creek and its tributaries as well as the creeks in the Casmalia watershed. Primary land uses in the watershed include ranching and agricultural cultivation, including annual or vegetable crops, wine grapes, and dry farming (County of Santa Barbara 2013). As shown on **Figure 3.9-2**, San Antonio Creek is listed as impaired for pesticides and nutrients.

### Central Coastal

The Central Coastal Watershed covers approximately 1,341 square miles and spans from the Sierra del Salinas Mountains in Monterey County to the coastal watersheds of southern San Luis Obispo County. This watershed includes the Carmel River and its tributaries, as well as numerous creeks and streams in the southern portion of the watershed, including San Simeon Creek, San Luis Obispo Creek, and Arroyo Grande Creek. Irrigated agricultural areas are primarily located in the southern portions of the Central Coastal Watershed, as shown on Figure 3.9-1. Several creeks and streams within the watershed are listed as impaired for target pollutants under Section 303(d), particularly with respect to nutrients and sediment.

### Ventura

The Ventura Watershed covers approximately 15 square miles and occupies small portions of Santa Barbara and Ventura counties, abutting the entire eastern edge of the Santa Barbara Coastal Watershed. Irrigated agricultural areas are located in the very southern portion of the watershed near the coast. It contains a small number of creeks and streams, two of which, Carpinteria and Rincon, are listed as impaired for sediment and toxicity under Section 303(d), as shown on **Figure 3.9-2**.

### Santa Barbara Channel Islands

The Santa Barbara Channel Islands Watershed includes five islands (San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara Islands) which comprise the Channel Island National Park. Separated from the mainland by the Santa Barbara Channel, the islands cover approximately 194 square miles. While some islands have a history of grazing, there is currently no irrigated agriculture.

### *Surface Water Quality*

As indicated above, many surface waterbody segments in the central coast region are listed as impaired for nutrients, pesticides, toxicity, and sediment. In many instances, TMDLs are in place to correct these deficiencies. These primary types of agriculture-related impairments, including their common causes and deleterious effects, are discussed further below.

#### Nutrients

Nutrient loading may occur from over-application of fertilizers or allowing nutrient-laden runoff from agricultural areas to discharge into surface waters. Excessive nutrients in surface waters is a concern as it can cause excessive algae growth, which can then result in a host of adverse effects on the ecosystem (including low dissolved oxygen levels). Nitrate pollution of drinking water is of concern with respect to human health.

#### Pesticides and Toxicity

Application of pesticides to agricultural crops can result in runoff of pesticides and pollution of surface waters. Such pesticide pollution is problematic in that it results in toxicity for aquatic life. This is harmful to beneficial uses, such as warm freshwater habitat (WARM) and cold freshwater habitat (COLD). Toxicity tests show many toxic sites in the central coast region in agricultural areas of the lower Santa Maria and Salinas watershed areas (CMP 2018).

Historically, water toxicity was associated with high concentrations of diazinon and chlorpyrifos pesticides, while sediment toxicity was associated with pyrethroid pesticide mixtures (SWAMP 2011). More recently, growers have been applying less chlorpyrifos and diazinon and continue to apply pyrethroids and neonicotinoids. This shift in pesticide application now shows water toxicity sensitivities to neonicotinoids and a combination of a broad mix of pesticides. Sediment toxicity continues to be associated with pyrethroids (CCWB 2017). **Table 3.9-1** shows monitoring results from CDPR's Ambient Monitoring Report, which sampled surface waters in the central coast region for presence of pesticides.

**Table 3.9-1. Pesticides Detected in Water Samples in the Central Coast Region**

<b>Pesticide</b>	<b>Number of Samples</b>	<b>Number of Detections</b>	<b>Reporting Limit (µg/L)</b>	<b>Detection Frequency (%)</b>
Abamectin	35	0	0.02	0
Carbaryl	35	2	0.02	6
Chlorantranilipole	55	48	0.02	87
Chlorpyrifos	55	7	0.02	13
Diazinon	55	0	0.02	0
Diiflubenzuron	36	1	0.02	3
Dimethoate	55	11	0.02	20
Indoxacarb	39	6	0.02	15
Imidacloprid	55	52	0.02	95

<b>Pesticide</b>	<b>Number of Samples</b>	<b>Number of Detections</b>	<b>Reporting Limit (µg/L)</b>	<b>Detection Frequency (%)</b>
Malathion	55	10	0.02	18
Methomyl	55	45	0.02	82
Methoxyfenozide	55	44	0.02	80
Bifenthrin	50	21	0.001	42
Cyfluthrin	50	2	0.002	4
Cypermethrin	50	8	0.005	16
(Es)fenvalerate	50	3	0.005	6
Fenpropathrin	50	4	0.005	8
λ-Cyhalothrin	50	14	0.002	28
Permethrin	50	19	0.002	38
Atrazine	4	3	0.02	75
Benfluralin	55	0	0.05	0
Bensulide	55	45	0.02	82
Diuron	35	5	0.02	14
Ethalfluralin	55	0	0.05	0
Oryzalin	55	0	0.02	0
Oxyfluorfen	55	18	0.05	33
Pendimethalin	55	4	0.05	7
Prodiamine	55	0	0.05	0
Prometryn	51	30	0.02	59
Simazine	36	0	0.02	0
S-Metolachlor	51	0	0.02	0
Trifluralin	55	2	0.05	4
Azoxystrobin	51	36	0.02	71
Cyprodinil	51	11	0.02	22
Pyraclostrobin	51	28	0.02	54
Quinoxifen	36	1	0.02	3
Trifloxystrobin	35	0	0.02	0

Source: CDPR 2018

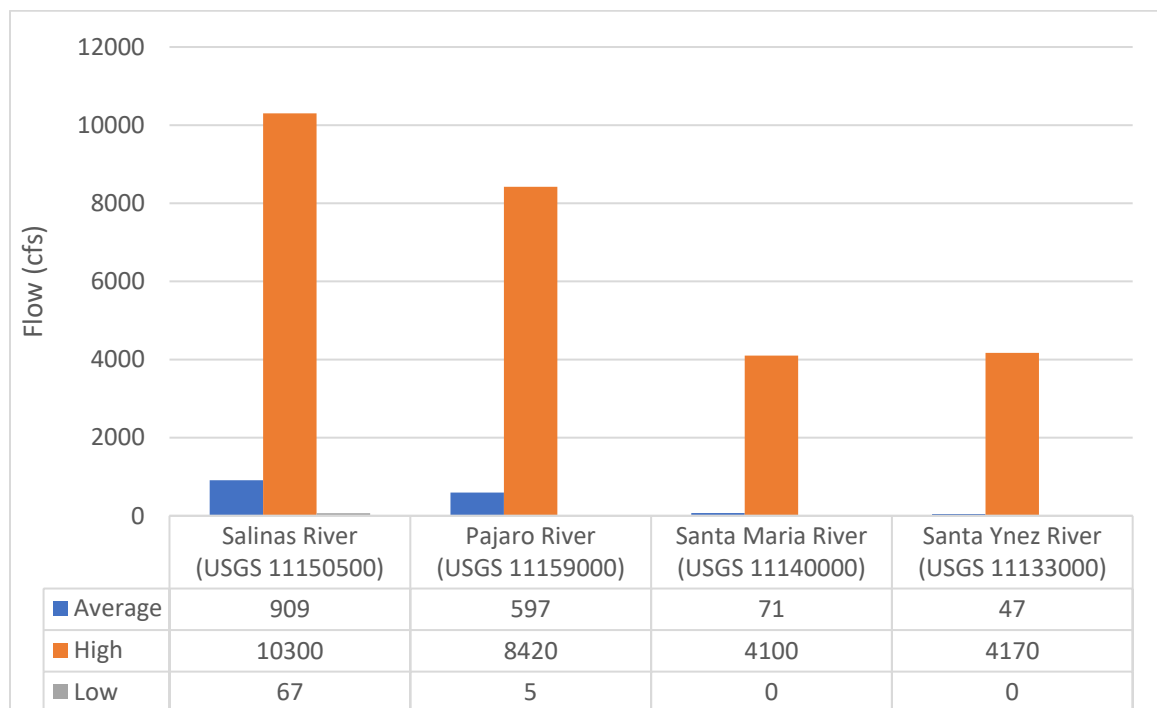
### Sediment

Sedimentation and siltation can result from development activities associated with agricultural activities (e.g., access road development, installation of irrigation infrastructure, installation of new crop rows, etc.), as well as from erosion caused by: operation of farm equipment on

unpaved surfaces, exposed soil where vegetation has been removed, and energy of flowing water ditches and canals. Once loosened, eroded soil can be washed into surface waters during rain storms and irrigation events, thereby contributing to excess sediment and turbidity in the water column. Sediment originating from agricultural lands can carry chemicals that naturally adsorb to soil particles, such as some classes of pesticides. Such water quality conditions can be harmful to aquatic life and other beneficial uses (e.g., recreation).

### *Surface Water Flow and Use*

In general, rivers and streams in the central coast region exhibit flow patterns that follow the seasonal precipitation pattern. Typically, flows are higher in the rainy season (November to April) and lower during the dry season (July to October). Many of the smaller tributaries and even some of the larger watercourses frequently go dry in the summer and fall, while larger waterbodies will maintain some level of flow year-round often due to reservoir releases or inputs from groundwater aquifers. As described above, the Salinas River has a required flow regime dictated by the needs of steelhead life stages that is maintained through releases from Nacimiento and San Antonio Reservoirs. Flow information for major watercourses in agricultural regions in the central coast region is shown in Figure 3.9-3.



**Figure 3.9-3.** 2017 Flow Data for Major Rivers in Agricultural Regions

Source: CMP 2018

The data shown in Figure 3.9-3 demonstrate the extreme variability in surface water flow that occurs in the central coast region. In 2017, the Salinas and Pajaro Rivers experienced flows as high as 10,300 cfs and 8,420 cfs, respectively; however, at certain points in the year, flows dropped as low as 67 cfs and 5 cfs. For the Santa Maria and Santa Ynez Rivers, while flows reached over 4,000 cfs, at other times of the year there was no flow at all. It can be presumed

that many of the other smaller rivers, creeks, and streams in the central coast region that occur in proximity to irrigated agriculture (see Figure 3.9-1) follow a similar flow pattern as that shown in Figure 3.9-3.

As described further under the “Groundwater” section below, the majority of the water supply in the region is provided by groundwater (91 percent of the agricultural water supply is from groundwater). For agricultural water users who do obtain surface water, many of these persons/entities obtain water from water districts or other suppliers that divert the water, or they may divert the water from surface water sources directly. Figure 3.9-4 shows diversion points associated with surface water rights that list irrigation as a purpose of use under that right.

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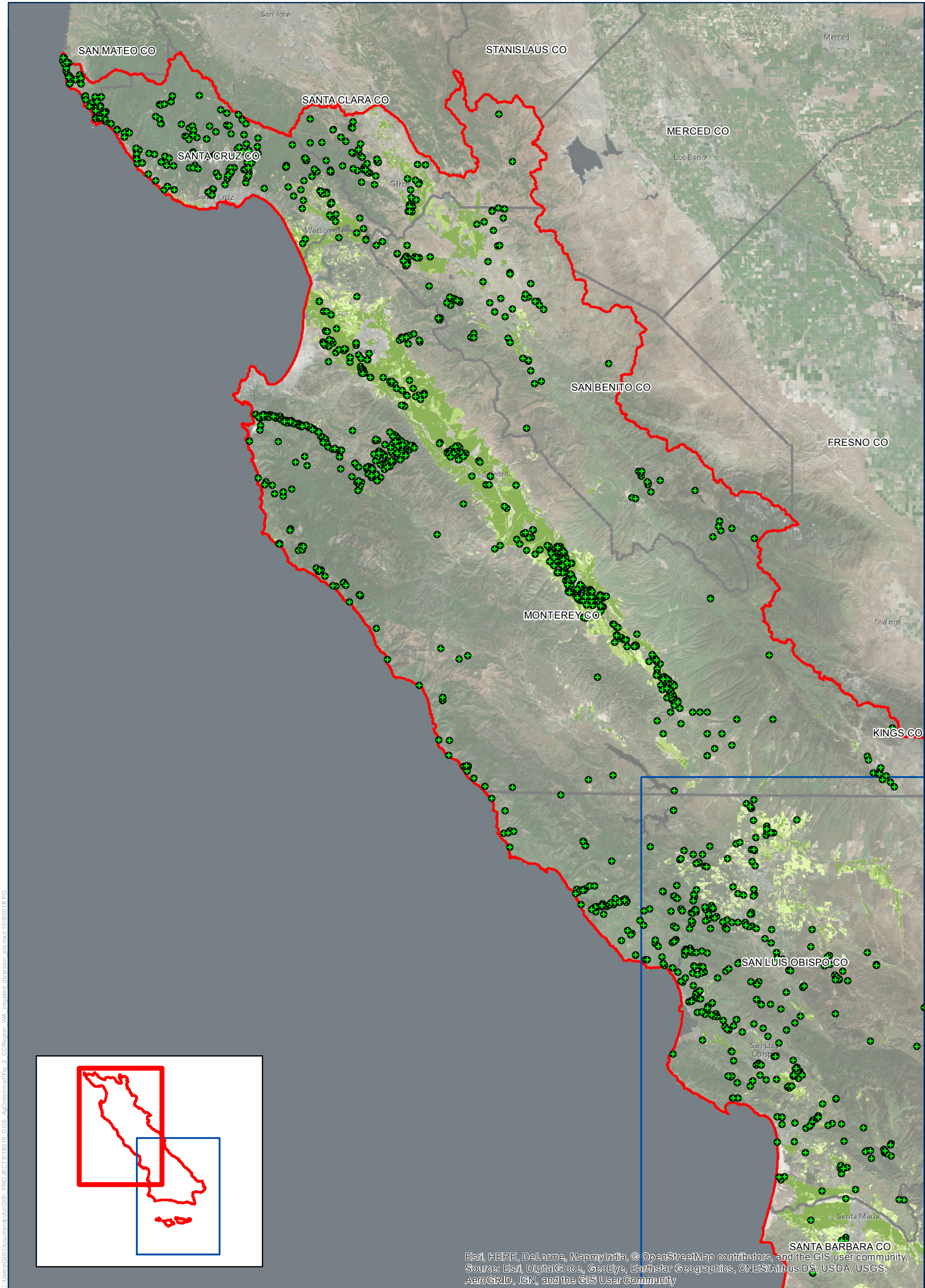
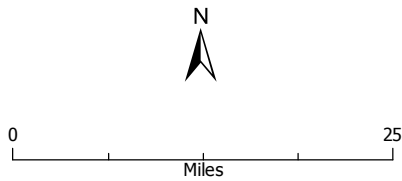


Figure 3.9-4.

Diversion Points for Surface Water Rights Which List Irrigation as a Purpose of Use



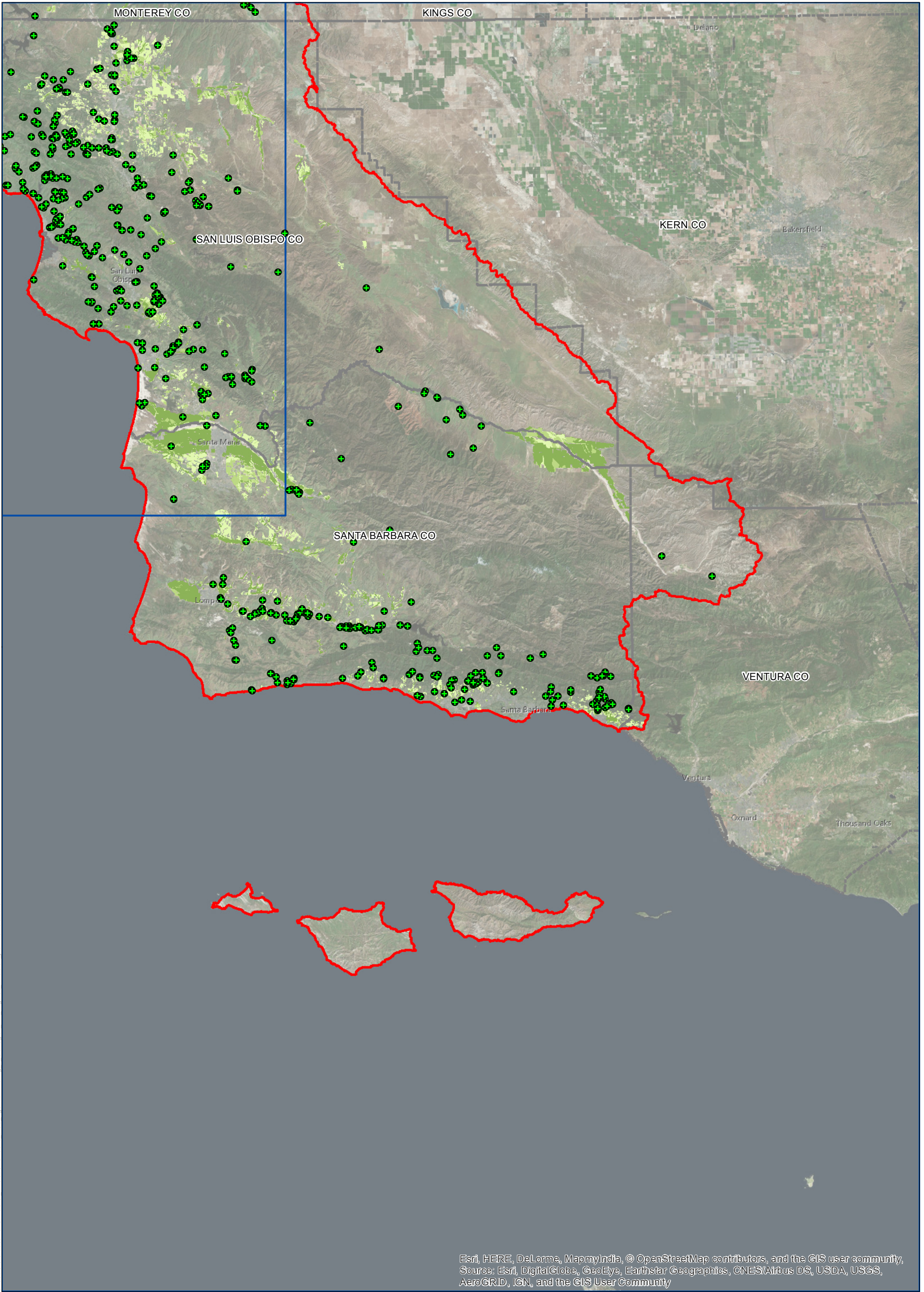
- Land Use**
- Prime
  - Farmland of Statewide
  - Unique

- Diversion Point
- Central Coast Water Board Jurisdictional Boundary
- Counties
- Sheet

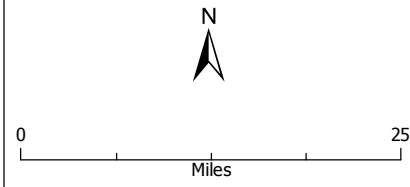


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**Figure 3.9-4.**  
Diversion Points for Surface Water  
Rights Which List Irrigation  
as a Purpose of Use



- Land Use**
- Prime
  - Farmland of Statewide
  - Unique

- Diversion Point
- Central Coast Water Board Jurisdictional Boundary
- Counties
- Sheet



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## ***Groundwater***

### ***Regional Overview***

The Central Coast Hydrologic Region is the most groundwater-dependent hydrologic region in California. Groundwater contributes about 86 percent of the average annual total water supply for the region, including 91 percent of the agricultural supply and 72 percent of the urban supply (DWR 2014a). The Central Coast Hydrologic Region includes 60 alluvial groundwater basins and subbasins underlying approximately 3,900 square miles (roughly 35 percent of the region). Major groundwater basins in the region include the Salinas Valley, Pajaro Valley, Gilroy-Hollister Valley, Santa Maria Valley, and Santa Barbara groundwater basins (DWR 2014a). Groundwater basins are shown in Figure 3.9-5.

The dimensions, subsurface characteristics, storage capacity, recharge rates, and flow patterns in individual basins within the Central Coast Hydrologic Region vary by geographic location, topography, and other factors. In general, recharge typically occurs through infiltration of precipitation and irrigation, seepage from rivers and streams, and subsurface inflow from adjacent basins, among other sources. The CASGEM basin prioritization results are somewhat reflective of the condition of individual basins with respect to groundwater extraction/reliance, overdraft or reduction in groundwater levels, and water quality. Figure 3.9-6 shows the CASGEM basin prioritization results for groundwater basins in the central coast region.

### ***Groundwater Quality***

Groundwater quality conditions vary significantly across the central coast region. Predominant chemicals exceeding the primary MCL in sampling wells include nitrate, benzene, methyl tert-butyl ether (MTBE), arsenic, and perchlorate; the secondary MCL for salts is also commonly exceeded. One of the most common contaminants in groundwater wells, and one of the contaminants directly related to irrigated agricultural activity, is nitrate, which is discussed further below. Available data on pesticide contamination of groundwater also are discussed below.

#### **Nitrate**

Approximately 31 percent of domestic wells sampled through Agricultural Order requirements exceed the drinking water standard of 10 milligrams per liter (mg/L) nitrate as nitrogen (CCWB 2018a). Of the 51 groundwater basins sampled through the Groundwater Ambient Monitoring and Assessment (GAMA) Program, 67 percent (34 basins) had at least one well sample that exceeded the 10 mg/L threshold. **Table 3.9-2** shows summary nitrate sampling data from groundwater wells in the central coast region.

**Table 3.9-2.** Nitrate Sampling Data from Groundwater Wells in the Central Coast Region (Basins with Greater than 25 Sampling Points)

Groundwater Basin	Nitrate as N Concentration (mg/L)			No. of Wells Sampled
	Minimum	Median	Maximum	
Outside of DWR Bulletin 118 Basin Boundaries	0.01	1.72	500.00	1,501
Carmel Valley	0.01	0.39	4.22	27
Carpinteria	0.09	8.83	81.50	94
Corralitos Pajaro Valley	0.01	8.62	188.00	899
Cuyama Valley	0.02	3.69	173.94	136
Foothill	0.05	3.94	53.30	75
Gilroy-Hollister Valley Bolsa Area	0.10	8.80	65.74	80
Gilroy-Hollister Valley Hollister Area	0.01	4.91	48.34	175
Gilroy-Hollister Valley Llagas Area	0.01	8.92	128.76	482
Goleta	0.02	1.05	22.14	62
Lockwood Valley	0.10	3.20	10.71	44
Los Osos Valley	0.09	4.41	28.00	43
Montecito	0.02	3.01	23.40	49
Morro Valley	0.10	5.82	45.00	34
Salinas Valley 180/400 Foot Aquifer	0.02	9.98	754.51	647
Salinas Valley Atascadero Area	0.09	2.35	21.70	147
Salinas Valley East Side Aquifer	0.10	20.80	204.00	384
Salinas Valley Forebay Aquifer	0.02	19.01	117.00	574
Salinas Valley Langley Area	0.02	3.30	63.00	172
Salinas Valley Monterey Area	0.02	1.52	5.87	49
Salinas Valley Paso Robles Area	0.03	2.96	51.96	926
Salinas Valley Upper Valley Aquifer	0.10	14.84	142.00	222
San Antonio Creek Valley	0.03	2.39	8.20	117
San Luis Obispo Valley	0.04	4.71	80.00	184
Santa Barbara	0.02	2.30	22.36	136
Santa Cruz Mid-County	0.01	1.39	31.00	84
Santa Margarita	0.02	1.02	23.00	75
Santa Maria	0.01	14.18	627.00	1,085
Santa Rosa Valley	0.02	1.06	69.58	28
Santa Ynez River Valley	0.01	4.36	870.00	690
West Santa Cruz Terrace	0.00	0.93	23.00	49

Source: CCWB 2018b

The most significant areas of nitrate impact associated with irrigated agriculture are within the Salinas Valley, Gilroy-Hollister Valley, Pajaro Valley, and Santa Maria River Valley basins, and, to a lesser extent, in southern portions of the San Luis Obispo Valley and the Santa Ynez River Valley basins. The majority of nitrate pollution is from irrigated agricultural waste discharges, though other common sources of nutrients include fertilizer applied to landscaping, seepage from septic systems, and human and animal waste (CCWB 2018b).

### Pesticides

Historical CDPR groundwater monitoring conducted between 1986 and 2016 found a total of 178 pesticide detections for central coast counties (CCWB 2018b). SWRCB's GAMA Program also detected a number of pesticides in groundwater in the central coast region; however, none of the detected pesticides exceeded a health-based threshold value. More recently, CDPR's 2017 Well Sampling Report included data for approximately 4,000 wells statewide that were sampled for one or more of 133 agricultural use pesticides/degradates; 25 detections of pesticides/degradates were found in Monterey County (CCWB 2018b).

A recent analysis of pesticide detections in groundwater in the central coast region from CDPR's annual well sampling reports showed an increase in pesticide detections in 2018 compared to 2017; however, this may have been due to an increase in the number of wells sampled in 2018 and/or an increase in reported data available to CDPR in 2018 (well data reported to CDPR in any given year may have come from sampling in prior years) (CCWB 2019a). Also, it is important to note that pesticide detections reported in CDPR well sampling reports are not all confirmed, and sometimes these detections ultimately prove to be errors. Overall, there is relatively little known about potential pesticide pollution of groundwater, as the amount of pesticide monitoring is relatively low in comparison to the number of wells in the central coast and the amount of pesticide use (CCWB 2019a).

### ***Flooding***

The central coast has a long history of flooding, principally within the Salinas and Pajaro River basins and along the coastline. The largest flood of record in the region occurred in March 1995, when the Salinas River reached 95,000 cfs at Spreckles (MCWRA 2014). This flood destroyed approximately one-fourth of the Salinas Valley projected crop value, and damaged more than 30,000 acres of farmland. The flooding also altered the course of the Salinas River in many areas, resulting in the permanent loss of over 1,100 acres of prime farmland due to erosion (MCWRA 2014). This flood caused devastation and endangered lives throughout Monterey County, causing flooding of the Salinas, Carmel, and Pajaro Rivers, and forcing mass evacuations in San Ardo, King City, Greenfield, Soledad, Gonzales, Chualar, Spreckels, parts of Salinas, Castroville, Moss Landing, Pajaro, and the Carmel Valley (MCWRA 2019). Overall, there was damage to 1,500 homes and 110 businesses.

Other recent damaging floods include the February 1998 flood, when 50 roads and highways were closed and agriculture-related losses totaled over \$7,000,000 (MCWRA 2014). The March 2011 floods also were damaging, resulting in damage to at least 1,279 acres of croplands, including approximately \$4,024,000 in lost production value, \$1,545,000 in lost or unrecovered growing costs, and another \$1,002,000 reported for cleanup, ranch repair costs, and other losses (MCWRA 2014). Significant flooding has also occurred throughout history along the Santa

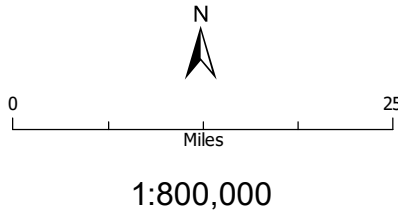
Maria and Santa Ynez Rivers (Santa Maria Times 2019; California Nevada River Forecast Center 2019).

### ***Tsunami, Seiche***

Portions of the central coast region along the coast include areas within mapped tsunami inundation zones. A tsunami is a series of long waves caused by a large and sudden displacement of the ocean. As shown in Figure 2-1, the majority of irrigated agricultural acreage is located further inland in valleys, but some irrigated agriculture also occurs along the coast. Likewise, large standing bodies of water in the central coast region could produce a seiche wave, which is essentially an oscillating wave within an enclosed or semi-enclosed body of water. Seiches are typically caused when strong winds and rapid changes in atmospheric pressure push water from one end of a body of water to the other, although they can also be caused by an earthquake (National Oceanic and Atmospheric Administration 2019). Enclosed waterbodies in the central coast region include San Luis Reservoir, Lake San Antonio, Lake Nacimiento, Lake Cachuma, and Soda Lake, among others.

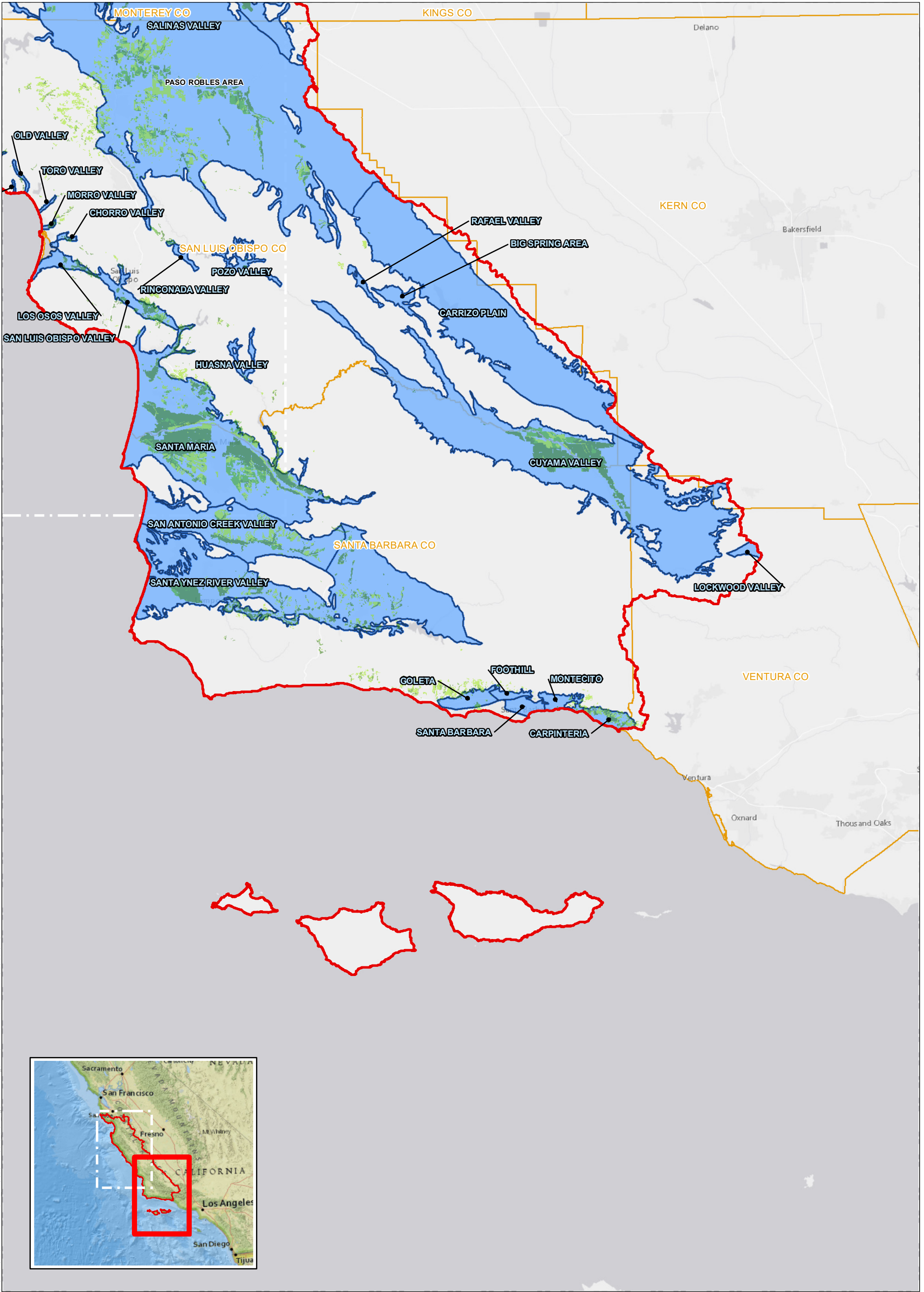


Figure 3.9-5.  
Groundwater Basins

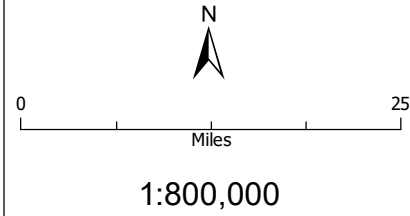


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**Figure 3.9-5.**  
Groundwater Basins



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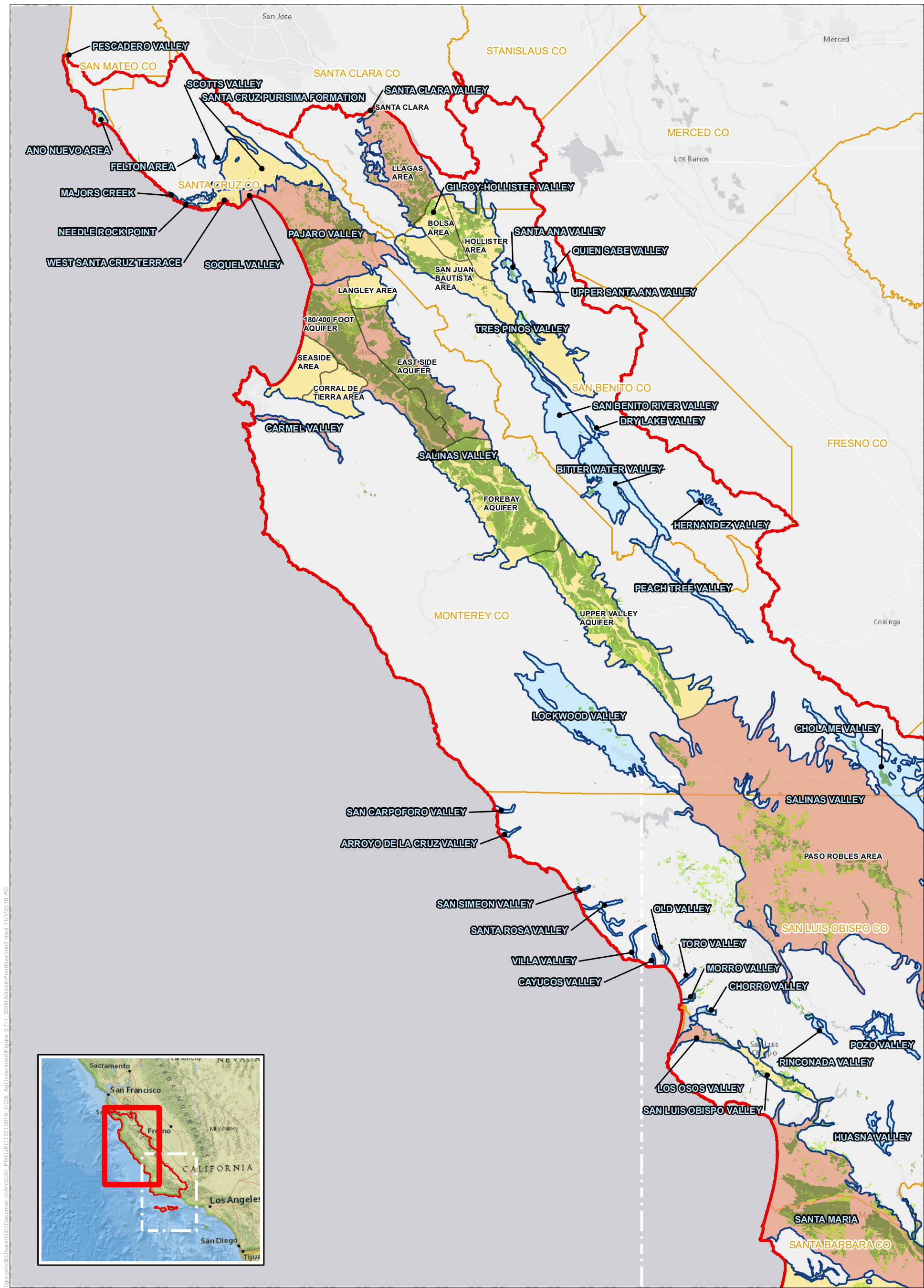


Figure 3.9-6.

California Statewide Groundwater  
Elevation Monitoring Program  
Basin Prioritization

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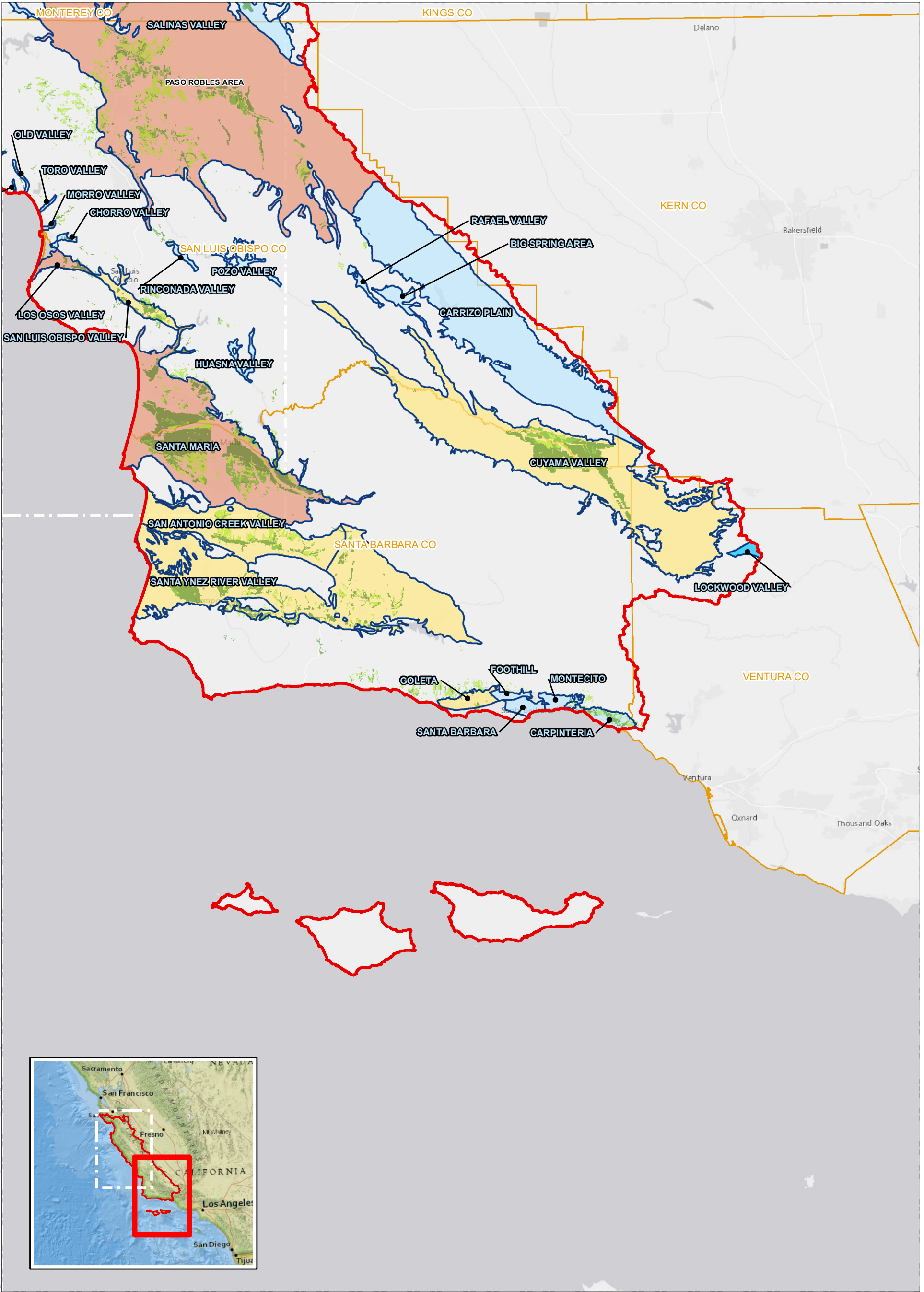
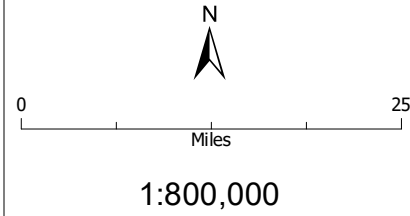


Figure 3.9-6.

California Statewide Groundwater  
Elevation Monitoring Program Basin  
Prioritization



Land Use

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland

Groundwater  
Prioritization

- High
- Medium
- Low
- Very Low

- Groundwater Basins
- Counties
- Central Coast Water Board Jurisdictional Boundary

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### 3.9.4 Impact Analysis

This section describes the methodology and significance criteria that were used to analyze impacts of the Proposed Project on hydrology and water quality. It also presents the analysis of the potential environmental impacts of the Proposed Project.

#### ***Methodology***

This impact analysis uses a qualitative approach to evaluate the potential water quality impacts that could result from Proposed Project activities. As described in Chapter 2, *Project Description*, the precise locations of individual actions that may result from implementation of Agricultural Order 4.0 (e.g., management practice construction/implementation) are not known and cannot be known at this time. Additionally, it is not known which management practices might be implemented by which growers on which ranches. Therefore, the analysis considers generally the impacts to hydrology and water resources that could potentially occur in irrigated lands in the central coast region based on the reasonably foreseeable management practices described in Chapter 2.

In general, potential impacts were assessed based on the degree to which the Proposed Project could result in violations of water quality objectives, impairment of beneficial uses, or water quality conditions that could be harmful to aquatic life or human health. The analysis also considers potential effects on hydrology, groundwater, and flow, using the significance criteria described below.

#### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact related to hydrology and water quality if it would:

- A. Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface water or groundwater quality;
- B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- C. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would result in any of the following:
  - i. substantial erosion or siltation on- or off-site;
  - ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
  - iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage system or provide substantial additional sources of polluted runoff; or
  - iv. impede or redirect flows?

- D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
- E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

### ***Environmental Impacts of the Proposed Project***

#### **Impact HWQ-1: Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface water or groundwater quality. (*Less than Significant with Mitigation*)**

Among the primary objectives of the Proposed Project is to protect and restore beneficial uses and achieve WQOs (as specified in the Central Coast Basin Plan) for commercial irrigated agricultural areas in the central coast region by:

1. Minimizing nitrate discharges to groundwater;
2. Minimizing nutrient discharges to surface water;
3. Minimizing toxicity in surface water from pesticide discharges;
4. Protecting ~~and restoring~~ riparian and wetland habitat; and
5. Minimizing sediment discharges to surface water.

As such, the Proposed Project is designed to avoid and rectify impacts to surface water and groundwater quality caused by discharges from irrigated lands (the Proposed Project itself constitutes WDRs for irrigated agriculture). Nevertheless, the Proposed Project could potentially result in water quality impacts from construction activities (i.e., implementation/construction of management practices) and operation/long-term effects of the Proposed Project (e.g., reduced irrigation return flow, concentrated runoff).

#### **Construction**

Many of the reasonably foreseeable management practices that growers may implement to comply with Agricultural Order 4.0 would involve construction activities/ground disturbance. Specifically, installation of efficient irrigation systems, runoff management features (e.g., swales), sediment retention basins, or bioreactors would all involve some amount of ground disturbance and construction activity. Likewise, establishment of riparian vegetation for riparian buffer areas could require removal of existing crops/vegetation, tilling, and planting of new vegetation.

These activities could loosen soils and allow for erosion and off-site discharge of sediments to occur if proper precautions are not taken (e.g., a precipitation event washing away loose soils/sediments to nearby waterbodies). The construction activities also may involve use of heavy construction equipment, which may use hazardous materials (e.g., fuel, oil, lubricant, etc.) in its operation. Hazardous materials may be stored on site during construction of individual management practices and transported off site or disposed of following completion of



construction. If such materials were to spill or leak from equipment, it could result in adverse impacts on surface water and groundwater quality, including adverse effects on beneficial uses and potential violation of water quality standards.

In some cases, where installation of individual management practices would disturb greater than 1 acre of land and the land disturbance is not related solely to agricultural operations, growers could be subject to the Construction General Permit. As described in Section 3.9.2, the Construction General Permit would require preparation of a SWPPP and implementation of BMPs to minimize soil erosion and discharge of sediments. Compliance with the Construction General Permit and implementation of the SWPPP would prevent substantial impacts to surface water quality from occurring. Where individual management practices would be exempt from enrollment in the Construction General Permit, these activities may be subject to a local grading ordinance, and as such would typically require preparation and implementation of a grading plan, including erosion control measures. Compliance with local grading ordinances would reduce potential impacts to less than significant.

In situations where neither the Construction General Permit nor local grading ordinance applies, growers would need to implement **Mitigation Measure HWQ-1**. This mitigation measure would require implementation of erosion control measures during construction of ground-disturbing management practices. Additionally, implementation of **Mitigation Measure HAZ-1** (refer to Section 3.8) would require that growers follow proper hazardous materials storage and management during construction activities. Given compliance with existing laws and regulations, and with implementation of applicable mitigation measures, this impact would be **less than significant with mitigation**.

### Operation

During operation, over the long term, management practices and the monitoring/reporting requirements of Agricultural Order 4.0 would be expected to improve water quality. As noted above, the Proposed Project itself is WDRs that would be intended to correct ongoing impacts to water quality from irrigated agriculture. Implementation of management practices such as sediment retention basins, runoff management features (e.g., vegetated swales), bioreactors, etc. would have a largely beneficial effect on receiving waters by preventing sediment-laden and potentially polluted (e.g., pesticides, fertilizer residues) runoff from entering nearby waterbodies. Riparian buffers would passively treat runoff prior to discharge to surface waters, as well as provide stream shading and other benefits to water quality.

However, it is possible that some unintended consequences or negative effects on water quality could occur as a result of management practices that are implemented pursuant to Agricultural Order 4.0. For example, efficient irrigation systems could reduce the amount of irrigation water applied, as well as the amount of irrigation runoff, since the application of irrigation water is more targeted and there is less waste. This could result in less water reaching nearby streams via runoff from irrigated lands, which, in turn, could result in reduced flow in these waterbodies. Additionally, due to the reduced volume of irrigation runoff, the water that does reach adjacent waterbodies could be more concentrated with pollutants. Likewise, if flow is decreased in streams as a result of reduced contributions from irrigated agriculture runoff flows, this reduced flow could result in increased concentration of pollutants, as well as increased water temperature, which could have detrimental effects on wildlife and other beneficial uses.

Sediment retention basins and runoff management features could have similar effects in that they would capture runoff on site, and, in some cases (depending on specific facility designs), result in reduced runoff reaching adjacent waterbodies. Riparian buffers could potentially slow or detain runoff (i.e., irrigation return flow or stormwater runoff) and result in reduced flows in adjacent streams.

In general, these potential adverse effects related to reduced flow are largely speculative, as they would depend on any number of site-specific factors that cannot be known at this time and/or cannot be extrapolated or generalized on a regional scale. For example, the amount of runoff at any given farm would depend on at least the following localized characteristics (CCWB 2019b):

- Geology;
- Characteristics of unique groundwater basins;
- Slope of the area;
- Efficiencies of individual sprinkler or drip irrigation systems;
- Climate;
- Precipitation;
- Temperature;
- Elevation; and
- Type of crop (and the point in the growing cycle).

Many of these factors change from year to year or season to season, and individual farms may or may not be near surface waterbodies to which runoff could flow. In addition, many individual farms have already installed efficient irrigation systems (64 percent of reporting acreage under Agricultural Order 3.0; refer to Table 2-5 in Chapter 2, *Project Description*), such that any reduction in flow due to efficient irrigation systems, to the extent that it occurs, is partly represented in the existing condition. Further, under Agricultural Order 4.0, it is impossible to know which farms in which locations will implement which management practices, such as to potentially result in reduced runoff and flow in adjacent streams.

In the process of preparing this FEIR, CCWB contacted numerous individuals, including water/wildlife agency staff, non-profit staff, and a professor in the irrigation department at California Polytechnic University, San Luis Obispo (Cal Poly) to attempt to obtain information on the potential reductions in flow that could occur from Agricultural Order 4.0. While this outreach produced some helpful information, most individuals contacted indicated that quantitative information was not available or that the site-specific factors precluded any blanket statements (CCWB 2019b).

Staff from CCWQP noted in a presentation to CCWB that in 2017 many of the sites monitored by the CMP showed decreasing trends in flow. For example, 50 percent of the sites in the Pajaro and Salinas River basins demonstrated a decreasing trend in median flow, while 91 percent of sites in San Luis Obispo and Santa Barbara counties indicated a decreasing trend in median flow (CCWB 2019b). The CCWQP staff person posited that the reduced flow seen in 2017 was likely the result of both drought and improved irrigation management by growers.

The professor in the irrigation department at Cal Poly acknowledged that possible effects on flow from management practice implementation are difficult to determine and that all of the different variables make it impossible to analyze on a regional scale. Nevertheless, the professor noted several points (CCWB 2019b):

- Drip irrigation will reduce runoff.
- Sprinklers have the potential for more runoff, but generally it is not significant except when used over plastic mulch (e.g., for strawberries). Often in strawberries both sprinklers and drip irrigation are used (sprinklers to start and drip irrigation for most irrigations after strawberries are established; however, sometimes sprinklers are used for pest control).
- The water that plants consume (i.e., evapotranspiration) is independent of irrigation type for the most part. Sprinklers have more evaporation loss but drip irrigation tends to result in healthier plants that transpire more water.
- There has been a significant shift to drip irrigation. However, in most cases vegetables and berries on the coast are planted/transplanted with sprinklers for at least 2-3 weeks before shifting to drip. Nearly all orchards and vineyards on the coast are drip/microspray. Sprinklers are better at establishing the crop for several reasons and they also help to flush salts out of the germinating zone.

Taken together, there is insufficient quantitative information regarding the potential effects of management practices on flow to conclude that a significant impact would occur. Increasing use of drip or micro-irrigation has been occurring over the past 20 years in the central coast region, which has potentially already resulted in some reduced flow in the region's river and streams (although other factors, such as the recent drought, are involved). How much additional increase in efficient irrigation systems, or increase in use of other management practices to detain/capture agricultural runoff, may occur as a result of the Proposed Project is unknown.

Further, the extent to which reductions in runoff/flow could translate to increased concentrations of pollutants in surface waters and groundwater (note: pollutant discharge volumes may also be reduced under Agricultural Order 4.0 due to implementation of other management practices [i.e., buffer strips, vegetated filter strips, treatment of agricultural discharge, IPM, etc.]) is unknown and would be highly site-specific. As a result, this impact is considered speculative, and therefore, **less than significant**.

**Mitigation Measure HWQ-1: Implement Construction Best Management Practices for Erosion Control**

Where construction of management practices would not be subject to the Construction General Permit or local grading ordinance, Agricultural Order 4.0 enrollees must implement the following measures during construction of the improvements, or must implement alternative measures that are demonstrated to be equally or more effective:

- Implement practices to prevent erosion of exposed soil and stockpiles, including watering for dust control, establishing perimeter silt fences, and/or placing fiber rolls.
- Minimize soil disturbance areas.
- Implement practices to maintain water quality, including silt fences, stabilized construction entrances, and storm drain inlet protection.
- Where feasible, limit construction to dry periods.
- Revegetate disturbed areas.

The performance standard for these erosion control measures is to use the best available technology that is economically achievable. These measures may be included in SWPPP requirements, as appropriate.

**Impact HWQ-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. (*Less than significant*)**

Most of the reasonably foreseeable management practices that could be implemented under Agriculture Order 4.0 would not include impervious surfaces that would impede groundwater recharge. On the contrary, many reasonably foreseeable management practices (e.g., runoff management features, sediment detention basins, etc.) would serve to capture and detain agricultural and stormwater runoff flows, thereby potentially allowing for increased percolation and groundwater recharge to occur. Some growers may implement management practices designed to protect groundwater quality while controlling and treating discharges, such as lined ponds. These types of management practices are inherently limited in size and volume due to limitations including space within the ranch boundaries, so the impact on groundwater recharge would not be significant.

Some management practices (e.g., efficient irrigation systems) could increase agricultural water use efficiency. Given that 91 percent of the agricultural water supply in the central coast region currently comes from groundwater, this increased efficiency could reduce groundwater pumping and thus alleviate pressure on supplies. As described in Impact HWQ-1, however, the increased installation of efficient irrigation systems that could result from the Proposed Project also could result in reduced agricultural runoff, as well as potentially reduced percolation of applied irrigation water. As drip or micro-irrigation systems apply water more directly to plant root zones and there is less waste, less water may be applied overall and there may be less excess water that is allowed to percolate/infiltrate to the groundwater below.

The rate of infiltration of water into the soil and ultimately to the groundwater is affected by a number of site-specific factors, including soil characteristics, topography, soil saturation, and other factors (U.S. Geological Survey [USGS] 2019). Because it cannot be known which growers will implement which management practices in which locations, the specific impacts of the Proposed Project on groundwater recharge due to potentially reduced infiltration as a result of efficient irrigation systems cannot be determined. Disregarding the important site-specific factors noted above, it has been estimated that in many irrigated areas, about 75 to 85 percent of applied irrigation water is lost to evapotranspiration and retained in the crops (USGS 2013). The remainder of the water either infiltrates through the soil zone to recharge groundwater or returns to a local surface waterbody through the drainage system. As such, only a fraction of applied irrigation water infiltrates to groundwater under normal conditions.

During construction, practices such as vegetated filter strips and riparian buffer areas would require irrigation to support initial plant establishment, and potentially periodic watering to ensure maturation during the dry season. However, it is not anticipated that the amount of water necessary to support these vegetated areas would substantially decrease groundwater supplies, especially compared to water used for existing agricultural activities.

Overall, Agricultural Order 4.0 would not substantially decrease groundwater supplies or interfere with groundwater recharge such as to impede sustainable management of groundwater basins within the central coast region. Any reduced groundwater infiltration caused by increased efficient irrigation systems would be anticipated to be more than off-set by the reductions in groundwater pumping afforded by this increased efficiency; however, these effects are largely speculative. As described in Section 3.9.3 and shown in **Figure 3.9-6**, many groundwater basins within the region are designated as medium and high priority under CASGEM/SGMA. GSPs are in development for these basins, but the Proposed Project would not be anticipated to conflict with these plans once finalized. As a result, this impact would be **less than significant**.

**Impact HWQ-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:**

**i. Result in substantial erosion or siltation (*Less than Significant with Mitigation*)**

During construction, certain management practices, such as runoff management features, sediment retention basins, and bioreactors, could temporarily alter on-site drainage patterns. Where installation of these features would disturb more than 1 acre of land, growers could be required to comply with the Construction General Permit. As part of compliance with this permit, growers would need to prepare a SWPPP and implement BMPs to help prevent runoff from causing erosion or siltation during construction.

For sites less than 1 acre in size or otherwise exempt from enrollment in the Construction General Permit, growers may be subject to a local grading ordinance, requiring preparation and implementation of a grading plan, including erosion control measures. In situations where management practice construction is not subject to the Construction General Permit or a local grading ordinance, implementation of **Mitigation Measure HWQ-1** would avoid or minimize impacts related to erosion or siltation.

Over the longer term, once installed, management practices such as buffer strips, vegetated filter strips, and sediment basins would all serve to slow or detain runoff as well as reduce potential for erosion and siltation. The vegetation incorporated in these features would provide stability to soils making them less susceptible to erosion, while sediment basins would physically detain sediment and thereby prevent it from being discharged off site to waterbodies. This would be a beneficial effect of the Proposed Project over the long term.

Overall, given compliance with existing laws and regulations, and implementation of applicable mitigation measures, this impact would be **less than significant with mitigation**.

**ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding (*No Impact*)**

As noted under Impact HWQ-2 above, none of the reasonably foreseeable management practices under the Proposed Project would include large impervious surface areas that would increase surface runoff rates and volumes. Proposed Project activities would be focused in areas of existing commercial irrigated agriculture production and would be limited to management practices designed for the protection of water quality. Additionally, as noted under subsection i. above, many of the reasonably foreseeable management practices that could be implemented under Agricultural Order 4.0 would function to reduce surface runoff rates and volumes. Therefore, the Proposed Project would have no potential to substantially increase the rate or amount of surface runoff in a manner which would result in flooding. **No impact** would occur.

**iii. Create runoff which would exceed the capacity of existing or planned stormwater drainage system or provide additional sources of polluted runoff (*Less than Significant*)**

Proposed Project activities would not generate substantial additional sources of runoff and management practices would largely serve to reduce runoff rates and volumes from existing irrigated lands. Areas where activities would occur under Agricultural Order 4.0 would not typically be connected to municipal stormwater drainage systems; therefore, there would be little to no potential for significant impacts on these facilities to occur. As such, this impact would be **less than significant**.

**iv. Impede or redirect flows (*Less than Significant*)**

The Proposed Project would not include reasonably foreseeable management practices that would include large above-ground structures that could impede or redirect flood flows. Some practices would include depressions or swales, or basins, which would have the purpose of collecting and directing flows, but these features would not be anticipated to result in substantial adverse effects on movement of flood waters. As a result, this impact would be **less than significant**.

**Impact HWQ-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation. (*Less than Significant with Mitigation*)**

Ranches subject to Agricultural Order 4.0 could be located in areas prone to flooding or inundation as a result of tsunami or seiche. Many irrigated agricultural areas in CCWB's jurisdiction are located immediately adjacent to streams and rivers and within the Federal

Emergency Management Agency-identified 100-year floodplain. Some ranches also are located along the coast and within a tsunami inundation zone, or near or downstream of reservoirs that could experience seiche.

During construction of management practices, hazardous materials/pollutants (e.g., fuel, oil, lubricant, etc.) may be contained in construction equipment and/or stored on construction sites. If a flood event, tsunami, or seiche were to occur during the construction period for management practices installed on ranches near waterbodies, this could result in such pollutants being released, resulting in adverse effects on water quality. In general, due to the low probability of a 100-year flood event, tsunami, or seiche in any given year, the relatively short duration of construction activities for most management practices, and because management practice construction/installation typically occurs during the dry season, the probability of such an uncontrolled release of hazardous materials/pollutants associated with Proposed Project activities is exceedingly low.

Over the long term, once installed/constructed, management practices implemented under Agricultural Order 4.0 would not place new permanent stores of pollutants within a 100-year flood hazard zone, or tsunami or seiche inundation zone. It is possible that storage of pesticides within a flood hazard zone, or tsunami or seiche inundation zone occurs under existing conditions, but such chemical storage would not be encouraged or increased by the Proposed Project.

Certain management practices that are designed to store and filter runoff, such as sediment retention basins, could potentially release greater volumes of sediment-laden runoff during a flood, while bioreactors could potentially release water with higher concentrations of nitrate from fertilizers, should floodwaters exceed the capacity of those facilities. In general, the degree of impact would depend on the size of the farm or ranch, and how frequently such facilities are maintained (i.e., removal of sediment or replacement of biochar). It would be expected that such facilities also would be designed by a licensed engineer and in compliance with existing state and local regulations.

Placement of facilities that store or filter runoff outside of 100-year floodplains, tsunami and seiche inundation zones per **Mitigation Measure HWQ-2** would reduce this potential impact to a level that is **less than significant with mitigation**.

**Mitigation Measure HWQ-2: Place Management Practices that Involve Retention and/or Treatment of Surface Runoff Outside of 100-Year Floodplains or Tsunami or Seiche Inundation Zones**

To the extent feasible, Agricultural Order 4.0 enrollees must place structural management practices that involve retention or treatment of runoff outside of Federal Emergency Management Agency-designated 100-year floodplains or identified tsunami or seiche inundation zones. Where seiche inundation zones have not been mapped, enrollees should use good judgment in not placing structural management practices for sediment retention in areas immediately adjacent to large standing waterbodies that could be inundated during a seiche event.

**Impact HWQ-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (No Impact)**

As described in Chapter 2, *Project Description*, the primary purpose of Agricultural Order 4.0 is to “protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan for commercial irrigated agricultural areas in the central coast region...” As such, the Proposed Project would support implementation of the Basin Plan. As described in Impact HWQ-1 above, certain unintended consequences (e.g., reduced runoff and surface water flow, increased concentration of pollutants) of management practice implementation and Agricultural Order 4.0 compliance are possible; however, these effects are largely speculative and, even if they could be quantified, would very likely be outweighed by the benefits of the Proposed Project.

The Proposed Project would have limited potential to adversely affect groundwater supplies or limit recharge (see discussion under Impact HWQ-2). Reasonably foreseeable management practices under Agricultural Order 4.0 would not use substantial groundwater supplies or include large new impervious surfaces and would generally benefit groundwater quality by reducing nitrate loading and potential pesticide pollution. While some reduced percolation/groundwater recharge could occur under Agricultural Order 4.0 due to efficient irrigation systems (which may apply less water overall or result in less excess water that is not taken up by the plants), this would likely be more than offset by reductions in groundwater pumping that may be afforded through the same efficient irrigation systems.

Although GSPs are still in preparation for many of the medium and high priority groundwater basins in the central coast region, the Proposed Project is not expected to conflict with implementation of these GSPs in any way. Overall, **no impact** would occur.



## 3.10 Noise

### 3.10.1 Introduction

This section presents acoustic and vibration fundamentals, and the regulatory and environmental settings and potential impacts of the Proposed Project related to noise and vibration.

### 3.10.2 Acoustic Fundamentals

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound typically associated with human activity and that interferes with or disrupts normal activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, time of day, perceived importance of the noise, sensitivity of the individual, its appropriateness in the setting, and the type of activity during which the noise occurs.

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and intensity. Frequency describes the pitch of a sound and is measured in Hertz (Hz) (i.e., the number of times per second the crest of a sound pressure wave passes a fixed point), whereas intensity describes the loudness of sound and is measured in decibels (dB), using a logarithmic scale. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above about 120 dB begin to be felt inside the human ear as discomfort and eventually as pain at still higher levels. The minimum change in the sound level of individual events that an average human ear can detect is approximately 3 dB. The average person perceives a change in sound level of approximately 10 dB as a doubling (or halving) of the sound's loudness; this relation holds true for sounds of any loudness.

Different types of measurements are used to characterize the time-varying nature of sound. Below are brief definitions of these measurements and other terminology used in this chapter.

- **Decibel (dB)** is a measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- **A-weighted decibel (dBA)** is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Maximum sound level ( $L_{\max}$ )** is the maximum sound level measured during a given measurement period.
- **Minimum sound level ( $L_{\min}$ )** is the minimum sound level measured during a given measurement period.

- **Equivalent sound level ( $L_{eq}$ )** is the equivalent steady-state sound level that, in a given period, would contain the same acoustical energy as a time-varying sound level during that same period.
- **Percentile-exceeded sound level ( $L_{xx}$ )** is the sound level exceeded during x percent of a given measurement period. For example,  $L_{10}$  is the sound level exceeded 10 percent of the measurement period.
- **Day-night sound level ( $L_{dn}$ )** is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels during the period from 10:00 p.m. to 7:00 a.m. (typical sleeping hours). This weighting adjustment reflects the elevated sensitivity of individuals to ambient sound during nighttime hours.
- **Community noise equivalent level (CNEL)** is the energy average of the A-weighted sound levels during a 24-hour period, with 5 dB added to the A-weighted sound levels between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels between 10:00 p.m. and 7:00 a.m.

Examples of common noise levels are shown in Error! Reference source not found..

**Table 3.10-1.** Examples of Common Noise Levels

Common Outdoor Activities	Noise Level (dBA)
Jet flyover at 1,000 feet	110
Gas lawnmower at 3 feet	100
Diesel truck at 50 feet traveling 50 miles per hour	90
Noisy urban area, daytime	80
Gas lawnmower at 100 feet, commercial area	70
Heavy traffic at 300 feet	60
Quiet urban area, daytime	50
Quiet urban area, nighttime	40
Quiet suburban area, nighttime	30
Quiet rural area, nighttime	20

Source: California Department of Transportation (Caltrans) 2009

### 3.10.3 Vibration Fundamentals

Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hertz (Hz). Similar to noise, most environmental vibrations consist of a composite, or “spectrum,” of many frequencies. The normal frequency range of most ground-borne vibrations that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Velocity or acceleration are usually used to describe the response of humans,

buildings, and equipment to vibration (Federal Transit Administration [FTA] 2018). Vibration information in this document has been described in terms of the peak particle velocity (PPV), which is defined as the maximum instantaneous peak of the vibration signal (FTA 2018). Although PPV is appropriate for evaluating the potential of building damage, it is not suitable for evaluating human response and VdB is used instead.

Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. High-frequency vibrations reduce much more rapidly than do those characterized by low frequencies, so that in an area distant from a source, the vibrations with lower frequency amplitudes tend to dominate. Soil properties also affect the propagation of vibration. When ground-borne vibration interacts with a building, a ground-to-foundation coupling loss usually results but the vibration also can be amplified by the structural resonances of the walls and floors. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. In some cases, the vibration of building surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as ground-borne noise.

Ground-borne vibration is generally limited to areas within a few hundred feet of certain types of industrial operations and construction/demolition activities, such as pile driving. Road vehicles rarely create enough ground-borne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source or the road surface is poorly maintained and has potholes or bumps.

### 3.10.4 Regulatory Setting

#### ***Federal Laws, Policies, and Regulations***

No federal laws, regulations, or policies for construction-related noise and vibration apply to the Proposed Project. However, Guidelines for Construction Vibration in Transit Noise and Vibration Impact Assessment states that for evaluating daytime construction noise impacts in outdoor areas, a noise threshold of 90 dBA  $L_{eq}$  and 100 dBA  $L_{eq}$  should be used for residential and commercial/industrial areas, respectively (FTA 2018).

Vibration can impact both humans and buildings; therefore, thresholds have been established for both of these types of receptors. For construction vibration impacts, the FTA guidelines use an annoyance threshold of 80 VdB for infrequent events (fewer than 30 vibration events per day) and a damage threshold of 0.12 inches per second (in/sec) PPV for buildings susceptible to vibration damage (FTA 2018).

#### ***State Laws, Policies, and Regulations***

The State of California requires each local government entity to implement a noise element as part of its general plan. California Administrative Code, Title 4, presents guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The State land use compatibility guidelines are listed in **Table 3.10-2**.

**Table 3.10-2.** State Land Use Compatibility Standards for Community Noise Environment

Land Use Category	Community Noise Exposure - $L_{dn}$ or CNEL (dB)						
	50	55	60	65	70	75	80
Residential – Low Density Single Family, Duplex, Mobile Homes							
Residential - Multi-Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							
<b>Normally Acceptable</b>	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.						
<b>Conditionally Acceptable</b>	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.						
<b>Normally Unacceptable</b>	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.						
<b>Clearly Unacceptable</b>	New construction or development generally should not be undertaken.						

Source: California Governor's Office of Planning and Research 2017

### ***Local Laws, Policies, and Regulations***

Many cities and counties have established general plan noise elements and/or noise ordinance thresholds to regulate noise generation and minimize conflicts between land uses. These local plans and ordinances are typically consistent with the state's land use compatibility guidelines. In general, the normally acceptable noise limit for activities in agricultural areas is higher (75 dB) than for other land uses, and many local jurisdictions exempt agricultural operations from the requirements in noise regulations. Construction noise ordinances often require that activities are conducted during daylight hours.

## **3.10.5 Environmental Setting**

### ***Existing Noise Environment***

Activities associated with the Proposed Project could occur in various areas throughout the central coast region, primarily in rural or agricultural areas. While the magnitude and characteristics of ambient sound in these areas could vary on a case-by-case basis; generally, the ambient noise at most existing irrigated agricultural operations is expected to be relatively low, albeit with intermittent periods of higher noise levels. Potential noise sources would include operation of agricultural equipment and vehicle traffic along local roads and highways. Highway 101 runs through large sections of irrigated land (e.g., the Salinas Valley) in the central coast region. Some irrigated agricultural lands abut populated areas and major noise sources such as airports, railroads, mining, and industrial operations. Military bases including Camp Roberts and Vandenberg Air Force Base are located in proximity to some irrigated lands.

### ***Sensitive Receptors***

As noted above, Proposed Project activities would mostly occur in rural environments. As a result, sensitive receptors are likely to be relatively few and far between in these commercial agricultural areas. However, in many locations, single-family homes are present in relative proximity to irrigated agricultural areas. Additionally, there are situations where parks, recreational trails, schools, hospitals, or other sensitive land uses are located nearby agricultural fields where compliance activities may take place.

## **3.10.6 Impact Analysis**

### ***Methodology***

As Agricultural Order 4.0 would not specify or prescribe specific management practices that growers must undertake, it is impossible to know which growers will implement which types of management practices in which locations pursuant to the Order. Therefore, it was not possible to perform a detailed quantitative analysis of the potential impacts of the Proposed Project. Instead, a general quantitative assessment of the equipment types most likely to be used was conducted along with a qualitative evaluation of the change from baseline related to noise and vibration generation under the Proposed Project, and the potential for noise and vibration impacts. The qualitative analysis considered the typical noise and vibration sources associated with irrigated agricultural operations, the existing noise conditions throughout the Project area, and the additional noise that reasonably could occur due to activities conducted under the Proposed Project.

### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact related to noise if it would result in:

- A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Proposed Project in excess of standards established in a local general plan or noise ordinance or in the applicable standards of other agencies;
- B. Generation of excessive ground-borne vibration or ground-borne noise levels; or
- C. Be located within the vicinity of a private airstrip or an airport land use plan area, or, where such a plan has not been adopted, be within 2 miles of a public airport or public-use airport, such that people residing or working in the Project site are exposed to excessive noise levels.

### ***Environmental Impacts of the Proposed Project***

**Impact NOI-1: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Proposed Project in excess of standards established in a local general plan or noise ordinance or in the applicable standards of other agencies. (*Less than Significant with Mitigation*)**

#### ***Construction***

Construction of certain management practices (e.g., sediment retention basins, vegetated filter strips, riparian buffer areas, etc.) implemented as a result of Agricultural Order 4.0 could require the use of noise-generating equipment, such as excavators, dump trucks, loaders, etc. **Table 3.10-3** lists these types of equipment and their associated noise levels. Using the two loudest pieces of equipment from Table 3.10-3 and assuming they are operating in close proximity to each other at the same time, **Table 3.10-4** lists the combined estimated noise levels at various distances from receptors.

**Table 3.10-3.** Typical Construction Equipment Associated with Reasonably Foreseeable Management Practices

<b>Equipment Type</b>	<b>Noise Level at 50 Feet (dBA)</b>
Bulldozer	85
Dump trucks	84
Excavator	85
Loaders	80
Pumps	81
Scrapers	85
Tractor	84

*Source: FTA 2018, FHWA 2019*

**Table 3.10-4.** Estimated Noise Levels at Various Distances

Distance to Receptor (feet)	Noise Level (dBA)
50	88.0
100	82.0
200	76.0
400	69.9
500	68.0
1,000	62.0
1,500	58.5
2,000	56.0
2,500	54.0
3,000	52.4

Note: Noise levels in this table are based on the combined noise from the two loudest noise sources in Table 3.10-3 (i.e., bulldozer/ excavator/scrapper), which all have a reference noise level of 85 dB at 50 feet.

As shown in Table 3.10-3 and Table 3.10-4, construction equipment for management practices requiring ground-disturbance in their installation could be quite loud, although noise would dissipate at greater distances from the activities. Although it is not known specifically where such construction activities would take place, in general it is presumed that the majority of management practices would be constructed/installed within existing commercial irrigated agricultural lands, or, if not, on the periphery or immediately adjacent to existing fields. For example, it is possible that sediment basins or vegetated filter strips could be installed on the periphery of existing fields such as to capture or route runoff; whereas riparian buffer vegetation would be established adjacent to existing waterbodies.

As discussed in Section 3.10-5, it is possible that sensitive receptors (e.g., residences, recreational areas, senior living centers, etc.) could be located adjacent to or nearby agricultural areas in some locations in the central coast region. As such, these receptors could potentially be subjected to elevated noise levels due to the construction activities for reasonably foreseeable management practices. The severity of this impact would depend on the specific locations of management practices and their relation to nearby existing land uses, which cannot be known at this time.

In general, local noise ordinances and regulations permit construction noise provided that it occurs during regular hours (typically 7 a.m. to 7 p.m.). Additionally, agricultural activities are often exempt from noise requirements. Although construction of management practices may not qualify as “agricultural activity,” the noise generated and equipment used during these

activities would not be fundamentally dissimilar from other typical activities that occur within commercial irrigated agricultural lands (e.g., operation of tractors and other mechanical equipment during tilling, harvesting, etc.). In some jurisdictions, a construction noise permit would be required for construction activities within a certain distance of residential units. Installing management practices in compliance with Agricultural Order 4.0 would not relieve growers of the responsibility to comply with local laws and regulations.

Due to the fact that construction noise from management practices ~~and/or setback~~ implementation would (1) be temporary; (2) occur within or immediately adjacent to existing agricultural fields; (3) need to comply with local laws and regulations; and (4) not be substantially dissimilar from other on-going activities (e.g., use of noisy equipment) that occur within agricultural areas, this impact would be **less than significant**.

### *Operation*

Once installed/constructed, the majority of reasonably foreseeable management practices for the Proposed Project would not generate substantial noise. Practices such as sediment basins, vegetated filter strips, denitrifying bioreactors, nutrient management, etc., would not generate noise during their operation. Similarly, once established, riparian vegetation would not generate noise. These practices or areas would only generate minimal noise (i.e., from potential operation of mechanical equipment) during periodic maintenance activities, such as clearing out accumulated sediment, replacing organic materials in bioreactors, or vegetation management in ~~setback~~ riparian buffer areas.

Certain management practices or facilities that could be installed under the Proposed Project could have components that could generate operational noise. Efficient irrigation systems could include a pump or other pressurization equipment that could generate noise, although this may not differ substantially from a grower's prior irrigation system (e.g., if they currently have a sprinkler system that uses a pump). New groundwater monitoring wells that may be installed pursuant to the groundwater trend monitoring requirements could also include pumps that could generate noise. However, given that these new wells would be installed specifically for monitoring purposes, it is assumed that they would not operate continuously and the pumps would only run periodically during monitoring events.

As discussed under "Construction" above, although specific locations of management practice implementation or new monitoring well installation are not known at this time, it is reasonable to assume that features would be sited in areas of existing irrigated agricultural production. In some cases, such agricultural areas could be adjacent to or near sensitive receptors, such as residences, recreational areas, etc., and thus noise-generating appurtenances could expose these receptors to noise. To minimize this potential impact, **Mitigation Measure NOI-1** would be implemented, which would require that noise from well pumps and other stationary equipment is reduced to the extent feasible. This mitigation measure would reduce potential impacts from operational noise to a level that is less than significant.

It is also worth noting that some reasonably foreseeable management practices, such as reduced fertilizer/pesticide application and reduced tillage, could potentially result in decreased generation of noise relative to baseline conditions. These practices could reduce the use of associated equipment (e.g., tractors or other mechanical equipment used in pesticide/fertilizer



applications and tilling activities). Additionally, ~~implementation of the setback requirements and~~ establishment of any new or expanded vegetated buffers may reduce noise impacts at nearby receptors by acting as a noise barrier and/or increasing the distance between noise generating equipment and the receptor. These effects would be beneficial with respect to noise and baseline conditions. Overall, this impact would be **less than significant with mitigation**.

**Mitigation Measure NOI-1: Reduce Noise Generated by Pumps or Other Stationary and Permanent Noise-Generating Equipment**

If well or irrigation system pumps or other stationary and permanent noise-generating equipment is proposed to be installed, enrollees or third-party members must ensure that such facilities are enclosed or located behind barriers such that noise does not exceed applicable local noise standards or limits specified in the applicable county ordinances and general plan noise elements.

**Impact NOI-2: Generation of excessive ground-borne vibration or ground-borne noise levels. (*Less than Significant*)**

Earthmoving equipment (e.g., excavators, bulldozers, dump trucks, etc.) used for constructing certain reasonably foreseeable management practices would have the greatest potential to generate ground-borne vibration or ground-borne noise as a result of the Proposed Project. The ground-borne vibration or noise that could result from such activities would be similar to that which occurs during typical construction projects throughout the central coast region. Construction of management practices for the Proposed Project is not expected to require blasting, pile-driving, or other methods that could generate higher levels of ground-borne vibration or noise.

As noted above, it is possible that some management practices could be installed in areas adjacent to or near sensitive land uses (e.g., residential) or existing buildings, although in most cases it is assumed that Proposed Project activities would occur in existing irrigated agricultural fields, which are typically rural in nature and separated from sensitive land uses. If construction of management practices requiring use of ground-disturbing equipment were to occur in areas immediately adjacent to existing sensitive land uses/buildings, this could potentially result in annoyance of occupants or other affected persons due to the ground-borne vibration or noise. It is not anticipated that ground-borne vibration levels from Proposed Project construction activities would be sufficient to damage any buildings or structures, regardless of their proximity.

Given that any potential ground-borne vibration or noise impacts from construction activities would be temporary in nature, this impact would be less than significant. Growers, third-party members, or their contractors would need to comply with local county or city construction noise ordinances (e.g., limiting activities to daylight hours), including any applicable regulations related to ground-borne vibration and ground-borne noise.

During operation, most management practices that could be implemented under the Proposed Project would generate little to no ground-borne vibration or ground-borne noise. Facilities such as sediment basins, vegetated filter strips, and denitrifying bioreactors clearly would not generate ground-borne vibration or noise during operation. While tilling and application of fertilizers or pesticides using mechanical equipment could generate some ground-borne

vibration or noise, reducing tilling or fertilizer/pesticide applications under the Proposed Project could reduce ground-borne vibration or noise. Regardless, the level of ground-borne vibration or ground-borne noise that could be generated from ongoing management practice implementation, operation and maintenance, and monitoring and reporting activities under the Proposed Project would not be excessive. Additionally, as part of agricultural activities, it would be exempt from most local noise regulations.

Overall, this impact would be **less than significant**.

**Impact NOI-3: Be located within the vicinity of a private airstrip or an airport land use plan area, or, where such a plan has not been adopted, be within 2 miles of a public airport or public-use airport, such that people residing or working in the Project area are exposed to excessive noise levels. (*Less than Significant*)**

There are multiple airports in the central coast region, and some are close, or adjacent, to agricultural lands (see Figure 3.8-1 in Section 3.8, *Hazards and Hazardous Materials*). The Proposed Project would not create any new housing or alter existing housing; therefore, it would not place new residents or people within an area subject to excessive noise levels associated with airport operations.

For existing irrigated agricultural fields within the vicinity of a private airstrip or an airport land use plan (ALUP) area, implementation of the Proposed Project would not substantially change existing activities such as to increase exposure to noise. Compliance with Agricultural Order 4.0 may require construction of management practices within 2 miles of an airstrip or airport, but these activities would be temporary. Compliance with Agricultural Order 4.0 also may require some additional monitoring and reporting activities by growers, including potentially increased worker pedestrian and vehicle trips to monitoring locations. While these activities, to the extent that they may occur within the vicinity of a private airstrip or an ALUP area, could expose agricultural workers, growers, or third-party members to noise, these effects would not be substantial. Therefore, this impact would be **less than significant**.

## 3.11 Tribal Cultural Resources

### 3.11.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to tribal cultural resources (TCRs). TCRs include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe. As such, TCRs may contain physical cultural remains (i.e., materials found in archaeological sites), or they may be places within the natural landscape.

### 3.11.2 Regulatory Setting

#### ***Federal Laws, Regulations, and Policies***

Federal law does not address TCRs, although Traditional Cultural Properties are addressed in Section 106 of the NHPA. However, actions under the Proposed Project are not expected to require federal permits or occur on federal land; therefore, the NHPA would not apply.

#### ***State Laws, Regulations, and Policies***

Assembly Bill 52 (Statutes of 2014, Chapter 532), which went into effect on July 1, 2015, requires that lead agencies under CEQA consult with California Native American tribes that have requested in writing to be notified and that are traditionally and culturally affiliated with the geographic area of a proposed project, prior to the development of a CEQA document. Under the same bill, PRC Section 21084.2 specifies that a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment.

As defined in PRC Section 21074(a), TCRs are:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
  1. Included or determined to be eligible for inclusion in the CRHR; or
  2. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

In addition to Section 21074(a) above, TCRs are further defined under Section 21074(b) and (c) as follows:

1. A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and
2. A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a) [of Section 21074].

Mitigation measures for TCRs may be developed in consultation with the affected California Native American tribe in accordance with PRC Section 21080.3.2 or Section 21084.3. The latter section identifies mitigation measures that include avoidance and preservation of TCRs and treating TCRs with culturally appropriate dignity, taking into account tribal cultural values and the meaning of the resource.

### ***Local Laws, Regulations, Plans, and Policies***

Because the passage and implementation of PRC Section 21080.3.1 is relatively recent, TCRs are rarely identified in city and county general plans. However, since the passage of Senate Bill 18 in 2004, which requires consultation with California Native American tribes during the development of a general plan, many cities and counties have included requirements for consultation with the California Native American tribes traditionally and culturally affiliated with the area during development of their general plans or substantial general plan updates. Volume 2, Appendix B lists potentially applicable goals and policies in general plans for counties in the central coast region.

## **3.11.3 Environmental Setting**

### ***Tribal History in California and the Central Coast Region***

California had the densest aboriginal population within the continental United States prior to European and Euro-American colonization (Castillo 1978). Estimates of the number of indigenous inhabitants have varied widely over the decades, but the general consensus, at present, is that approximately 300,000 people representing 80 or more tribes lived within the borders of what we now call California (Castillo 1978, 2016; Cook 1978). As noted in Section 3.4.3, the central coast region was occupied by a number of tribal groups. From north to south, these included the Costanoan, Esselen, Salinan, and the Chumash.

### ***Native American Consultation Conducted for the Proposed Project***

CCWB contacted the NAHC on November 26, 2018, to request a comprehensive list of all tribes within the central coast region. The NAHC responded on November 29, 2018 with a list that contained the contact information for 27 tribes and individuals. On December 18, 2018, CCWB sent letters, via registered mail through the U.S. Postal Service, to all tribes included in the NAHC list. The letters described CCWB’s intent to produce this EIR for the Proposed Project and salient aspects of the Proposed Project itself. The letters provided notice of CCWB’s consideration of the Proposed Project’s potential to affect TCRs and invited the letter recipients to contact CCWB if they wished to consult on the Proposed Project in accordance with PRC Section 21080.3.1. The results of CCWB’s Native American consultation process are described in **Table 3.11-1**.

**Table 3.11-1. Native American Consultation**

<b>Organization/Tribe</b>	<b>Name of Contact</b>	<b>Letter Date</b>	<b>Tribal Response</b>	<b>Comments</b>
Amah Mutsun Tribal Band	Edward Ketchum	12/18/2018	No response, to date.	Follow-up email sent 1/25/2019. No phone number provided. Staff spoke to tribe's Chairperson on 1/25/2019.
Amah Mutsun Tribal Band	Valentin Lopez, Chairperson	12/18/2018	1/25/2019	Follow-up phone call 1/25/2019 Staff spoke with Chairman Lopez by phone on 1/25/2019. Chairman Lopez asked staff to resend letter via email. Staff resent letter on 1/25/2019.
Amah Mutsun Tribal Band of Mission San Juan Bautista	Irenne Zwierlein, Chairperson	12/18/2018	2/9/2019	Follow-up phone call 1/28/2019 Follow-up email sent 2/8/2019. A representative for the tribe responded asking staff to mail letter to a provided address.
Barbareno/Ventureno Band of Mission Indians	Patrick Tumamait	12/18/2018	No response, to date.	"Cert Card" received with signature indicating receipt of certified mail. 12/21/2018.
Barbareno/Ventureno Band of Mission Indians	Julie Tumamait-Stennslie, Chairperson	12/18/2018	No response, to date.	Follow-up email sent 2/8/2019. Follow-up phone call 2/8/2019.
Barbareno/Ventureno Band of Mission Indians	Eleanor Arellanes	12/18/2018	No response, to date.	"Cert Card" received with signature indicating receipt of certified mail. 12/24/2018.
Barbareno/Ventureno Band of Mission Indians	Raudel Banuelos, Vice Chairperson	12/18/2018	No response, to date.	"Cert Card" received with signature indicating receipt of certified mail. 12/21/2018.

<b>Organization/Tribe</b>	<b>Name of Contact</b>	<b>Letter Date</b>	<b>Tribal Response</b>	<b>Comments</b>
Chumash Council of Bakersfield	Julio Quair, Chairperson	12/18/2018	No response, to date.	"Cert Card" received with signature indicating receipt of certified mail. 12/21/2018.
Coastal Bands of the Chumash Nation	Mia Lopez, Chairperson	12/18/2018	No response, to date.	Follow-up email sent 1/25/2019. Follow-up phone call 2/4/2019.
Costanoan Ohlone Rumsen-Mutsun Tribe	Patrick Orozco, Chairman	12/18/2018	No response, to date.	Follow-up email sent 1/29/2019. Follow-up phone call 2/4/2019.
Costanoan Rumsen Carmel Tribe	Tony Cerda, Chairperson	12/18/2018	No response, to date.	Follow-up email sent 1/29/2019. Follow-up phone call 2/4/2019.
Esselen Tribe of Monterey County	Tom Nason, Chairman	12/18/2018	12/18/2018	Email response simply says "CULTURAL COMMITTEE ITEM."
Fernandeno Tataviam Band of Mission Indians	Beverly Salazar-Folkes, Elders Council	12/18/2018	No response, to date.	Tribe's Cultural Preservation Officer deferred to tribes within the region.
Fernandeno Tataviam Band of Mission Indians	Jairo Avila, Tribal Historic and Cultural Preservation Officer	12/18/2018	12/20/2018	Declined to participate/deferred to local tribes.
Fernandeno Tataviam Band of Mission Indians	Alan Salazar, Chairman Elders Council	12/18/2018	No response, to date.	"Cert Card" received with signature indicating receipt of certified mail. 12/28/2018. Tribe's Cultural Preservation Officer deferred to tribes within the region.
Indian Canyon Mutsun Band of Costanoan	Anne Marie Sayers, Chairperson	12/18/2018	2/4/2019	Follow-up email sent 1/29/2019

Organization/Tribe	Name of Contact	Letter Date	Tribal Response	Comments
				Follow-up phone call 2/4/2019 Staff spoke with Chairperson Sayers on 2/4/2019. Chairperson Sayers asked staff to resend the letter via email. Staff resent letter on 2/4/2019.
Muwekma Ohlone Indian Tribe of the SF Bay Area	Charlene Nijmeh, Chairperson	12/18/2018	12/20/2018	Chairwoman Nijmeh responded with several documents intended for John Robertson's review. These documents included a letter to John in which she states the tribe "...would like to be informed and consulted (as per SB 18 and AB52) on any and all projects within our territory and your district's jurisdiction."
Ohlone/Costanoan-Esselen Nation	Christanne Arias, Vice Chairperson	12/18/2018	No response, to date.	Certified mail returned unclaimed. Follow-up phone call 2/8/2019. No email provided.
Ohlone/Costanoan-Esselen Nation	Louise Miranda-Ramirez, Chairperson	12/18/2018	No response, to date.	Follow-up email sent 2/8/2019. Follow-up phone call 2/8/2019.
Salinan Tribe of Monterey, San Luis Obispo Counties	John Burch, Traditional Lead	12/18/2018	2/11/2019	Follow-up email sent 2/8/2019 Follow-up phone call 2/8/2019 A representative for the tribe responded to staff email stating, "Yes we did receive the notice. We have no input or concerns at this time."

<b>Organization/Tribe</b>	<b>Name of Contact</b>	<b>Letter Date</b>	<b>Tribal Response</b>	<b>Comments</b>
San Fernandeno Band of Mission Indians	Donna Yokum, Chairperson	12/18/2018	No response, to date.	"Read Receipt" received indicating receipt of email. 12/18/2018.
San Luis Obispo County Chumash Council	Mark Vigil, Chief	12/18/2018	No response, to date.	"Cert Card" received with signature indicating receipt of certified mail. 12/21/2018.
Santa Ynez Band of Chumash Indians	Kenneth Kahn, Chairperson	12/18/2018	No response, to date.	"Read Receipt" received indicating receipt of email. 12/18/2018.
The Ohlone Indian Tribe	Andrew Galvan	12/18/2018	2/8/2019	Follow-up email sent 2/8/2019 Follow-up phone call 2/8/2019 Staff spoke with Mr. Galvan by phone on 2/8/2019. Mr. Galvan indicated that he had received the communications and was not likely to have input at this time.
Xolon-Salinan Tribe	Karen White, Chairperson	12/18/2018	12/29/2018	Chairperson White responded indicating concern for the health of ancestral lands and waters and provided one example of several concerns.
Xolon-Salinan Tribe	Donna Haro, Tribal Headwoman	12/18/2018	2/8/2019	Follow-up email sent 2/8/2019. Follow-up phone call 2/8/2019. Staff spoke to Headwoman Haro by phone on 2/8/2019. Headwoman Haro said the tribe had received the letter but they were not prepared to comment at this time.
yak tityu tityu yak tilhini -Northern Chumash Tribe	Mona Tucker, Chairperson	12/18/2018	2/9/2019	Follow-up email sent 2/8/2019.



Organization/Tribe	Name of Contact	Letter Date	Tribal Response	Comments
				Follow-up phone call 2/8/2019. Chairperson Tucker responded to staff email stating, "If there is construction of infrastructure needed for discharge of water, we would need to be notified of excavation taking place in San Luis Obispo County in any areas of cultural sensitivity."

### 3.11.4 Impact Analysis

#### ***Methodology***

This analysis evaluates potential impacts to TCRs that may result from implementation of management practices and other actions that could occur under the Proposed Project. Potential impacts have been compared against the thresholds of significance discussed below.

#### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the State CEQA Guidelines, the Proposed Project would result in a significant impact to TCRs if it would:

1. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:
  1. Listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k); or
  2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant under the criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

### ***Environmental Impacts of the Proposed Project***

#### **Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource. (*Less than Significant with Mitigation*)**

The Proposed Project encompasses a broad geographical region that is rich in resources and was home to a large number of Native American tribes, or tribelets, prior to colonization. These indigenous communities are represented today by descendants who maintain a strong cultural connection to their ancestral lands.

Many of the reasonably foreseeable management practices that could be implemented under the Proposed Project to comply with discharge, receiving water, and application limits would have little to no potential to impact TCRs. For example, practices such as rotating crops, applying less fertilizer, applying pesticides per labeling directions, and other similar practices would not impact TCRs. These activities would take place within existing irrigated agricultural fields and would not substantially change any landscape, site, or place that could have tribal cultural significance. Likewise, many of the monitoring and reporting activities that could occur under the Proposed Project (e.g., surface water monitoring, pedestrian and vehicle trips to monitoring sites, groundwater sampling and analysis via existing wells) would have no potential to substantially affect TCRs.

While Proposed Project activities would have limited to no potential to substantially affect sites, features, places, or cultural landscapes that could be TCRs, certain activities could potentially affect buried objects or materials that could be TCRs. Construction/installation of reasonably foreseeable management practices that involve ground disturbance (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors, etc.) could potentially uncover buried TCRs. As discussed in Section 3.4, *Cultural Resources*, it is assumed that the majority of management practices and other activities (e.g., installation of new monitoring wells) under the Proposed Project would occur within existing irrigated agricultural fields. In general, these areas are subject to repeated disturbance (e.g., tilling) and thus Proposed Project activities disturbing the top soil layers in these areas would not be expected to uncover any buried TCRs or other cultural resources.

However, while most activities would occur within existing fields, it is possible that certain management practices could be constructed/installed in areas adjacent to existing fields that have not been subject to prior disturbance. Facilities such as sediment basins or bioreactors could be installed on the periphery of fields (downgradient) to receive runoff and could be placed in undisturbed areas. Additionally, certain management practices, although located within existing fields, could be installed to depths below the prior disturbance limits (e.g., excavation for construction of a sediment basin could disturb soil to 5 feet deep, whereas routine disturbance from tilling and other activities only reaches to 2 feet deep). These types of activities could potentially impact TCRs if they were present within the proposed disturbance area and proper protocols were not followed.

Implementation of **Mitigation Measure CUL-1** would avoid or reduce potential impacts on TCRs by requiring that growers or third parties retain a qualified archaeologist in the event that proposed management practices or other actions would involve modifications to previously undisturbed soils. The qualified archaeologist would conduct a CHRIS records search, contact the NAHC to request a search of the Sacred Lands files, contact tribes who have a traditional and

cultural affiliation with the proposed disturbance area, and conduct a pedestrian survey of the site (if one has not already been conducted). This process would identify any TCRs that may be present in the proposed impact area and allow for input by affiliated tribes. Mitigation Measure CUL-1 would require that growers or third parties avoid identified significant resources to the extent feasible. If avoidance is not feasible, the qualified archaeologist would be required to develop a data recovery plan, which applicable tribes would have the opportunity to review.

Additionally, **Mitigation Measure CUL-3** would require that California Health and Safety Code Section 7050.5 is followed for any human remains known to be present within archaeological sites or inadvertently encountered during the course of excavation activities for individual management practices. This would include contacting the NAHC for any remains that are determined to be those of a Native American individual by the coroner, identification of a MLD by the NAHC, and working with the MLD to ensure that the remains are removed to a protected location and treated with dignity and respect.

Implementation of Mitigation Measures CUL-1 and CUL-3 would reduce potential impacts to TCRs to **less than significant with mitigation**.

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## 3.12 Wildfire

### 3.12.1 Introduction

This section of the FEIR presents the environmental setting and potential impacts of the Proposed Project related to wildfire. While Section 3.8, *Hazards and Hazardous Materials*, discusses the potential for the Proposed Project to expose people or structures to hazards from wildland fires generally, this section addresses other specific risks/issues associated with wildfire as it pertains to the Proposed Project (see Section 3.12.4 for the significance criteria used in the impacts analysis for this section).

### 3.12.2 Regulatory Setting

#### ***Federal Laws, Regulations, and Policies***

No federal laws, regulations, or policies relate to wildfire and the Proposed Project.

#### ***State Laws, Regulations, and Policies***

##### ***2018 Strategic Fire Plan for California***

The Strategic Fire Plan (CAL FIRE 2018) provides direction and guidance to CAL FIRE and its 21 field units. The 2018 Plan sets forth a number of goals focused on fire prevention, natural resource management, and fire suppression efforts, which are summarized here:

- a. Improve the availability and use of consistent, shared information on hazard and risk assessment;
- b. Promote the role of local planning processes, including general plans, new development, and existing developments, and recognize individual landowner/homeowner responsibilities;
- c. Foster a shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans;
- d. Increase awareness and actions to improve fire resistance of man-made assets at risk and fire resilience of wildland environments through natural resource management;
- e. Integrate implementation of fire and vegetative fuels management practices consistent with the priorities of landowners or managers;
- f. Determine and seek the needed level of resources for fire prevention, natural resource management, fire suppression, and related services; and
- g. Implement needed assessments and actions for post-fire protection and recovery.

### *California Public Resources Code*

The Public Resources Code (PRC) includes fire safety regulations restricting the use of certain equipment that could produce sparks or flames, and specifies requirements for the safe use of gasoline-powered tools in fire hazard areas. Agricultural Order 4.0 enrollees and contractors must comply with the following requirements in the PRC during construction activities at any sites with forest-, brush-, or grass-covered land:

- a. Earthmoving and portable equipment with internal combustion engines must be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442).
- b. Appropriate fire-suppression equipment must be maintained from April 1 to December 1, the highest-danger period for fires (PRC Section 4428).
- c. On days when a burning permit is required, flammable materials must be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor must maintain the appropriate fire-suppression equipment (PRC Section 4427).
- d. On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines must not be used within 25 feet of any flammable materials (PRC Section 4431).

### ***Local Laws, Regulations, Plans, and Policies***

Numerous local jurisdictions (i.e., cities and counties) are located within the central coast region. Most, if not all, of these jurisdictions have adopted general plans that identify goals and policies related to public safety and hazards, such as exposure to wildfires. Volume 2, Appendix B shows goals and policies related to wildfire in general plans for counties within the central coast region.

## **3.12.3 Environmental Setting**

Figure 3.8-2 in Section 3.8, *Hazards and Hazardous Materials*, shows wildfire risk in the central coast region, as mapped by CAL FIRE. As shown in Figure 3.8-2, high fire hazard severity zones overlap with irrigated agricultural areas in some places, but, for the most part, irrigated agriculture is not considered a high fire risk land use and is not mapped as such.

## **3.12.4 Impact Analysis**

### ***Methodology***

This analysis evaluates direct and indirect wildfire-related impacts that may result from activities conducted under the Proposed Project. Potential impacts have been compared against the thresholds of significance discussed below.

### ***Significance Criteria***

For the purposes of this analysis, based on Appendix G of the state CEQA Guidelines, the Proposed Project would result in a significant impact related to wildfire if it would be located in or near state responsibility areas or lands classified as very high fire hazard severity zones and it would:

- A. Substantially impair an adopted emergency response plan or emergency evacuation plan.
- B. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
- C. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
- D. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

### ***Environmental Impacts of the Proposed Project***

#### **Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan. (*Less than Significant*)**

As discussed in Section 3.8, *Hazards and Hazardous Materials*, the Proposed Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Implementation/construction of management practices would occur within existing irrigated agricultural lands and would not be anticipated to significantly affect any roadways (such as to impede emergency vehicle movement/access or evacuation procedures). Certain irrigated agricultural areas within the central coast region may be located in high or very high fire hazard severity zones and may be subject to evacuation orders related to a wildfire; however, nothing within Agricultural Order 4.0, which regulates waste discharges from agricultural lands that could affect water quality, would substantially impair or inhibit such evacuation activities or emergency response. Therefore, this impact would be **less than significant**.

#### **Impact WF-2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. (*Less than Significant*)**

Irrigated agricultural lands in the central coast region occur in areas with a variety of local conditions, including slope, prevailing winds, micro-climates, vegetation, etc. Among the factors considered by CAL FIRE in developing the fire hazard severity zone maps are topography and prevailing winds. In general, the Proposed Project would not include any housing and would not place any new structures in areas that may be subject to wildfire hazards. The Proposed Project would be limited to regulations governing discharges from irrigated agricultural lands and would not exacerbate wildfire risks. Some of the reasonably foreseeable management practices that

may be implemented under the Proposed Project include new vegetated areas (e.g., vegetated filter strips, riparian buffer areas, etc.); however, this vegetation would occur within/interspersed with tracts of irrigated farmland and/or be located along riparian or wetland areas (which are usually moist) and thus would not substantially increase wildfire risk.

As such, Agricultural Order 4.0 would not exacerbate wildfire risks or expose persons to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Therefore, this impact would be **less than significant**.

**Impact WF-3: Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. (*Less than Significant*)**

Agricultural Order 4.0 would not be anticipated to require the installation or maintenance of any infrastructure, such as roads, fuel breaks, emergency water sources, power lines or other utilities. It is possible that certain growers may install new access roads to management practices/facilities (e.g., sediment retention basins, bioreactors, etc.) to allow for maintenance; however, were these access roads to be constructed, they would occur within existing irrigated agricultural farmlands and would not exacerbate fire risk. During construction/installation of some management practices, a power source may be required, but this would likely come from generators or potentially by tapping into existing electric distribution lines. Once installed, some management practices (e.g., efficient irrigation systems, monitoring wells) may require some power to operate, but this power would be relatively minimal and would not be anticipated to require construction of new power lines.

Overall, none of the physical changes to the environment that would occur directly or indirectly as a result of the Proposed Project would substantially exacerbate wildfire risk. Therefore, this impact would be **less than significant**.

**Impact WF-4: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. (*Less than Significant*)**

The Proposed Project would not include any new housing or structures, and would be limited to regulations governing discharges from agricultural land. Therefore, it would not place any people in locations that could be susceptible to downslope or downstream flooding or landslides, including from post-fire slope instability. Installation/construction of management practices could result in some temporary and permanent changes to drainage on irrigated lands, as discussed in Section 3.9, *Hydrology and Water Quality*; however, none of these changes would significantly increase the potential for flooding or landslides. As such, this impact would be **less than significant**.



# Chapter 4

## Alternatives Analysis

### 4.1 Introduction

This chapter analyzes alternatives to the California Regional Water Quality Control Board, Central Coast Region's (CCWB's) proposed Waste Discharge Requirements for Discharges from Irrigated Lands ("Agricultural Order 4.0" or Proposed Project) pursuant to requirements of the California Environmental Quality Act (CEQA). The chapter describes the alternatives screening and development process conducted for the Proposed Project and the list of alternatives considered in the environmental impact report (EIR). The chapter analyzes the environmental impacts of the alternatives considered in comparison to the Proposed Project.

### 4.2 Regulatory Requirements

The California Environmental Quality Act (CEQA) requires that an EIR evaluate a reasonable range of alternatives to a proposed project, including a no project alternative. The no project alternative allows decision makers to compare the impacts of approving the proposed action against the impacts of not approving the action. Although no clear rule exists for determining a reasonable range of alternatives to a proposed project, CEQA provides guidance that can be used to define the range of alternatives for consideration in the environmental document.

With the exception of the no project alternative, the range of alternatives considered under CEQA must meet most of the basic project objectives, should reduce or eliminate one or more of the significant impacts of the proposed project (although the alternative could have greater impacts overall), and must be potentially feasible. In determining whether alternatives are potentially feasible, lead agencies are guided by the general definition of feasibility provided in Section 15364 of the State CEQA Guidelines: "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." Section 15126.6(f) of the State CEQA Guidelines further stipulates that the lead agency should consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, and jurisdictional boundaries in determining the range of alternatives to be evaluated in an EIR.

An EIR must briefly describe the rationale for selection and rejection of alternatives and the information that the lead agency relied on in making the selection. It also should identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reason for their exclusion (State CEQA Guidelines Section 15126[d][2]).

## 4.3 Alternatives Development and Screening Process

In developing alternatives to the Proposed Project, CCWB considered public comments regarding alternatives received during the initial CEQA scoping period and draft conceptual options review period. CCWB also considered and applied screening criteria to potential alternatives in accordance with CEQA requirements, including (1) whether the alternative meets most of the Project objectives; (2) whether the alternative is potentially feasible; and (3) whether the alternative lessens or avoids one or more of the Proposed Project's significant environmental impacts. The relevant comments received, and the screening criteria, are discussed below.

### 4.3.1 Comments Received on Potential Alternatives

#### *Initial Scoping Comment Period*

During the initial CEQA scoping period, CCWB requested input from the public on potential Project alternatives and received several written comments regarding alternatives. CCWB also conducted four public scoping meetings/workshops, during which time public input on alternatives was solicited. Specific comments pertaining to potential Project alternatives are summarized in **Table 4-1** below.

**Table 4-1.** Comments Received During the Initial Scoping Period Regarding Alternatives

Commenting Person(s) / Organization(s)	General Comment Summary
Grower-Shipper et al. <sup>1</sup>	Include an alternative that conforms to precedential aspects of the State Water Resource Control Board's Eastern San Joaquin (ESJ) Order without expanding regulatory requirements of the ESJ Order and prior CCWB orders.
Grower-Shipper et al. <sup>1</sup> California Farm Bureau Federation	The EIR must consider a reasonable range of alternatives.
Grower-Shipper et al. <sup>1</sup> California Farm Bureau Federation	The EIR should not propose alternatives or mitigation measures that are infeasible to implement.
California Farm Bureau Federation	The range of alternatives must avoid or substantially lessen the project's significant environmental effects even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly.

<b>Commenting Person(s) / Organization(s)</b>	<b>General Comment Summary</b>
Member of the public at the Santa Maria scoping meeting	The EIR should include an agriculturally superior alternative or one that would be protective of agricultural resources.
Member of the public at the Santa Maria scoping meeting	Is there a way for continuing education (e.g., educational seminars focusing on research) to be incorporated into an alternative?

Notes:

1. “Grower-Shipper et al.” includes the following entities: Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties, Grower-Shipper Association of Central California, Western Growers Association, San Luis Obispo County Farm Bureau, California Strawberry Commission, and Central Coast Groundwater Coalition.

***Draft Conceptual Regulatory Requirement Options Comment Period***

Subsequent to the initial CEQA scoping comment period, CCWB circulated draft conceptual regulatory requirement options tables for public review and comment. Overall, during the draft conceptual regulatory requirement options comment period, CCWB received 97 comments and two primary alternative proposals:

- “Ag Organization Alternative” proposal, submitted by Grower-Shipper Association of Central California, Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties, Monterey County Farm Bureau, Central Coast Groundwater Coalition, Western Growers, and California Farm Bureau Federation on behalf of Monterey County Farm Bureau, San Benito County Farm Bureau, San Luis Obispo County Farm Bureau, San Mateo County Farm Bureau, Santa Barbara County Farm Bureau, Santa Clara County Farm Bureau, and Santa Cruz County Farm Bureau; and
- “Environmental Advocate Alternative” proposal, submitted by The Otter Project and California Coastkeeper Alliance.

Most comments were received from farm operations, followed by organizations, most of which are affiliated with agriculture, and the general public. In general, many of the comments focused on the specific components of the Agricultural Order 4.0 rather than on potential environmental impacts or CEQA project alternatives. Common generalized comments included the following:

- Support for the Ag Organization Alternative proposal
- Opposition to fertilizer and pesticide application limits
- Support for fertilizer application limits
- Opposition to numeric limits
- Vineyards pose a lower threat to water quality
- Sustainability in Practice should continue to result in reduced reporting requirements
- Organic operations pose a lower threat to water quality

- Opposition to requirements that could conflict with food-safety pressures on growers
- Opposition to a slope exclusion, such as for the use of plastic mulch; some commenters suggested using the county rules for development on slopes
- Should not disincentivize the use of groundwater with high nitrogen content
- Support for phasing, geographically

The Ag Organization Alternative and Environmental Advocate Alternative were carried forward for analysis in the DEIR and are described in Section 4.4.1. Note that several of the comments/suggestions on the draft conceptual regulatory requirement options tables were taken into account and incorporated in the updated conceptual regulatory requirement options (presented at the March and May 2019 Board Meetings) and ultimately into the draft Agricultural Order 4.0. These include phasing of requirements by geography (e.g., watershed prioritization), incentives for pump and fertilize, and potentially reduced monitoring and reporting for participants in third-party sustainability certification programs (e.g., Sustainability in Practice).

### 4.3.2 Alternatives Screening Criteria

#### ***Would the Alternative Meet Most of the Project Objectives?***

As described in Chapter 2, *Project Description*, the purpose and objectives of Agricultural Order 4.0 are as follows:

1. Protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan for commercial irrigated agricultural areas in the central coast region by:
  - a. Minimizing nitrate discharges to groundwater;
  - b. Minimizing nutrient discharges to surface water;
  - c. Minimizing toxicity in surface water from pesticide discharges;
  - d. Protecting ~~and restoring~~ riparian and wetland habitat; and
  - e. Minimizing sediment discharges to surface water.
2. Effectively track and quantify achievement of 1.a. through e. over a specific, defined time schedule.
3. Comply with the State Nonpoint Source Pollution (NPS) Control Program, the State Antidegradation Policy, relevant court decisions such as those pertaining to Coastkeeper *et al* lawsuits, the precedential language in the Eastern San Joaquin Agricultural Order (ESJ Order), and other relevant statutes and water quality plans and policies, including total maximum daily loads (TMDLs) in the central coast region.

Potential alternatives were analyzed to determine whether they would achieve “most” objectives, which in this case would be at least two out of three. Note that meeting Project Objective #3 is not considered optional by CCWB, as CCWB has no choice but to implement and comply with these existing regulations, statutes, and court decisions. However, there are some differences in opinion regarding what, exactly, constitutes compliance with the NPS Policy. For example, members of the agricultural community have stated that they do not believe the NPS

Policy requires numeric limits on discharges or applications, and that “quantifiable milestones” could be represented by increasing implementation of management practices or other related metrics. CCWB finds that numeric discharge and application limits, as included in proposed Agricultural Order 4.0, are important for achieving quantifiable progress toward reductions in agricultural contributions to exceedances of water quality objectives (WQOs) and/or impairment of beneficial uses, particularly given that the Water Quality Control Plan for the Central Coastal Region (Basin Plan) has numeric WQOs for many of the pollutants that have agriculture as a source (e.g., nitrate to groundwater WQO [10 milligrams per liter [mg/L] NO<sub>3</sub>-N], nutrients to surface water WQO [10 mg/L NO<sub>3</sub>-N; 0.025 mg/L ammonia-N]).

While the NPS Policy allows for management practice implementation and assessment to be used, in some cases, to measure NPS control progress, it states that “management practice implementation... may not be substituted for actual compliance with water quality requirements.” CCWB finds that the best items to quantify (i.e., which have the highest likelihood of success) are actual water quality data, reasonable approximates of discharge, and reasonable means for reducing discharge and protecting beneficial uses. Additionally, CCWB’s previous NPS Policy compliance approach under Agricultural Order 2.0 used an iterative management practice implementation and assessment approach that the court of appeals found to be inadequate and not compliant with the NPS Policy.

### ***Is the Alternative Potentially Feasible?***

As noted above, the determination of feasibility under CEQA takes into account economic, environmental, legal, social, and technological factors. The CEQA Guidelines also state that factors such as site suitability, availability of infrastructure, general plan consistency, other regulatory limitations, and jurisdictional boundaries may be considered.

With respect to Agricultural Order 4.0, which is a regionwide general order that does not pertain to a specific project site, site suitability and availability of infrastructure are not directly relevant. General plan consistency and geopolitical jurisdictional boundaries are also not necessarily relevant since Agricultural Order 4.0 would be implemented across multiple geopolitical jurisdictions and would not specify a manner of compliance. ~~With the exception of potential conversion of agricultural land to riparian buffers due to the setback requirements,~~ Agricultural Order 4.0 would not involve a significant change to an existing land use that could conflict with general plan land use designation or zoning.

The factors considered in the alternatives screening process and the specific considerations which guided the process are discussed further below.

- **Economic Feasibility.** Is the alternative so costly that implementation would be prohibitive? CEQA Guidelines Section 15126.6(b) requires consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may “impede to some degree the attainment of the project objectives, or would be more costly.” The Court of Appeals determined in *Citizens of Goleta Valley v. Board of Supervisors* (2nd Dist. 1988) 197 Cal.App.3d 1167, p. 1181 (see also *Kings County Farm Bureau v. City of Hanford* [5th Dist. 1990] 221 Cal.App.3d 692, 736): “[t]he fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs

or lost profitability are sufficiently severe as to render it impractical to proceed with the project.”

- **Environmental Feasibility.** Would implementation of the alternative cause substantially greater environmental damage than the Proposed Project, thereby making the alternative clearly inferior from an environmental standpoint? To the extent that the alternative could introduce a new significant effect, or increase the severity of a significant effect, this could support a determination that the alternative is environmentally infeasible.
- **Legal Feasibility.** Does the alternative conflict with established law or regulations, such that it would be infeasible to implement? With respect to Agricultural Order 4.0, this criterion is particularly relevant to consistency with Project Objective #3, which requires consistency with the NPS Policy, the State Antidegradation Policy, and relevant court decisions such as those pertaining to Coastkeeper *et al* lawsuits. Inability to meet this objective, even if the other two objectives (i.e., “most”) could be met, could support a determination that an alternative is legally infeasible.
- **Social Feasibility.** Is the alternative inconsistent with an adopted goal or policy of CCWB or other applicable agency? This criterion may apply to aspects of a given alternative that, while technically legally feasible, would not support the agency’s policies or mission.
- **Technical Feasibility.** Is the alternative infeasible from a technological perspective, considering available technology? Given that Agricultural Order 4.0 and its alternatives would not involve specific actions at a specific site (i.e., would not dictate the manner of compliance), technical feasibility is not a prominent limiting factor. It is possible that certain management practices may be technically infeasible at certain locations, but it is assumed that growers would implement or install management practices that are suitable for their specific ranch/situation.

Note that the threshold for retaining an alternative for consideration in the EIR is *potential* feasibility. In this regard, an alternative does not need to *definitely* be feasible in order to carry it forward for analysis. The approving body (in this case, the CCWB) makes the final determination in its findings pursuant to CEQA as to whether a given alternative analyzed in the EIR is actually feasible.

### ***Would the Alternative Lessen or Avoid One or More of the Proposed Project’s Significant Environmental Impacts?***

As described throughout this FEIR, the Proposed Project would have the potential to result in a number of potentially significant environmental impacts, all of which could be reduced to less-than-significant with implementation of mitigation measures. The Proposed Project would not result in any the following significant and unavoidable impacts, for which feasible mitigation could not be identified to reduce those impacts to a less than significant level. The following resources/resource topics would be potentially impacted by the Proposed Project (although these impacts could be reduced to less than significant with implementation of mitigation measures): biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality, noise, and tribal cultural resources.

- ~~• Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to non-agricultural use (Impact AG-1). Specifically, the setback requirements in Agricultural Order 4.0 could result in the conversion of up to 4,064 acres (0.9 percent of the irrigated acreage in the region) of irrigated land to riparian or open space (i.e., non-agricultural) uses.~~
- ~~• Conflict with existing zoning for agricultural use or a Williamson Act contract (Impact AG-2). As noted above, the setback requirements in Agricultural Order 4.0 could result in the conversion of up to 4,064 acres of agricultural land to non-agricultural uses. The majority of this conversion would occur on lands zoned for agricultural use, and the conversion to non-agricultural uses would conflict with the spirit/intent of agricultural zoning districts. Additionally, up to approximately 2,666 acres of this conversion would occur on lands under Williamson Act contracts. Although Williamson Act contracts protect open space uses as well as agricultural uses, this amount of conversion would conflict with the primary intent of the Williamson Act.~~

It is also important to consider that the Proposed Project is specifically designed to correct existing unacceptable water quality impairments being caused by irrigated agricultural practices. Therefore, ~~even though the Proposed Project would result in the significant impacts described above,~~ it would effectively address the existing adverse impacts on the environment that are described in Chapter 2, *Project Description*; Section 3.9, *Hydrology and Water Quality*; and in various CCWB documents (see the staff reports/presentations for the March and May 2018 Board Meetings). This fact was taken into account during the alternatives impacts evaluation.

## 4.4 Alternatives Analysis

The following alternatives were carried forward for analysis in the EIR because they are required by statute or would meet most of the Proposed Project objectives, are potentially feasible, and would avoid or substantially reduce one or more potentially significant impact of the Proposed Project:

1. No Project Alternative
2. Ag Organization Alternative
3. Environmental Advocate Alternative

These alternatives are defined below. The alternative screening results are also discussed and the potential environmental impacts of each alternative are analyzed in comparison to the Proposed Project. No alternatives were considered but dismissed from full analysis in the EIR.

### 4.4.1 No Project Alternative

#### ***Description***

Under the No Project Alternative, CCWB would not implement Agricultural Order 4.0. In this scenario, rather than no agricultural order being in effect, Agricultural Order 3.0 would continue to govern as it did at the time when the notice of preparation was issued. Existing law establishes that when a project involves revision of an existing plan, policy, or ongoing operation, the no project alternative should reflect continuation of the existing plan, policy, or operation (14 California Code of Regulations Section 15126.6[e][3][A]). In such situations, the no project alternative is interpreted as maintaining the status quo as of the date the notice of preparation is issued.

As Agricultural Order 4.0 would not be adopted under the No Project Alternative, none of the new or expanded requirements described in Tables 2-3 and 2-4 of Chapter 2, *Project Description*, would go into effect. Discharges to irrigated lands in the central coast region would not be subject to the discharge and receiving limits or application limits envisioned under Agricultural Order 4.0, nor would they be required to meet the time schedules or complete the additional or expanded monitoring and reporting requirements. ~~Under the No Project Alternative, the expanded setback requirements described in Table 2-3 also would not go into effect.~~

#### ***Screening Analysis***

The No Project Alternative is required by statute; therefore, it was not screened against the alternatives screening criteria. However, while the No Project Alternative is analyzed in this FEIR for informational purposes, it is not legally feasible to implement in its entirety. As discussed in Section 2.2.2, Monterey Coastkeeper and other environmental organizations challenged Agricultural Order 3.0 in court. In September 2019, the parties partially resolved the litigation by a stipulated judgment, and the Sacramento County Superior Court issued a peremptory writ of mandate compelling CCWB to adopt a new agricultural order to replace Agricultural Order 3.0 by January 31, 2021 (*Monterey Coastkeeper v. Central Coast Regional Water Quality Control Board* [Sacramento County Case No. 34-2017-80002655], writ of mandate issued Sept. 27, 2019). Accordingly, CCWB has a legal obligation to adopt a new agricultural order and Agricultural Order 3.0, as written, may not continue to govern the discharge of wastes from irrigated lands after January 31, 2021 unless extended by court order, rendering the No Project Alternative not feasible. Therefore, the No Project Alternative is not legally feasible.

#### ***Impacts Analysis***

##### ***Agriculture and Forestry Resources***

Under the No Project Alternative, some conversion of existing farmland to non-agricultural uses could occur due to full enforcement of Agricultural Order 3.0 and completion/implementation of Water Quality Buffer Plans (WQBPs) (for Tier 3 dischargers subject to those requirements) or other management practices that could displace farmland (e.g., sediment basins, vegetated filter strips, etc.). ~~T; however, this conversion would be substantially less than similar to that which may occur under the Proposed Project. To the extent that this conversion would occur on lands zoned for agricultural uses and under Williamson Act contracts, conflicts with this existing~~



~~zoning and land use could occur.~~ The costs of compliance for growers under the No Project Alternative would be roughly the same as under existing conditions; therefore, there would be no potential for indirect conversion of agricultural land to non-agricultural uses under the No Project Alternative as a result of increased regulatory compliance costs. Overall, the amount of Important Farmland that could be converted under the No Project Alternative is speculative and would be the same as what is occurring under baseline conditions. Therefore, **no impact** would occur.

### *Air Quality*

Under the No Project Alternative, implementation of management practices involving construction activities and associated air emissions may still occur in compliance with Agricultural Order 3.0. Additionally, periodic vehicle trips associated with monitoring activities would still occur, as under existing conditions, resulting in emissions of criteria air pollutants. However, the emissions from these activities would be less than under the Proposed Project, as additional management practice implementation is expected to be needed under Agricultural Order 4.0 to meet applicable discharge limits, and the additional monitoring requirements (e.g., groundwater trend monitoring) would also result in additional vehicle trips and emissions. Overall, because air pollutant emissions under the No Project Alternative would be the same as under baseline conditions, **no impact** would occur.

### *Biological Resources*

Under the No Project Alternative, management practice implementation would continue to occur as under baseline conditions. As such, there would continue to be the relatively unlikely potential for construction activities associated with management practice implementation (e.g., ground disturbance and equipment operation for installation of sediment basins, filter strips, denitrifying bioreactors, etc.) to disturb special-status species or habitat. As this potential would be the same as under existing conditions, it would not be significant.

~~While the No Project Alternative would not have the additional potential for direct special-status species impacts associated with increased management practice implementation under Agricultural Order 4.0, including setback construction/implementation, it also would not result in the beneficial impacts on biological resources afforded by the Proposed Project. In other words, because the setback requirements envisioned under the Proposed Project would not be implemented, the benefits to aquatic and riparian/wetland habitat, and the species that use this habitat (e.g., steelhead, California red-legged frog, etc.), that would result from the setback requirements would not occur. Many of the existing impairments in water quality and aquatic habitat, as well as lack of riparian habitat, in irrigated agricultural areas in the central coast region would continue to occur.~~

Overall, from a CEQA perspective, the No Project Alternative would have **no impact** on biological resources compared to baseline conditions; ~~however, it also would not provide the beneficial effects on biological resources that the Proposed Project would provide.~~

### *Cultural Resources*

Under the No Project Alternative, management practice construction/implementation may continue to occur as under baseline conditions (likely at a reduced rate/intensity compared to

the Proposed Project). As such, ground disturbance from construction of facilities such as sediment basins, filter strips, denitrifying bioreactors, etc. could continue to occur, potentially encountering buried unknown cultural resources or human remains. These potential effects would be reduced compared to the Proposed Project due to the anticipated reduced level of management practice implementation under Agricultural Order 3.0 compared to Agricultural Order 4.0. Because the No Project Alternative would not increase the potential for impacts to cultural resources relative to baseline conditions, **no impact** would occur.

### *Economics*

Under the No Project Alternative, enrolled ranches/operations would continue to pay fees and incur management practice implementation and monitoring and reporting costs pursuant to Agricultural Order 3.0. These costs would be reduced compared to the Proposed Project, although this FEIR has found that it is speculative whether the increased costs of compliance from Agricultural Order 4.0 would in turn result in adverse physical changes in the environment (e.g., conversion of farmland to non-agricultural uses). As the No Project Alternative would not change compliance costs or Irrigated Lands Regulatory Program administration costs relative to baseline conditions, **no impact** would occur.

### *Energy*

Under the No Project Alternative, management practice construction/implementation would continue to occur as under existing conditions. For certain management practices (e.g., sediment basins, filter strips, denitrifying bioreactors), this may result in vehicle and construction equipment use, which would use energy. Additionally, facilities such as groundwater monitoring wells and efficient irrigation systems may use some amount of energy. In general, this energy use would be reduced compared to the Proposed Project (as a result of likely fewer management practices being implemented and the fewer monitoring requirements [e.g., no groundwater trend monitoring]). As the energy use under the No Project Alternative would be the same as under baseline conditions, **no impact** would occur.

### *Greenhouse Gas Emissions*

Similar to energy (see above), the No Project Alternative would continue to result in ongoing management practice implementation and monitoring activities that may involve greenhouse gas (GHG) emissions (e.g., vehicle trips, construction equipment operation, monitoring wells, etc.). These GHG emissions would be reduced compared to the Proposed Project, as there would likely be increased management practice construction/implementation, as well as additional monitoring activities, under Agricultural Order 4.0. In general, the GHG emissions associated with the No Project Alternative would not differ from those under existing conditions. As such, **no impact** would occur.

### *Hazards and Hazardous Materials*

Under the No Project Alternative, hazardous materials (e.g., fuel, oil, lubricant, etc.) may continue to be used during management practice construction/implementation, maintenance and repair of monitoring wells, and/or related activities. These hazardous materials could pose a hazard to workers, the public, and the environment during transport, use, storage, or disposal, or due to an accidental release; however, compliance with existing local, state, and federal laws

and regulations related to hazardous materials would minimize these potential hazards. Hazardous materials use would be reduced compared to the Proposed Project due to the likely increased amount of management practices that would need to be implemented under Agricultural Order 4.0 in order to meet applicable discharge limits, as well as the additional monitoring requirements (e.g., regional groundwater trend monitoring) that would be included in Agricultural Order 4.0.

~~Additionally, the No Project Alternative would not implement the setback requirements envisioned under the Proposed Project; as such, there would be no potential for food safety-related impacts (e.g., increased potential for produce contamination from rodents or other animals that find refuge in the riparian vegetation) under the No Project Alternative.~~ Overall, the No Project Alternative would have the same hazards and hazardous materials impacts as under baseline conditions. Therefore, **no impact** would occur.

### *Hydrology and Water Quality*

Under the No Project Alternative, management practice construction/implementation may continue to occur as under existing conditions pursuant to Agricultural Order 3.0. Construction of certain management practices (e.g., sediment basins, filter strips, denitrifying bioreactors, etc.) may involve ground-disturbing activities and use of heavy construction equipment, which could loosen soils and allow for erosion and off-site sedimentation to occur. Compliance with existing local and state laws (e.g., grading ordinances, Construction General Permit) would minimize these potential impacts, and, over the long term, the management practices would benefit water quality by reducing discharges of pollutants from irrigated lands.

In general, potential hydrology and water quality impacts would be reduced under the No Project Alternative compared to the Proposed Project, as more management practices are anticipated to be needed to be constructed/installed under Agricultural Order 4.0 to meet the proposed discharge limits. However, the No Project Alternative would not result in the same beneficial impacts on existing water quality that would be provided by the Proposed Project. As described in Chapter 2, *Project Description*, and Section 3.9, *Hydrology and Water Quality*, existing water quality impairments caused by irrigated agriculture have been widely documented in the central coast region and prior agricultural orders, including Agricultural Order 3.0, have thus far proved inadequate in addressing these existing impacts. The No Project Alternative would not include the discharge and application limits, ~~setback requirements~~, or additional monitoring and reporting requirements that would be included in Agricultural Order 4.0, all of which would have beneficial effects on water quality.

Overall, as the No Project Alternative would have the same potential effects on hydrology and water quality as baseline conditions, **no impact** would occur; however, the No Project Alternative would not result in the same beneficial impacts that would be achieved by the Proposed Project.

### *Noise*

Under the No Project Alternative, temporary noise from construction/installation of management practices (e.g., sediment basins, filter strips, denitrifying bioreactors, efficient irrigation systems, etc.) may continue to occur, as management practices may continue to be implemented pursuant to Agricultural Order 3.0. This noise may be somewhat reduced

compared to the Proposed Project because additional management practice implementation (above existing conditions) is expected to be needed to comply with the discharge limits and other requirements in Agricultural Order 4.0. In general, the noise would occur in agricultural landscapes, and would not be significant. As the No Project Alternative would not increase noise compared to baseline conditions, **no impact** would occur.

### *Tribal Cultural Resources*

Under the No Project Alternative, ground-disturbing activities associated with management practice construction/installation may continue to occur pursuant to Agricultural Order 3.0. These activities could potentially uncover buried unknown tribal cultural resources (TCRs), although this would be somewhat unlikely given that management practices would typically be installed within areas of existing commercial irrigated agricultural production (i.e., fields which have been repeatedly tilled/disturbed). These effects under the No Project Alternative may be lower compared to the Proposed Project, as it is anticipated that more substantial management practice implementation would be required under Agricultural Order 4.0 to meet the discharge limits and other requirements. Also, the regional groundwater monitoring trend requirements under Agricultural Order 4.0 may require drilling a number of new monitoring wells, which could encounter buried TCRs.

The potential impacts to TCRs from the No Project Alternative would not differ from baseline conditions. As such, **no impact** would occur.

### *Wildfire*

Under the No Project Alternative, management practices may continue to be implemented/installed (although at a reduced rate compared to the Proposed Project) pursuant to Agricultural Order 3.0. Some of these activities may involve use of combustion-engine equipment, which could potentially provide a spark and ignite a wildfire. However, as for the Proposed Project, this possibility is considered fairly remote given that most construction activities would take place within areas of existing irrigated agriculture (which are not usually considered to be high-fire-risk). The No Project Alternative would not increase wildfire risk over baseline conditions; therefore, **no impact** would occur.

## **4.4.2 Ag Organization Alternative**

### *Description*

The following is a summary of the primary Ag Organization Alternative components submitted by Grower-Shipper of Central California et al. (January 21, 2019). The Ag Organization Alternative proponents separated their proposal into six primary areas: surface water, groundwater, sediment and erosion, riparian, education and outreach, and groundwater trend monitoring. These areas and the proposed requirements are described below.

### *Surface Water*

Under the Ag Organization Alternative, an agricultural third party would be established and would develop a methodology, in coordination with CCWB, for prioritizing watersheds/subwatersheds based on documented impairments caused by irrigated agriculture.

The CCWB would use the methodology and water quality data to prioritize watersheds/subwatersheds. The agricultural third party would create a draft Surface Water Management Practice Summary Report template (Summary Report), which the CCWB would review and approve. This template would be used by growers in priority watersheds to identify and track their implementation of reasonable and practicable management practices that have the potential to improve surface water quality for some or all of the constituents of concern. In addition to the Summary Report, growers in prioritized watersheds would need to prepare and maintain a Surface Water Quality Discharge Management Plan (Management Plan), which would be available to CCWB during inspections.

CCWB would periodically inspect enrollee operations in prioritized watersheds and assign a “score” based on their implementation of reasonable and practicable management practices. Operations that receive low scores would need to reevaluate their operation and consider the need to implement new and improved management practices, which would then be reflected in a revised Management Plan and Summary Report. If such operations fail to implement changes identified in the updated Management Plan and Summary Report, CCWB may bring enforcement action against the enrollee. Continued low scores alone would not subject a grower to enforcement action, and farms/ranches with hard-to-solve problems would be given at least three years to improve their performance, at which time a technical or monitoring program report would need to be prepared for that farm/ranch by a certified professional.

The Ag Organization Alternative would continue the existing surface water cooperative monitoring program (CMP) framework, with supplemental reporting being provided through the Summary Reports. As an incentive, the Ag Organization Alternative would allow operations that receive high scores with respect to management practice implementation during CCWB inspections to be subject to less frequent reporting through the Summary Report (once every three years rather than annually).

The Ag Organization Alternative would incorporate any applicable TMDL time schedules and targets for watershed/subwatersheds and irrigated agriculture, and would include at least the following quantifiable milestones:

- decreasing the percentage of farms/ranches with low scores;
- having certain percentages of farms/ranches implement and/or install management practices that prevent irrigation flow from leaving a farm/ranch within so many years of order adoption; and
- having priority watersheds that are primarily impacted by agricultural discharges demonstrate water quality improvements over time (which may be shown either through decreases in concentrations of specific constituents or through decreased loads of pollutants).

### *Groundwater*

The Ag Organization Alternative would require total nitrogen applied (TNA) reporting for all ranches in the first year of the Order and would phase in nitrogen applied (A) minus removed (R) reporting after nitrogen removal coefficients have been developed. The agricultural third party

would develop central coast-specific irrigation and nutrient management plan (INMP) and INMP Summary Report templates for review and approval by CCWB. CCWB would use the TNA data to identify outliers after the first three years of reporting for all ranches. CCWB would then conduct follow-up and training for those operations that are identified as outliers. The preparation of certified INMPs and the submittal of INMP Summary Reports would start after removal coefficients for 95 percent of total crop acreage in the central coast region have been developed (CCWB would develop the removal coefficients) and after a central coast-specific self-certification program has been developed and is available to enrollees. The self-certification program would be developed by the California Department of Food and Agriculture, through the Fertilizer Research and Education Program.

Once removal coefficients are available for 95 percent of central coast crops, total A and total R would be reported annually on the INMP Summary Report to CCWB. For the INMP Summary Report, total A and total R would be summed for all crops grown on that ranch for the previous year. The INMP itself would remain on the farm and be available for review by CCWB. The INMP would be a planning tool for each enrollee, identifying proposed crop rotations (if applicable, and nitrogen management practices planned for management of the ranch over the next year). CCWB would be responsible for establishing criteria/metrics for determining what constitutes an outlier for follow-up training and education, based on the TNA and INMP Summary Reports.

Domestic well monitoring would occur under the Ag Organization Alternative similar to the monitoring under Agricultural Order 3.0, but would allow for exemptions from annual monitoring, as follows: (1) if nitrate as N is less than 8 mg/L for three years, then sampling frequency decreases to once every five years; (2) if the well is taken out of service, then sampling may be discontinued; or (3) if the well no longer provides drinking water, then sampling may be discontinued. Additionally, if the result is above the drinking water standard for nitrate, no further sampling is required. Monitoring would also include primary irrigation well sampling for nitrates once every three years.

The Ag Organization Alternative would provide for exemptions from nitrogen management for certain categories of uniquely-situated crops that can be demonstrated to not impact groundwater or surface water from nitrogen applications. The Ag Organization Alternative proposes quantifiable milestones for groundwater, including development of a central coast-specific INMP Summary Report, submission of total A and total R from growers on the approved template form, and a decrease in the number of outliers over time. The Ag Organization Alternative assumes that as CCWB increases outreach and training (to outliers), there may be less contribution of nitrate to groundwater from irrigated agriculture, which in time may improve groundwater quality conditions.

### *Sediment and Erosion*

Under the Ag Organization Alternative, the agricultural third party would develop a template for the Sediment and Erosion Plan, which would be reviewed and approved by CCWB. Using the template, farms/ranches meeting certain triggers would be required to have the Sediment and Erosion Control Plan prepared in one of several ways: (1) site-specific recommendation from Natural Resource Conservation Service (NRCS), NRCS technical service provider, or similar entity; (2) prepared and self-certified by the Member, who has completed an approved training program; (3) written and certified by a Qualified Sediment and Erosion Control Plan Developer

possessing acceptable registration or certification credentials; or (4) prepared and certified in alternative manner approved by CCWB. The triggers for requiring a Sediment and Erosion Control Plan would be established via methodologies developed by the agricultural third party, but may include slope percentages or other factors such as use of impermeable plastic mulch or impermeable hoop houses present during the rainy season on a slope greater than the triggering number identified by the agricultural third party methodology.

Under the Ag Organization Alternative, the Sediment and Erosion Plan requirement would only apply to those portions of a farm/ranch that trigger the need for the plan. An exemption would also be provided to farms/ranches that are located below the level of an adjacent surface waterbody, or if a hydraulic barrier is maintained by a public agency and is located between an adjacent surface waterbody and the farm/ranch. The CCWB would be responsible for notifying enrollees that they are subject to the Sediment and Erosion Control Plan requirement and would conduct random inspections of farms/ranches to ensure compliance.

Monitoring for turbidity would continue as currently required under Agricultural Order 3.0 surface water monitoring requirements, such that enrollees could continue to participate in the surface water CMP or conduct individual surface water monitoring. The Ag Organization Alternative does not propose any specific reporting requirements related to sediment and erosion, but notes that the Surface Water Quality Management Practice Summary Report would likely incorporate management practices related to sediment and erosion. Quantifiable milestones and timelines for the sediment and erosion requirements would be tied to development and approval of the Sediment and Erosion Control Plan template, preparation/certification of the plan by those subject to the requirement, and inspection of subject operations by CCWB.

### *Riparian*

Under the Ag Organization Alternative, enrollees would only be required to maintain existing riparian habitat on the farm if the habitat qualifies as a wetland under the Clean Water Act. Even then, enrollees may remove such habitat if they comply with all applicable federal, state, or local exemptions or approvals. The Ag Organization Alternative would support and incentivize participation in approved watershed restoration programs, such as the Salinas River Management Program. In general, the Ag Organization Alternative would balance the need between protecting food safety and maintaining riparian vegetation and/or vegetated buffer strips, such that enrollees would have the flexibility to install different management practices to protect waterways (if warranted due to food safety concerns) from sediment and tailwater discharges rather than maintain set vegetative buffers. As the program elements for Surface Water (see above) address the need to protect water quality from tailwater and runoff, the Ag Organization Alternative would not include prescriptive buffer requirements separately.

### *Education and Outreach*

The Ag Organization Alternative would include a mandated requirement of 10 education/continuing education hours for all enrollees over a five-year period, with at least two of these hours being completed within one year of adoption of the new agricultural order. Eligible topics for the education requirement would need to be related to surface water and groundwater quality issues, and management practices with potential to improve water quality. Alternatively, participation in the central coast-specific course for self-certification of an INMP

(discussed under “Groundwater” above) would qualify as meeting the mandated education requirement. CCWB would be responsible for conducting the education or approving a proposed education opportunity/program offered by an outside party. CCWB also would track enrollee compliance with the educational/outreach requirement and would issue notices to enrollees if they fail to meet the requirement. Additionally, the Ag Organization Alternative would encourage CCWB to work with California Department of Food and Agriculture and others to provide educational opportunities for Certified Crop Advisors so that they can assist local enrollees in complying with the order requirements.

Enrollees would report and certify completion of educational requirements to CCWB annually. The Ag Organization Alternative would include the following quantifiable milestones: (1) within one year of adoption, 80 percent of all enrollees will complete two hours of mandated education; and (2) within five years of adoption, 95 percent of all enrollees will complete the mandated 10 hours of education.

### *Groundwater Trend Monitoring*

Under the Ag Organization Alternative, the agricultural third party would develop a methodology and a quality assurance project plan (QAPP) for a trend monitoring network that uses irrigation, domestic, or existing dedicated monitoring wells. Wells would be selected for monitoring based on their representation of the various groundwater basins and sub-basins, as well as major crop acreages grown in the central coast. CCWB would review and approve the methodology developed by the agricultural third party. Once the methodology is approved, enrollees would be responsible for providing the agricultural third party with irrigation and domestic well information so that the agricultural third party could determine if the well is qualified (and appropriate) for the trend monitoring network. Once the trend monitoring network is in place, data from the wells would be analyzed and characterized by the agricultural third party or CCWB once every five years for the representative groundwater basins/sub-basins.

### *Summary and Comparison to the Proposed Project*

The Ag Organization Alternative would be based on management practice implementation in prioritized watersheds and scoring of management practice effectiveness by CCWB. Monitoring and reporting (e.g., nitrogen A-R) would generally be reduced compared to the Proposed Project. Notably, the Ag Organization Alternative would not include any discharge or receiving water limits, or application limits, for nutrients, pesticides, or sediment. The Ag Organization Alternative would generally not include defined time schedules, apart from incorporating applicable TMDL schedules, and would rely on more proximal quantifiable milestones (e.g., implementation of management practices, completion of reporting templates, reducing the number of outliers, etc.). By contrast, the Proposed Project would rely on compliance with numerical discharge, receiving water, and application limits to demonstrate progress towards reducing contribution of irrigated agriculture to exceedances of WQOs and impairment of beneficial uses.

With respect to CEQA, many of the differences between the Ag Organization Alternative and the Proposed Project have to do with process steps, specific reporting mechanisms/formats, responsibilities of CCWB and other entities, and other elements that would not directly affect the physical environment. For the alternatives analysis, these differences are not as relevant as



the differences between the two approaches that could result, directly or indirectly, in actual effects on the ground. **Table 4-2** summarizes the primary differences between the Ag Organization Alternative and Proposed Project that are relevant for the CEQA alternatives analysis.

**Table 4-2.** Differences Between Ag Organization Alternative and Proposed Project of Relevance for the CEQA Alternatives Analysis

	<b>Proposed Project</b>	<b>Ag Organization Alternative</b>
<b>Management Practice Implementation</b>	Implementation of management practices in order to comply with discharge and receiving water limits. Limits for pollutant discharges decrease over time in accordance with time schedules.	Implementation of management practices in prioritized watersheds in accordance with Surface Water Quality Discharge Management Plan and pursuant to CCWB scoring, as well as INMP and Sediment and Erosion Plan. Likely reduced management practice implementation relative to Proposed Project due to lack of numeric limits and time schedules.
<b>Setback Establishment / Vegetation Removal</b>	<del>Implementation of setbacks on ranches with waterbodies on or adjacent. Individual or cooperative compliance approach. Setback distance based on stream class and slope; may be up to 250 feet for Strahler order 6 streams (plus an additional 60 feet if the slope exceeds 24 percent) for some ranches following individual approach. Prohibition on removal of existing riparian vegetation. <u>Monitoring and reporting on the current riparian area within or bordering ranches.</u></del>	<del>Would not include any setback requirements and would allow for removal of existing riparian habitat not defined as a wetland under federal Clean Water Act. Overall, little, if any, new riparian setback/vegetation would be established and</del> <u>As a result,</u> riparian vegetation may decrease relative to baseline.
<b>Groundwater Monitoring Wells</b>	New groundwater monitoring wells are likely to be needed to support the groundwater trend monitoring requirements; however, the precise number of wells is unknown. CCWB anticipates that many existing wells may be acceptable for monitoring purposes.	No new groundwater monitoring wells would likely need to be drilled, as the groundwater trend monitoring would use existing irrigation, domestic, and dedicated monitoring wells.

	Proposed Project	Ag Organization Alternative
<b>Other Potential Activities / Effects</b>	Fertilizer and pesticide use would likely decrease over time in accordance with discharge and application limits.	Fertilizer and pesticide use would be less likely to decrease over time because there would be no discharge or application limits, and generally no time schedules (apart from in TMDL areas). No requirements specifically related to pesticides/toxicity.
<b>Costs of Compliance</b>	Costs of compliance would be increased compared to baseline conditions (i.e., Agricultural Order 3.0) due to additional monitoring and reporting requirements (e.g., INMP including A-R reporting, groundwater trend monitoring, Pesticide Management Plan, Sediment and Erosion Management Plan) and the likely need for increased management practice implementation. <del>Setback requirements would cost money to implement and could result in lost crop production.</del>	Costs may still be slightly increased relative to baseline conditions due to additional monitoring and reporting requirements (e.g., TNA then INMP including A-R for all ranches); however, these costs would likely be substantially reduced compared to the Proposed Project. <del>All costs associated with setback implementation and cropland conversion would be avoided.</del>

## Screening Analysis

### Consistency with Project Objectives

The Ag Organization Alternative would meet Project Objective #1.a, .b, .c, and .e, in the sense that implementing the Alternative as proposed would reduce the pollutant discharges at least to some degree. Although the Ag Organization Alternative does not specifically address pesticide discharges, it can be assumed that pesticides/toxicity would be included in the Surface Water Quality Discharges Summary Report and Management Plan. ~~With respect to The Ag Organization Alternative would not meet Project Objective #1.d, because the alternative does not include any setback requirements and would allow for removal of existing riparian vegetation. the Ag Organization Alternative provides limited protection of riparian and wetland habitat because the requirements would be applicable only to areas defined as wetland under the Clean Water Act, which is not the entire universe of “riparian habitat.” As such, the Ag Organization Alternative would allow for removal of existing riparian habitat, and therefore would not fully meet Project Objective #1.d. While it is possible that certain growers could choose to restore/protect riparian and wetland habitat as a means to reduce pollutant discharges to waterbodies under the Ag Organization Alternative, they would not be required to do so.~~

The Ag Organization Alternative would not fully meet Project Objective #2 because the alternative generally does not include a *specific, defined* time schedule. While the Ag Organization Alternative Surface Water Program would incorporate any applicable TMDL time schedules for watersheds/subwatersheds and irrigated agriculture, it would not include defined time schedules for other areas. It may be possible for CCWB or growers to track management practice implementation, nitrogen applied (A) and removed (R), surface water and groundwater

monitoring data, and other metrics over time, and, in turn, adjust management practices based on observed progress towards water quality objectives; however, this largely iterative process would not provide for achieving water quality progress based on a specific, defined schedule.

With respect to Project Objective #3, CCWB does not find that the Ag Organization Alternative fully meets the NPS Policy or relevant court decisions related to Coastkeeper et al. lawsuits. However, staff acknowledges that some aspects of the NPS Policy and Coastkeeper et al. court decisions are open to interpretation and that the agricultural community views the facts in a different light. These differences in opinion and the reasoning for the approach taken in the Proposed Project are discussed in Section 4.3.2. In general, CCWB questions whether the Ag Organization Alternative would have a “high likelihood of success” in reducing discharges from irrigated agriculture such that they are no longer causing or contributing to exceedances of WQOs or impairment of beneficial uses. Regardless of how one interprets “quantifiable milestones,” the Ag Organization Alternative does not include specific, defined time schedules (as discussed above) and the iterative management practice implementation and assessment approach proposed in the Ag Organization Alternative is similar to CCWB’s prior approach under Agricultural Orders 2.0 and 3.0 (Provision 83.5 in Ag Order 2.0 and Provision 84 in Ag Order 3.0), which was rejected by the courts.

Nevertheless, due to the possibility for different interpretations of the recent court decisions regarding the NPS Policy, the Ag Organization Alternative, for the limited purpose of the analysis in this FEIR, is considered to potentially satisfy the NPS Policy and Coastkeeper et al. decisions. Additionally, the Ag Organization Alternative would include many of the basic precedential elements of the ESJ Order and would not be inconsistent with existing TMDLs in the central coast region. As a result, the Ag Organization Alternative would potentially meet Project Objective #3, and would potentially meet most of the project objectives for Agricultural Order 4.0.

**Overall Conclusion:** The Ag Organization Alternative would potentially meet most of the project objectives for Agricultural Order 4.0.

### *Feasibility*

**Economic Feasibility.** The Ag Organization Alternative would be less costly to implement than the Proposed Project, particularly for growers who would be subject to fewer monitoring and reporting requirements, and likely would need to implement fewer management practices (~~most notably, no additional riparian or wetland buffer vegetation would need to be installed pursuant to the setback requirements~~). The Ag Organization Alternative also would likely be less costly for CCWB to implement due to the generally reduced monitoring and reporting requirements and likely reduced number of ranches that would be subject to various requirements (e.g., Sediment and Erosion Plan). However, in the Ag Organization Alternative, CCWB would assume a new responsibility of scoring ranches’ implementation of reasonable and practical management practices, which could add an unknown cost in terms of staff time. Regardless, the Ag Organization Alternative would not be economically infeasible. For the foregoing reasons, the Ag Organization Alternative might be economically feasible.

**Environmental Feasibility.** The Ag Organization Alternative could potentially increase removal of existing riparian vegetation and habitat, which could in turn have adverse effects on biological

resources and water quality. By removing the prohibition on removal of existing vegetation (except for Clean Water Act wetlands) that is included in Agricultural Order 3.0 and the proposed Agricultural Order 4.0, the Ag Organization Alternative could result in more growers removing riparian vegetation adjacent to their fields out of food safety or other considerations. However, the extent and severity of this potential impact is speculative because it is unknown which growers in which locations may choose to pursue riparian vegetation removal under the Alternative. As such, this potential impact is not considered significant and the Ag Organization Alternative ~~would not~~might be environmentally ~~in~~feasible.

**Legal Feasibility.** As discussed above under “Consistency with Project Objectives,” CCWB is not persuaded that the Ag Organization Alternative would fully comply with the NPS Policy and Coastkeeper et al. court decisions (i.e., Project Objective #3). While the Ag Organization Alternative may result in some progress towards reducing agricultural discharges, it would not include a defined time schedule and would use an iterative management practice implementation and assessment approach that is similar to the approach that was previously rejected by the court (i.e., Provision 83.5 in modified Agricultural Order 2.0). CCWB also questions whether the Ag Organization Alternative would have a high likelihood of success in terms of achieving the needed pollutant discharge reductions. If the Ag Organization Alternative was ultimately found to not be consistent with the NPS Policy, State Antidegradation Policy, or Coastkeeper et al. court decisions, it would be legally infeasible because the CCWB cannot implement a program that is not compliant with existing law. Nevertheless, for the purposes of this FEIR analysis, the Ag Organization Alternative is considered to potentially meet Project Objective #3 and thus would be potentially legally feasible.

**Social Feasibility.** The Ag Organization Alternative would not appear to conflict with any policy or social goal of the CCWB (apart from the potential conflicts with the NPS Policy and Antidegradation Policy discussed under “Legal Feasibility”). To the extent that the Ag Organization Alternative may not achieve nitrogen discharge reductions to groundwater as effectively or efficiently as the Proposed Project, this could lead to environmental justice concerns since disadvantaged communities are often disproportionately affected by nitrate-contaminated groundwater and associated health effects. However, the relative effectiveness of the Ag Organization Alternative in reducing nitrogen discharges is somewhat speculative since the proposed INMP template and central coast-specific self-certification program have not been developed. Even once developed and the Ag Organization Alternative approach is fully implemented, growers would have considerable discretion as to which nitrogen management practices or discharge reduction measures they would implement on their ranches based on their specific circumstances. At the least, CCWB believes that the Proposed Project would have a greater probability of success in achieving nitrogen discharge reductions (based on the numeric discharge and application limits and defined time schedules), which, over time, would be more likely to improve existing water quality impairments for drinking water and avoid future increasing impacts, thus furthering water quality and social policy goals. For the purposes of this analysis, the Ag Organization Alternative is considered potentially feasible from a social standpoint.

**Technical Feasibility.** The Ag Organization Alternative includes many established monitoring, reporting, and implementation mechanisms (e.g., INMP preparation and implementation, Sediment and Erosion Plan, education and outreach programs) that appear feasible to accomplish. Additionally, the Ag Organization Alternative would continue many aspects of the

existing Agricultural Order 3.0, including cooperative surface water monitoring and drinking water well monitoring, and would use existing wells for its proposed groundwater trends monitoring. As such, the Ag Organization Alternative would be feasible from a technical standpoint.

**Overall Conclusion:** The Ag Organization Alternative is potentially feasible.

### *Potential to Reduce or Eliminate One or More Significant Environmental Impacts*

~~The Ag Organization Alternative would avoid both of the significant and unavoidable impacts that are identified for the Proposed Project (i.e., conversion of Important Farmland to non-agricultural uses and potential conflicts with agricultural zoning and Williamson Act contracts). Because the Ag Organization Alternative would not include the setback requirements included in the Proposed Project, it would not result in the potential conversion of up to 4,064 acres of agricultural land taken out of production, which was identified for the Proposed Project (see Section 3.1, *Agriculture and Forestry Resources*). Additionally, as it would not convert these acres (most of which are zoned for agricultural use and/or under Williamson Act contract) to non-agricultural uses, it would have no potential to conflict with existing zoning for agricultural use or a Williamson Act contract.~~

The Ag Organization Alternative ~~also~~ would potentially reduce air emissions, energy use, GHG emissions, hazards and hazardous materials effects, short-term hydrology and water quality impacts, and noise impacts relative to the Proposed Project (although none of these effects were found to be significant for the Proposed Project with implementation of mitigation measures). To the extent that the Ag Organization Alternative would result in less construction/installation of management practices (particularly those practices involving ground disturbance, such as sediment basins, vegetated filter strips, bioreactors, etc.), this would decrease construction-related impacts that could occur from operation of heavy construction equipment and ground disturbance for construction of these facilities. In addition, the cost to comply with the Ag Organization Alternative is likely less than the Proposed Project, resulting in fewer economic impacts, although these were also found to be less than significant (and speculative) for the Proposed Project.

However, ~~while the Ag Organization Alternative would avoid or reduce the environmental impacts mentioned above,~~ it would not achieve some of the Proposed Project's beneficial effects on the environment. As discussed above, CCWB does not find that the Ag Organization Alternative would achieve the same level of reductions in pollutant discharges compared to the Proposed Project due to the Ag Organization Alternative's lack of numeric discharge, receiving water, and application limits, and lack of specific, defined time schedules (except TMDL schedules by reference). Thus, the Ag Organization Alternative would do less to correct the existing adverse impacts of irrigated agriculture on water quality in the central coast region. While reduced management practice implementation may reduce short-term construction impacts (that are less than significant with mitigation), this would have a negative long-term effect on water quality (compared to the Proposed Project), as the management practices under the Proposed Project are designed to minimize pollutant discharges from irrigated lands.

~~Additionally, not having the setback requirements would avoid the beneficial effects of additional riparian vegetation/habitat on water quality and biological resources that would be~~

~~provided through the Proposed Project.~~ Further, by allowing for removal of existing riparian vegetation, the Ag Organization Alternative could result in reduced riparian vegetation relative to baseline, which would be an adverse effect. All of this is in the context of existing conditions of streams and waterbodies in agricultural areas of the central coast region being unacceptable to CCWB in terms of not currently achieving water quality objectives and protecting beneficial uses in many waterbodies in the central coast region.

**Overall Conclusion:** The Ag Organization Alternative would reduce or eliminate one or more significant environmental impacts of the Proposed Project.

## **Impacts Analysis**

### ***Agriculture and Forestry Resources***

~~As described above in the Screening Analysis, the Ag Organization Alternative would avoid the Proposed Project's adverse effects on agriculture and forestry resources related to conversion of Important Farmland to non-agricultural uses and conflicts with existing zoning for agricultural use and Williamson Act contracts. The Ag Organization Alternative would not setback requirements and thus would not result in the potential direct conversion of up to 4,064 acres of agricultural land to non-agricultural uses. No other components of the Ag Organization Alternative would not be anticipated to result in the substantial conversion of existing agricultural land to non-agricultural uses; however, and~~ like the Proposed Project, the Ag Organization Alternative would allow growers discretion with respect to the types of management practices that they may choose to implement, and some types of management practices (e.g., sediment basins, vegetated filter strips) could result in relatively small areas of farmland being taken out of production (i.e., due to the footprint of these facilities).

The Ag Organization Alternative ~~also~~ would likely reduce the costs of compliance for growers relative to the Proposed Project, and thus could reduce potential for economic effects to indirectly result in the conversion of agricultural land to non-agricultural uses (e.g., a grower selling their ranch[es] and the buyer converting the land to a non-agricultural use), although this potential impact is largely speculative. Overall, the Ag Organization Alternative's impact on agriculture and forestry resources would be **less than significant**.

### ***Air Quality***

It is reasonable to expect that the Ag Organization Alternative would result in the implementation of fewer and/or less protective management practices given the lack of numeric discharge and receiving limits and defined time schedules. In particular, growers may have less incentive to implement more costly management practices, which also tend to be those practices that involve construction activities and ground disturbance (e.g., sediment basins, vegetated filter strips, bioreactors), if they are not required to comply with more stringent limits. As such, the Ag Organization Alternative would likely result in fewer air emissions than the Proposed Project given that less construction activity, and associated heavy equipment operation, would occur over the life of the order.

With respect to baseline conditions, the Ag Organization Alternative could result in a net increase in emissions associated with the implementation of management practices needed to comply with the additional requirements pursuant to the ESJ Order (e.g., TNA reporting for all

ranches and eventual INMP preparation and implementation [including A-R monitoring] ultimately could lead to additional nitrogen management practice implementation relative to baseline). However, as noted above, these emissions would likely be reduced compared to the Proposed Project and would be less than significant, particularly with implementation of any measures that may be required by the air district. As such, this impact would be **less than significant**.

### *Biological Resources*

The Ag Organization Alternative could result in additional riparian vegetation removal relative to baseline conditions. The Ag Organization Alternative would remove Agricultural Order 3.0's existing prohibition on removal of riparian vegetation (except for CWA wetlands) and thus could potentially result in more growers removing riparian vegetation due to food safety or other considerations. The extent and severity of this potential impact is unknown and speculative, however, as growers would still have discretion as to whether to retain or remove vegetation in their specific circumstances (i.e., it cannot be determined where and to what extent removal of vegetation may occur).

To the extent that the Ag Organization Alternative may result in less construction of management practices involving ground disturbance (e.g., sediment basins, filter strips, bioreactors, etc.) relative to the Proposed Project, this could result in a reduced potential for substantial impacts to biological resources. As discussed in Section 3.3, *Biological Resources*, the construction of certain management practices could adversely affect sensitive species and habitat; however, these potential impacts could be avoided or reduced through implementation of mitigation measures. The Ag Organization Alternative may have less potential for construction activities to occur in areas where biological resources may be present, and thus could have reduced short-term effects.

While the likely reduced construction/implementation of management practices under the Ag Organization Alternative could reduce potential for some short-term construction-related impacts to biological resources, it would also limit the beneficial effects on water quality and biological resources. The Proposed Project, by including numeric receiving water, discharge, and application targets and limits over defined time schedules, would be more likely to result in meaningful reductions in contributions of agricultural discharges to exceedances of WQOs and impairments of beneficial uses. This anticipated improvement in water quality would benefit aquatic organisms and terrestrial animals that rely on streams and other waterbodies for foraging or other purposes. ~~In particular, the establishment of riparian vegetation under the setback requirements would allow for attenuation of pollutant discharges from irrigated lands, provide shading for stream temperature regulation, provide additional habitat for a variety of species, and provide improved water quality for downstream uses.~~ The Ag Organization Alternative would not achieve these beneficial effects on biological resources to the same degree as the Proposed Project.

Nevertheless, from a CEQA perspective, the Ag Organization Alternative would likely not substantially adversely affect biological resources relative to baseline conditions (even though these baseline conditions are considered unacceptable to CCWB and other stakeholders), particularly with implementation of standard mitigation measures. Therefore, this impact would be **less than significant with mitigation**.

### *Cultural Resources*

Similar to biological resources, the Ag Organization Alternative could have reduced impacts on cultural resources to the extent that this alternative would result in fewer construction activities associated with construction/installation of certain management practices (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors, etc.). As discussed in Section 3.4, *Cultural Resources*, under the Proposed Project, construction/installation of management practices involving ground disturbance could encounter buried unknown cultural resources and adverse impacts to these resources could occur if appropriate protocols are not followed. However, implementation of mitigation measures and compliance with existing laws and regulations pertaining to cultural resources would reduce these potential impacts.

The Ag Organization Alternative could still result in additional construction-related effects above baseline conditions (as more management practices may be implemented pursuant to requirements in the Alternative compared to Agricultural Order 3.0); however, these effects likely would not be significant, particularly with implementation of mitigation measures, and would be reduced compared to the Proposed Project. Overall, this impact would be **less than significant with mitigation**.

### *Economics*

The Ag Organization Alternative may cost less for growers complying with requirements than the Proposed Project. The lack of numeric discharge, receiving water, and application targets and limits under the Ag Organization Alternative likely would result in growers implementing fewer and less costly management practices to control discharges. ~~In addition, the lack of setback requirements would avoid the costs of installing new riparian vegetation, removing and disposing of any existing crops within setback areas, and the cost of lost agricultural production from cropped areas converted to riparian buffer.~~ This reduced cost of compliance could reduce potential for indirect conversion of Farmland to non-agricultural uses, where a grower may be forced to go out of business or sell their land due to the increased regulatory costs and the new landowner may convert the land to residential housing or some other non-agricultural land use. However, this potential indirect effect is speculative.

The Ag Organization Alternative could still result in some increased costs of compliance relative to baseline conditions (i.e., Agricultural Order 3.0) due to the new requirements pursuant to the ESJ Order (e.g., TNA reporting for all ranches and eventual INMP preparation and implementation [including A-R monitoring and reporting]). However, these costs likely would not be substantial, would be lower compared to the Proposed Project, and would not be anticipated to result in substantial subsequent indirect conversion of agricultural land to non-agricultural uses. Therefore, any subsequent impact to the physical environment is anticipated to be **less than significant**.

### *Energy*

The Ag Organization Alternative may result in reduced energy use compared to the Proposed Project due to the likely reduced level or amount of management practice construction/installation that would occur under this alternative. As described above, because the Ag Organization Alternative would not include numeric discharge, receiving water, and application limits or defined time schedules (except for applicable TMDL schedules), it would



likely result in fewer management practices being implemented, particularly the generally more costly management practices that involve ground disturbance and use of heavy equipment (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors, etc.). This could result in less energy use (i.e., fuel use) from construction activities, although this effect was not considered significant for the Proposed Project.

Over the long term, neither the Ag Organization Alternative nor the Proposed Project would result in substantial energy use, as most management practices would not require energy to operate and would only require infrequent maintenance or repair. The Ag Organization Alternative may still result in increased energy use relative to baseline conditions (i.e., Agricultural Order 3.0) due to new or expanded requirements and associated increased management practice implementation; however, this increased energy use would not be significant and would not be wasteful or unnecessary. Overall, this impact would be **less than significant**.

### *Greenhouse Gas Emissions*

Related to energy use, greenhouse gas (GHG) emissions under the Ag Organization Alternative would likely be reduced compared to the Proposed Project due to fewer management practices that would need to be implemented. Operation of construction equipment during construction/installation of certain management practices (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors, etc.) would generate GHG emissions. It is difficult to say whether the Ag Organization Alternative would result in reduced vehicle trips associated with monitoring activities (in part, this is speculative based on whether growers participate in individual or cooperative monitoring approaches), but, if anything, such vehicle trips and associated GHG emissions would likely be reduced due to the generally less burdensome monitoring requirements. Again, GHG emissions under the Ag Organization Alternative may still be increased relative to baseline conditions due to the new or expanded requirements pursuant to the ESJ Order; however, these emissions would not be substantial as compared to baseline conditions. Overall, this impact would be **less than significant**.

### *Hazards and Hazardous Materials*

In the same vein as other construction-related effects, the Ag Organization Alternative could result in reduced hazards and hazardous materials impacts relative to the Proposed Project to the extent that it could result in reduced construction/installation of management practices (e.g., sediment basins, vegetated filter strips, bioreactors, etc.) and/or reduced need for new groundwater monitoring wells. Such reduced construction activity could result in reduced use, transport, storage, and disposal of hazardous materials (e.g., fuel, oil, lubricant, etc.) and reduced potential for accidental releases or harmful effects on workers, the public or environment due to improper handling. However, as discussed in Section 3.8, *Hazards and Hazardous Materials*, these effects would be less than significant for the Proposed Project with implementation of mitigation measures and compliance with existing laws and regulations related to hazardous materials.

Relative to the Proposed Project, the Ag Organization Alternative also may be less likely to result in reduced pesticide use. As described in Section 3.8, *Hazards and Hazardous Materials*, the numeric discharge and receiving water limits in the Proposed Project may result in reduced pesticide applications over time, as growers increasingly employ IPM techniques or otherwise

apply less chemical pesticides in order to comply with pesticide and toxicity limits. Under the Ag Organization Alternative, growers would be less likely to change existing practices with respect to pesticide applications due to the lack of numeric discharge and receiving water limits. Although pesticides are generally considered safe for humans and the environment when applied according to label instructions (Section 3.9 *Hydrology and Water Quality* includes additional discussion on how agencies follow-up on environmental effects of pesticides), they are not always applied in a safe manner and pesticide exposure/illness continues to occur in the central coast region (see Table 3.8-1 in Section 3.8). To the extent that the Ag Organization Alternative continues the status quo with respect to pesticide applications, this would not achieve some of the potential beneficial effects of the Proposed Project.

Overall, from a CEQA perspective, the potential hazards and hazardous materials effects of the Ag Organization Alternative would be slightly reduced (decrease in construction related to management practices) compared to the Proposed Project, and, although potentially increased relative to baseline conditions (additional management practice implementation may still occur relative to Agricultural Order 3.0), would not be significant, particularly with implementation of mitigation measures. This impact would be **less than significant with mitigation**.

### *Hydrology and Water Quality*

The Ag Organization Alternative could result in reduced management practice implementation compared to the Proposed Project (due to lack of numeric discharge, receiving water, and application limits and time schedules) and, as such, could have reduced potential for construction-related effects on hydrology and water quality. As described in Section 3.9, *Hydrology and Water Quality*, for the Proposed Project, construction/installation of management practices involving ground disturbance (e.g., sediment basins, vegetated filter strips, bioreactors, etc.) could result in erosion and sedimentation if proper precautions are not taken. Implementation of mitigation measures, however, and compliance with existing laws and regulations related to stormwater management and construction site erosion control would minimize these potential effects for both the Proposed Project and the Ag Organization Alternative.

As discussed in the Screening Analysis above, the Ag Organization Alternative would potentially meet most of the project objectives; however, CCWB does not find that the alternative would reduce discharges of waste as effectively as the Proposed Project. Additionally, the Ag Organization Alternative would not fully meet Project Objective #1.d (protecting and restoring riparian and wetland habitat), as it would ~~not include setback requirements and would~~ potentially allow for removal of existing riparian habitat. As such, the Ag Organization Alternative would not fully achieve the beneficial effects of the Proposed Project on hydrology and water quality. (Note that the Ag Organization Alternative's effectiveness in reducing agricultural discharges is at least somewhat speculative and dependent on the specific contents of the templates, scoring metrics, and education programs that would be developed by the agricultural third party or others). To the extent that the Ag Organization Alternative could allow for the removal of existing riparian vegetation/habitat, it could also adversely affect hydrology and water quality relative to baseline.

Over the longer term, the Ag Organization Alternative would have similar, if somewhat reduced, potential to affect flow volumes in adjacent streams due to reductions in irrigated agriculture

discharges. This effect is largely speculative for the Proposed Project, and many growers in the central coast region have already installed efficient irrigation systems or otherwise increased their irrigation efficiency. But to the extent that the Ag Organization Alternative could lead to fewer growers/ranches installing efficient irrigation systems, this could result in less impacts on surface flow volumes in adjacent streams. Overall, this impact would be **less than significant with mitigation** for the Ag Organization Alternative.

### *Noise*

To the extent that the Ag Organization Alternative could result in less construction/installation of management practices, it could have reduced construction-related, temporary noise effects compared to the Proposed Project. Generally, these effects would be less than significant with mitigation for both the Proposed Project and Ag Organization Alternative. The construction activities for installation of facilities such as sediment basins, vegetated filter strips, and bioreactors would be temporary and would occur in areas of commercial irrigated agriculture, where agricultural activities are often exempt from local noise ordinances. Noise effects from new permanent stationary sources (e.g., new pumps for efficient irrigation systems) could still occur from the Ag Organization Alternative, but like the Proposed Project, these effects could be minimized through implementation of mitigation measures. This impact would be **less than significant with mitigation**.

### *Tribal Cultural Resources*

As discussed above under “Cultural Resources,” the Ag Organization Alternative could result in reduced management practice implementation relative to the Proposed Project, particularly implementation of the more costly management practices that tend to involve ground disturbance/excavation in their installation (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors). As such, the Ag Organization Alternative could reduce potential for construction activities for these management practices to encounter buried, unknown tribal cultural resources (TCRs). Given that management practices would be constructed/installed primarily in areas of existing irrigated agriculture (where repeated tilling and ground disturbance has already occurred), the probability of encountering TCRs is generally considered low for both the Proposed Project and Ag Organization Alternative, and potential impacts could be avoided or reduced through compliance with existing laws and regulations and implementation of mitigation measures.

While the Ag Organization could still increase the potential of encountering TCRs during construction of management practices relative to baseline conditions (to the extent that additional management practice implementation could occur relative to Agricultural Order 3.0), this increase would be marginal and would not be significant. Overall, this impact would be **less than significant with mitigation**.

### *Wildfire*

To the extent that the Ag Organization Alternative could result in reduced management practice construction/installation relative to the Proposed Project, this could reduce potential wildfire risks associated with operating internal-combustion construction equipment (such as to potentially provide a spark to ignite a wildfire). However, given that such management practice construction/installation would occur primarily within areas of existing irrigated agriculture

(which is not typically considered high wildfire risk), the risk of wildfire from use of construction equipment is considered low, both for the Proposed Project and Ag Organization Alternative. Any risk that does exist could also be effectively minimized through compliance with existing laws and regulations related to wildfire risk and construction activities.

To the extent that the Ag Organization Alternative would result in increased management practice construction/installation relative to baseline conditions (i.e., Agricultural Order 3.0), this could result in increased wildfire risk, but not to a significant degree. Overall, this impact would be **less than significant**.

#### 4.4.3 Environmental Advocate Alternative

##### *Description*

The Environmental Advocate Alternative was submitted on behalf of The Otter Project and California Coastkeeper Alliance (January 22, 2019). In general, the Environmental Advocate Alternative would follow the same structure as the Proposed Project requirements in terms of the five key water quality areas, although there are several important differences in approach and requirements, as described below.

- **Prioritization and Phasing:** The Environmental Advocate Alternative generally would not include any prioritization or phasing, such that all requirements would apply to all ranches concurrently. However, for the Irrigation and Nutrient Management for Surface Water Protection and Pesticide Management for Surface Water and Groundwater Protection tables, immediate prioritization may take place based on “triggers” or exceedances of numerical standards or benchmarks (described further below).
- **Numeric Limits and Benchmarks:** The Environmental Advocate Alternative would include similar numeric limits and benchmarks for key water quality areas as the Proposed Project. Application limits would be included for nutrients for groundwater protection that are generally similar to the Proposed Project, whereas application limits may go into effect for nutrients for surface water protection or for pesticides based on repeated exceedances of discharge limits. The Environmental Advocate Alternative would identify TMDLs and would incorporate a number of benchmarks for various pesticides and nutrients. Discharge limits related to sediment and erosion management would be similar to the Proposed Project, although under the Environmental Advocate Alternative, growers with waste discharges resulting from cultivation on ranches with impermeable surfaces on slopes greater than 10 percent would not be eligible to enroll in the agricultural order, and such growers would need to obtain individual WDRs. With respect to Riparian Habitat Management for Water Quality Protection, the Environmental Advocate Alternative would require a minimum riparian buffer width of 30 feet from the top of bank, applying to all ranches with a waterbody on or adjacent to the property. The Environmental Advocate Alternative also would retain the prohibition on removal of existing native riparian vegetative cover (unless authorized through another permitting mechanism) that is included in Agricultural Order 3.0.
- **Time Schedule to Achieve Numeric Limits and Water Quality Objectives:** The Environmental Advocate Alternative would include specific time schedules for key water quality constituents. In many cases, these would be more aggressive and more

generalized than the Proposed Project (the Proposed Project would incorporate applicable TMDL time schedules in many cases, which would apply to growers in a specific watershed or sub-watershed, whereas the Environmental Advocate Alternative often applies a single time schedule to all growers). The Environmental Advocate Alternative states that failure to attain or demonstrate compliance with applicable numeric limits and benchmarks by the deadline will result in increased regulatory constraints.

- **Monitoring:** The Environmental Advocate Alternative would generally include similar monitoring and requirements to the Proposed Project, which would be outlined in a Monitoring and Reporting Plan (MRP), to be prepared by individual growers or the cooperative. Similar to the Proposed Project, the Environmental Advocate Alternative would require that all growers prepare and implement an INMP for each ranch, provide for monitoring of surface water quality trends, monitoring of groundwater wells for pesticides and nutrients, conducting groundwater quality trend monitoring, monitoring of turbidity in receiving waters, preparation and implementation of a Sediment and Erosion Management Plan, and monitoring of riparian vegetation cover and cover type. The Environmental Advocate Alternative would retain the individual and cooperative monitoring options for growers.

The Environmental Advocate Alternative approach includes monitoring requirements that may differ based on whether a triggering event has occurred (i.e., exceedance of a numeric limit or benchmark); triggering would generally result in increased monitoring requirements, including growers potentially being required to provide a variety of specific information to CCWB (e.g., nutrient application rates, crop types on which nutrients are applied, pesticide application rates and methods, etc.) to help identify the source of the water quality exceedance(s). This supports the general approach in the Environmental Advocate Alternative of investigating the specific sources or causal agents of exceedances resulting in water quality impairments.

- **Reporting:** As noted above, the Environmental Advocate Alternative would require preparation of a monitoring and reporting program (MRP), which would include many of the same monitoring and reporting requirements as the Proposed Project. However, monitoring and reporting requirements may be increased if a triggering event occurs, and individual growers or the cooperative upstream of the trigger location may need to provide additional information to assist CCWB in determining the source of the exceedance(s).
- **Triggers:** The triggers included in the Environmental Advocate Alternative identify the consequences for exceedances of numeric limits or benchmarks observed during monitoring of surface waters and groundwater. As noted above, a triggering event may result in individual growers or the cooperative providing specific information to CCWB to assist in the investigation of the causal agents. For pesticides, consecutive exceedances of benchmarks or concurrent toxicity testing “failures” may trigger a Toxicity Identification Evaluation. Similarly, consecutive exceedances of turbidity benchmark values could trigger an erosion investigation within the sub-watershed to identify the source of erosion or turbidity plume discharge.

Where consistent exceedances of limits or benchmarks have been traced to a specific location, this may trigger issuance of a notice of violation from CCWB to the identified grower. The notice of violation would communicate to the grower that water quality

exceedances have been identified on a consistent basis and that corrective action is required. Such corrective action may include:

- Consultation with CCWB concerning which nutrients, pesticides, or compounds could be causing the exceedances in question, or
- Implementation of a variety of suggested best management practices (BMPs) and/or mitigation measures that can help to reduce concentrations of potentially harmful pollutants.

The BMPs and mitigation measures listed in the Environmental Advocate Alternative are similar to the reasonably foreseeable management practices considered for the Proposed Project. Ultimately, intransigent repeat offenders under the Environmental Advocate Alternative may be prohibited from applying nutrients and/or pesticides to their respective crops.

- **Incentives:** The Environmental Advocate Alternative includes incentives for growers primarily in the form of reduced monitoring and reporting requirements. For example, if a grower, whether individually or as part of a collective, can demonstrate compliance with water quality benchmarks for any 1.5-year period (six consecutive quarters), regulatory monitoring requirements may be reduced on a case-by-case basis.

### *Summary and Comparison to the Proposed Project*

The Environmental Advocate Alternative would be similar to the Proposed Project in that it would include numeric discharge and application limits, as well as defined time schedules. In some cases, the numeric limits (and benchmarks) would be stricter than those in the Proposed Project, but generally the limits would be similar. Notably, the Environmental Advocate Alternative would not include prioritization (apart from immediate prioritization that may occur based on exceedances of water quality limits or benchmarks) or phasing, such that all of the requirements would apply to all ranches concurrently. Although the monitoring and reporting requirements are presented somewhat differently in the Environmental Advocate Alternative, many of the same requirements are included in the Proposed Project. The Environmental Advocate Alternative also would include a system of “triggers”; however, these would not be dissimilar from potential follow-up and notification/enforcement actions that could occur under the Proposed Project in response to exceedances of discharge, receiving water, and application limits.

One important difference between the Environmental Advocate Alternative and Proposed Project is with respect to setback requirements. Whereas the Proposed Project would not require setbacks (other than the prohibition on removal of existing riparian vegetation), include setback requirements based on the class of adjacent streams (1 through 6 on the Strahler scale) and slope of property, with the setback distance potentially being up to 250 feet for Strahler order 6 streams (plus an additional 60 feet if the slope exceeds 24 percent) for certain ranches; the Environmental Advocate Alternative would only require a minimum 30-foot riparian buffer, as measured from the top of bank, applied to all ranches with a waterbody on or adjacent to the ranch (similar to the current requirement for a water quality buffer plan applicable to a small subset of Tier 3 ranches under Agricultural Order 3.0).

Similar to the Ag Organization Alternative, many of the specific differences between the Environmental Advocate Alternative and the Proposed Project relate to process steps, format,

style, and other elements that do not necessarily translate into different outcomes or activities on the ground. CEQA and the alternatives analysis are primarily concerned with the physical environmental effects associated with the different alternatives, or the elements of the alternatives that would likely translate to different physical effects on the environment. **Table 4-3** summarizes the differences between the Environmental Advocate Alternative and the Proposed Project that are most relevant for the alternatives analysis.

**Table 4-3.** Differences Between Environmental Advocate Alternative and Proposed Project of Relevance for the CEQA Alternatives Analysis

	<b>Proposed Project</b>	<b><del>Ag-Organization</del>Environmental Advocate Alternative</b>
<b>Management Practice Implementation</b>	Implementation of management practices to comply with discharge and receiving water limits. Limits for pollutant discharges decrease over time in accordance with time schedules. Phasing of limits based on prioritization.	Implementation of management practices to comply with similar discharge limits and benchmarks to those that are included in the Proposed Project. Lack of prioritization and phasing and generally more aggressive time schedules would likely lead to more management practice implementation in early years of order. Overall, during the life of the order, similar total management practice implementation to that under the Proposed Project.
<b>Setback Establishment / Vegetation Removal</b>	<del>Implementation of setbacks on ranches with waterbodies on or adjacent. Individual or cooperative compliance approach. Setback distance based on stream class and slope; may be up to 250 feet for Strahler order 6 streams (plus an additional 60 feet if the slope exceeds 24 percent) for some ranches following individual approach.</del> Prohibition on removal of existing riparian vegetation. <u>Monitoring and reporting on the current riparian area within or bordering ranches.</u>	Minimum 30-foot buffer measured from top of bank applies to all ranches with a waterbody on or adjacent to the ranch. Prohibition on removal of existing riparian vegetation.

	<b>Proposed Project</b>	<b><del>Ag-Organization</del>Environmental Advocate Alternative</b>
<b>Groundwater Monitoring Wells</b>	New groundwater monitoring wells are likely to be needed to support the groundwater trend monitoring requirements; however, the precise number of wells is unknown. CCWB anticipates that many existing wells may be acceptable for monitoring purposes.	No indication that additional groundwater monitoring wells would need to be developed. Growers or cooperatives would need to monitor all domestic and irrigation wells and submit findings on groundwater quality trends.
<b>Other Potential Activities / Effects</b>	Fertilizer and pesticide use would likely decrease over time in accordance with discharge and application limits.	Fertilizer and pesticide use would likely decrease over time in accordance with the discharge and application limits and compliance with benchmark values. Such fertilizer and pesticide use reduction may occur more quickly relative to the Proposed Project due to lack of phasing and generally faster time schedules.
<b>Costs of Compliance</b>	Costs of compliance would be increased compared to baseline conditions (i.e., Agricultural Order 3.0) due to additional monitoring and reporting requirements (e.g., INMP including A-R reporting, groundwater trend monitoring, Pesticide Management Plan, Sediment and Erosion Management Plan) and the likely need for increased management practice implementation. <del>Setback requirements would cost money to implement and could result in lost crop production.</del>	Costs of compliance would be similarly increased compared to baseline conditions due to additional monitoring and reporting requirements. Such costs might be more variable compared to the Proposed Project due to the potential for certain ranches needing to provide information/conduct additional monitoring and reporting if an exceedance (i.e., trigger) occurs. Costs associated with setback requirements could be substantially reduced for certain ranches that would have been subject to greater setback distances under the Proposed Project both in terms of the cost to implement the buffer and the potentially lost production acreage.

### **Screening Analysis**

#### **Consistency with Project Objectives**

The Environmental Advocate Alternative would meet Project Objective 1.a, .b, .c, and .e, as compliance with the discharge and application limits and benchmarks over the identified time schedules, and implementation of the monitoring and reporting requirements, would minimize pollutant discharges from irrigated agricultural activities. Similar to the Proposed Project, it is



expected that growers would implement management practices to comply with the limits and benchmarks, which would be beneficial for water quality and further the goal of protecting and restoring beneficial uses and achieving water quality objectives. The Environmental Advocate Alternative also would largely meet Project Objective 1.d (protecting and restoring riparian and wetland habitat), although not to the same degree as the Proposed Project. While implementation of a 30-foot riparian buffer at all ranches where a waterbody is present would protect and restore riparian and wetland habitat relative to baseline conditions, the Proposed Project's setback requirements would be more robust and would likely provide for greater water quality improvement.

As noted above, the Environmental Advocate Alternative includes specific, defined time schedules and includes many of the same monitoring and reporting components as the Proposed Project. The Environmental Advocate Alternative would include a slightly different procedure for following up and investigating water quality exceedances (i.e., triggers), but it appears that this approach would be effective in achieving Project Objectives 1.a through .e.

For the reasons above, and similar to the Proposed Project, the Environmental Advocate Alternative would meet the NPS Policy. The Alternative would include numeric discharge and application limits (as well as water quality benchmarks) and specific, defined time schedules, which would serve well in quantifying progress towards WQOs. Inclusion of these numeric limits would also provide a high likelihood for success for the program in reducing the contributions of irrigated agriculture to exceedances of WQOs and impairment of beneficial uses. All of these factors are important components in meeting the NPS Policy. Additionally, the requirements included in the Environmental Advocate Alternative would be anticipated to prevent degradation of existing high-quality waters such as to comply with the Antidegradation Policy. The Environmental Advocate Alternative includes most of the precedential elements of the ESJ Order; it is only missing requirements for nitrogen A-R reporting and follow-up. Given the above, the Environmental Advocate Alternative also would be consistent with the relevant Coastkeeper et al. lawsuits. The Environmental Advocate Alternative does not appear to conflict with any existing TMDLs.

**Overall Conclusion:** The Environmental Advocate Alternative would meet most of the project objectives.

### *Feasibility*

**Economic Feasibility.** The Environmental Advocate Alternative could potentially be more expensive than the Proposed Project for CCWB to implement, as staff would play a more active role in investigating exceedances observed during monitoring of surface waters and groundwater. This could require additional staff time, particularly in cases where it is difficult to determine the source of specific impairments. Costs to growers would likely be similar to the Proposed Project, as most of the same monitoring and reporting activities would be included, and management practices would likely need to be implemented on a similar scale in order to meet the discharge limits and benchmarks. However, these costs could be more front-loaded during the life of the order, as the Environmental Advocate Alternative would not include the same phasing of requirements. Costs to growers related to the setback requirements ~~also would likely be elevated~~ would be reduced under the Environmental Advocate Alternative compared to the

Proposed Project. Overall, implementation of the Environmental Advocate Alternative does not appear to be economically infeasible.

**Environmental Feasibility.** The Environmental Advocate Alternative would be similarly beneficial to water quality as the Proposed Project and would be anticipated to improve existing adverse impacts on waterbodies and groundwater from irrigated agriculture. The Environmental Advocate Alternative would have ~~reduced~~ increased impacts on Important Farmland, existing zoning for agricultural use, and Williamson Act contract lands compared to the Proposed Project due to the ~~reduced 30-foot minimum buffer/setback requirements, which would likely require taking some land out of production; however, the impacts to farmland of the Environmental Advocate Alternative likely would still be significant relative to baseline conditions. Although this impact would be significant and unavoidable, the setback requirements would also be beneficial for water quality and habitat and would serve to correct existing undesirable environmental conditions being caused by irrigated agriculture.~~ For this reason, the impacts of ~~t~~the Environmental Advocate Alternative to agriculture would not ~~result in any other significant impacts above and beyond those identified for the Proposed Project, such as to render the Alternative environmentally infeasible.~~

**Legal Feasibility.** As discussed above under “Consistency with Project Objectives,” the Environmental Advocate Alternative would appear to comply with the NPS Policy, Antidegradation Policy, and relevant court decisions in Coastkeeper et al. lawsuits. The Environmental Advocate Alternative would not violate or contradict any other existing laws, regulations, or policies. Like the Proposed Project, the Environmental Advocate Alternative would not mandate a manner of compliance and would not require or encourage actions on lands subject to legal protections. The Environmental Advocate Alternative is missing some elements of the ESJ Order precedential requirements (i.e., nitrogen A-R reporting and follow-up); however, these pieces could be added to the Alternative if it were to be selected for adoption by the CCWB. For the purposes of this analysis, the Environmental Advocate Alternative would not be legally infeasible.

**Social Feasibility.** As described above, the Environmental Advocate Alternative is similar to the Proposed Project in many respects and would further CCWB’s policy goals. By including numeric discharge limits and benchmarks, CCWB finds that the Environmental Advocate Alternative would better accomplish the needed reductions in pollutant discharges from irrigated agriculture than the Ag Organization Alternative. As such, it would more effectively limit or alleviate existing impacts on communities associated with poor drinking water from agricultural discharges (e.g., nitrate pollution of groundwater). This furthers CCWB’s commitment to environmental justice and the human right to water.

**Technical Feasibility.** The majority of the monitoring and reporting activities/mechanisms included in the Environmental Advocate Alternative are similar to those included in the Proposed Project and use processes, approaches, and technologies that are well established. In general, the components of the Environmental Advocate Alternative are assumed to be largely technically feasible. One aspect of the Environmental Advocate Alternative that may be technically challenging is the notion of investigating and clearly identifying the sources/causal agents of exceedances of water quality objectives. Due to the nature of NPS pollution sources, the large land area over which agricultural activities take place, the complex environmental processes involved in movement and fate of agricultural pollution, and the complex crop cycles

and agricultural activities conducted on some ranches, determining the specific upstream sources of water quality objective exceedances (i.e., triggering events) could be difficult in many circumstances. Provided that a final order based on the Environmental Advocate Alternative included language that allowed for the possibility that specific causal agents might not successfully be identified for all exceedances, and placed a reasonable cap on CCWB investigations of such exceedances, this should not limit the Environmental Advocate Alternative's feasibility. Overall, for the purposes of this analysis, the Environmental Advocate Alternative is considered technically feasible.

**Overall Conclusion:** The Environmental Advocate Alternative is potentially feasible.

### *Potential to Eliminate or Reduce One or More Significant Environmental Effects*

As noted above, the Environmental Advocate Alternative would ~~reduce the~~increase potential impacts ~~of the Proposed Project~~ on Important Farmland, existing zoning for agricultural land, and Williamson Act contract lands compared to the Proposed Project due to the ~~reduced 30-foot minimum buffer/setback requirements. Whereas the Proposed Project would include setback requirements based on stream class and slope, potentially requiring a riparian setback of up to 250 feet for Strahler order 6 streams (plus an additional 60 feet if the slope exceeds 24 percent) for certain ranches, the Environmental Advocate Alternative would include a minimum riparian buffer of 30 feet and preparation/implementation of a water quality buffer plan. These reduced requirements would result in fewer some acres of existing agricultural land and Important Farmland being taken out of production for establishment of riparian buffers/setbacks. However, although the minimum buffer requirements would impact agricultural land, they would effectively reduce non-point source pollution of waters and help to correct the existing undesirable water quality conditions in the region. Likewise, the reduced conversion of existing agricultural lands to non-crop land uses would result in fewer conflicts with existing zoning for agricultural land use and Williamson Act contracts.~~

Certain other aspects of the Environmental Advocate Alternative could increase impacts relative to the Proposed Project; however, these increased impacts would not be significant, particularly with implementation of mitigation measures. For example, the lack of prioritization and phasing in of requirements in the Environmental Advocate Alternative could result in more management practice implementation and construction in the early years of the order, such that effects from construction of management practices (e.g., air emissions, GHG emissions, and noise) may be less dispersed over time. Additionally, the lack of prioritization and phasing-in of requirements could increase costs on growers, as well as allow them less time to adapt to the new requirements, thus increasing potential for adverse economic impacts, which in turn could lead to adverse physical effects (e.g., agricultural land conversion).

**Overall Conclusion:** The Environmental Advocate Alternative would ~~potentially not~~ reduce one or more of the significant impacts of the Proposed Project.

## **Impacts Analysis**

### *Agricultural and Forestry Resources*

The Environmental Advocate Alternative likely would result in some conversion of existing Important Farmland to non-crop (i.e., riparian/open space) use as a result of the proposed

minimum 30-foot riparian buffer requirement. Some ranches are farming within 30 feet from the top of bank of some waterbodies in the region; as such, this existing irrigated acreage would be taken out of production and converted to riparian uses. This conversion would be ~~substantially reduced compared to the Proposed Project, but would still likely be significant.~~ As the Environmental Advocate Alternative would convert existing agricultural land to non-crop uses, it would conflict, to some degree, with existing zoning for agricultural use and Williamson Act contracts (most agricultural lands within the central coast region are zoned for agricultural use and under Williamson Act contract). ~~Similar to the Proposed Project, n~~No feasible mitigation is available to reduce these potential impacts. As such, the Environmental Advocate Alternative's impacts on agricultural and forestry resources would be **significant and unavoidable**.

### *Air Quality*

The Environmental Advocate Alternative would result in similar implementation of management practices as the Proposed Project, which would result in similar air emissions from operation of construction equipment and potential fugitive dust generation. However, due to the lack of phasing in the Environmental Advocate Alternative, this could result in greater air emissions during the first years of the order, as growers implement and construct management practices in order to reduce discharges and come into compliance with the numeric limits and benchmark values included in the Environmental Advocate Alternative. Over the life of the agricultural order, there would likely be similar total emissions from construction activities as under the Proposed Project. Similar to the Proposed Project, the air emissions under the Environmental Advocate Alternative would not be anticipated to be significant, given compliance with existing laws and regulations and implementation of any measures that may be required by the air district. Therefore, impacts on air quality from this alternative would be **less than significant**.

### *Biological Resources*

Implementation/construction of management practices under the Environmental Advocate Alternative would have similar potential to impact biological resources as the Proposed Project. As discussed above, these potential impacts may be more likely to occur in the early years of the order under the Environmental Advocate Alternative due to the lack of prioritization and phasing-in of requirements and the generally faster time schedules. Over the life of the agricultural order, potential impacts to biological resources would likely be similar due to the similar total level of management practice implementation/construction. These impacts would not be significant with implementation of mitigation measures.

Similar to the Proposed Project, the Environmental Advocate Alternative would also have beneficial effects on biological resources relative to baseline conditions. By reducing discharges (through grower compliance with numeric discharge and application limits), the Environmental Advocate Alternative would be expected to improve water quality relative to baseline, which would benefit aquatic life, and alleviate existing impacts to numerous habitat-related beneficial uses. Additionally, the requirement for a minimum 30-foot riparian buffer from waterbodies on or adjacent to irrigated lands would restore and protect stream habitat and benefit numerous species (including special-status species) that depend on these habitats. ~~Due to the reduced setback requirements, these beneficial impacts would be less pronounced than the Proposed Project, but nevertheless would be substantial because currently, only a small subset of Tier 3 dischargers are subject to a buffer requirement under Agricultural Order 3.0.~~

Overall, the impacts of the Environmental Advocate Alternative on biological resources would be **less than significant with mitigation**.

### *Cultural Resources*

The Environmental Advocate Alternative could adversely affect buried, unknown cultural resources, similar to the Proposed Project, as a result of ground-disturbing activities during construction of reasonably foreseeable management practices. Excavation and grading that may occur for installation/construction of certain management practices (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors, etc.) potentially could unearth buried cultural resources, which could result in adverse impacts on these resources if proper protocols are not followed. Like the Proposed Project, these potential impacts could be avoided or reduced through compliance with existing laws and regulations pertaining to treatment of cultural resources, as well as implementation of mitigation measures. Relative to the Proposed Project, these potential impacts could be more front-loaded towards the first years of the order due to the lack of prioritization and phasing in of requirements in the Environmental Advocate Alternative, although the overall potential impacts over the life of the agricultural order would be similar. Overall, the impacts of the Environmental Advocate Alternative would be **less than significant with mitigation**.

### *Economics*

The Environmental Advocate Alternative would result in additional regulatory compliance costs for growers related to baseline conditions (i.e., Agricultural Order 3.0), similar to the Proposed Project. Management practices needed to reduce agricultural discharges would cost money to construct and, due to the lack of prioritization and phasing in of requirements in the Environmental Advocate Alternative, these costs may be higher in the early years of agricultural order implementation compared to the Proposed Project. Monitoring and reporting costs for growers under the Environmental Advocate Alternative could also be somewhat higher due to requirements for more frequent laboratory water quality tests, as well as testing for additional pesticide constituents. ~~However, Additionally, the reduced-setback/buffer requirements under the Environmental Advocate Alternative likely would result in reduced-increased costs for affected growers (i.e., growers with a waterbody on or adjacent to their ranch) relative to the Proposed Project.~~

Similar to the Proposed Project, the question of whether the increased costs of compliance could result in individual growers going out of business or needing to sell their lands, and the new property owners converting these lands to non-agricultural uses (i.e., adverse physical environmental effect), is essentially speculative. There are numerous factors that affect the agricultural economy in the central coast region, such as domestic and international markets, climate/weather, and crop yields, over which CCWB has no control. Even with the increased regulatory compliance costs, these costs likely would represent a relatively small portion of total cash costs for most growers and most crops. As such, this impact to the physical environment would be **less than significant**.

### *Energy*

The Environmental Advocate Alternative could result in energy use, primarily from operation of construction equipment (e.g., fuel use) during installation/construction of reasonably

foreseeable management practices. Relative to the Proposed Project, this energy use may be somewhat increased during the early years of order implementation due to the lack of prioritization and phasing-in the Environmental Advocate Alternative, but overall would be similar over the life of the order. This energy use would not be significant and would not be unnecessary or wasteful, particularly given compliance with existing laws and regulations. Therefore, the Environmental Advocate Alternative's impact on energy would be **less than significant**.

### *Greenhouse Gas Emissions*

The Environmental Advocate Alternative would result in a net increase in GHG emissions as a result of implementation/construction of reasonably foreseeable management practices. Overall, these GHG emissions would be similar to those under the Proposed Project, but may be more skewed towards the early years of the order implementation due to the lack of prioritization and phasing-in of requirements under the Environmental Advocate Alternative (and consequent increased management practice implementation early on for growers to come into compliance with the numeric discharge limits). Certain management practices could result indirectly in reduced GHG emissions over the long term (e.g., reduced fertilizer applications, more efficient irrigation systems); however, these reductions would not be particularly substantial relative to baseline conditions and would be similar to those achieved under the Proposed Project. Overall, GHG emissions would likely be below applicable significance thresholds and would not be significant. As such, GHG emissions from the Environmental Advocate Alternative would be **less than significant**.

### *Hazards and Hazardous Materials*

The Environmental Advocate Alternative would have similar potential as the Proposed Project to create hazards to workers, the public, and the environment from routine transport, use, storage, and disposal of hazardous materials during installation/construction of reasonably foreseeable management practices. Many management practices involving ground-disturbing construction activities (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors, efficient irrigation systems, etc.) would require use of hazardous materials, such as fuel, oil, and lubricant, which could pose a hazard if handled improperly or accidentally released. Due to the lack of prioritization and phasing-in of requirements in the Environmental Advocate Alternative, and generally faster time schedules, more management practices could be installed/constructed during the early years of order implementation under the Environmental Advocate Alternative compared to the Proposed Project, although total management practice implementation over the life of the order would likely be similar. As such, potential hazardous materials impacts could be more skewed towards the early agricultural order years; however, as described for the Proposed Project in Section 3.8, *Hazards and Hazardous Materials*, these potential impacts would be avoided or reduced through compliance with existing laws and regulations and implementation of mitigation measures.

Relative to the Proposed Project, given the ~~reduced-minimum buffer/setback~~ requirements, the Environmental Advocate Alternative could have ~~less-increased~~ potential to result in food safety impacts (i.e., from animals intruding into fields from adjacent riparian areas); however, this impact would be less than significant for both the Proposed Project and the Environmental Advocate Alternative. Overall, the Environmental Advocate Alternative's impacts related to hazards and hazardous materials would be **less than significant with mitigation**.

### *Hydrology and Water Quality*

Similar to the Proposed Project, the Environmental Advocate Alternative would have beneficial effects on hydrology and water quality by reducing discharges of pollutants from irrigated lands. Under existing conditions, there are adverse impacts on hydrology and water quality from irrigated agricultural activities, which have contributed to exceedances of water quality objectives and impairment of beneficial uses. Over the short term, installation/construction of reasonably foreseeable management practices under the Environmental Advocate Alternative could result in impacts to hydrology and water quality if adequate precautions are not taken. Ground-disturbing construction activities for certain types of management practices (e.g., sediment basins, vegetated filter strips, bioreactors, etc.) could loosen soils, which could then be washed off-site and into adjacent waterbodies. As discussed previously, due to the lack of prioritization and phasing-in of requirements and more aggressive time schedules in the Environmental Advocate Alternative, management practice implementation could be more skewed towards the early years of the agricultural order compared to the Proposed Project (which would include phasing in of most requirements), and thus potential construction-related effects may also more readily occur during these early years.

Overall, given compliance with existing laws and regulations and implementation of mitigation measures, potential impacts on hydrology and water quality for both the Proposed Project and Environmental Advocate Alternative would be **less than significant with mitigation**.

### *Noise*

As noted above, the Environmental Advocate Alternative would result in implementation of similar reasonably foreseeable management practices as the Proposed Project, although these management practices could be implemented on a quicker schedule due to the lack of prioritization and phasing-in of requirements and faster time schedules in the Environmental Advocate Alternative. Many of these management practices that involve construction activities and use of heavy construction equipment (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors, etc.) could result in temporary noise. Similar to the Proposed Project, the Environmental Advocate Alternative could result in new permanent stationary sources of noise (e.g., new pumps for monitoring wells or efficient irrigation systems), although these potential impacts would be reduced through implementation of mitigation measures. As a result, this impact would be **less than significant with mitigation**.

### *Tribal Cultural Resources*

As discussed above under “Cultural Resources,” ground-disturbing activities for construction/installation of certain management practices under the Environmental Advocate Alternative could potentially encounter buried unknown cultural resources, some of which could be TCRs. Similar to the Proposed Project, this could result in adverse impacts if proper protocols are not followed for treatment of cultural resources, including TCRs. Under the Environmental Advocate Alternative, due to the lack of prioritization and phasing-in of requirements and faster time schedules, management practice implementation and associated ground-disturbing activities could be more skewed toward the early years of the order; thus, potential TCR impacts may more readily occur during these early years compared to the Proposed Project. However, compliance with existing laws and regulations and implementation of standard mitigation measures would reduce these potential impacts to **less than significant with mitigation**.

### *Wildfire*

The Environmental Advocate Alternative would result in implementation of similar reasonably foreseeable management practices as the Proposed Project, some of which would involve use of internal-combustion engine equipment during their installation/construction. This equipment could potentially provide a spark, which could increase the risk of wildfire in areas where management practices are implemented. These potential impacts would be similar to those under the Proposed Project, although, as discussed above, management practice implementation and associated construction activities could be skewed more towards the early years of the order under the Environmental Advocate Alternative due to the lack prioritization and phasing-in of requirements and faster time schedules. In general, irrigated agricultural lands are not typically considered high fire risk areas, although there are some areas in the central coast region that are designated as Very High Fire Hazard Severity Zones that are in close proximity to or overlapping agricultural lands. Given compliance with existing laws and regulations, however, this impact would be **less than significant**.

## 4.5 Environmentally Superior Alternative

The State CEQA Guidelines, under Section 15126.6(e)(2), state that “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.” Neither the CEQA statute nor the State CEQA Guidelines states that an EIR must necessarily identify an environmentally superior alternative, particularly for situations/projects where the no project alternative is not environmentally superior or where none of the other alternatives are clearly environmentally superior. The State CEQA Guidelines do not specifically address what happens when the no project alternative is infeasible.

As described in Section 4.4 above, in the case of the Proposed Project, the No Project Alternative is not environmentally superior because it has been shown to be not sufficiently protective of water quality and environmental resources and aspects of the existing order have~~has~~ been found to not comply with the NPS Policy. The existing conditions of many streams and waterbodies in the central coast region are unacceptable, and discharges of pollutants from irrigated agricultural lands continue to contribute to exceedances of WQOs and impairments of beneficial uses. The No Project Alternative (i.e., Agricultural Order 3.0) has not been sufficiently effective in correcting these existing impairments, as evidenced by the continued poor water quality conditions in surface waters and groundwaters in agricultural areas of the central coast region since Agricultural Order 3.0 has been in effect. Additionally, as discussed at length above, aspects of the existing order, including~~and~~ its iterative process of tracking management practice implementation and its lack of defined time schedules, were~~as~~ found by the courts to be inadequate with respect to Coastkeeper et al. lawsuits.

Due to the nature of the Proposed Project, it is difficult to designate any of the remaining alternatives (i.e., other than the No Project Alternative) as environmentally superior. Unlike many of the more “typical” projects evaluated under CEQA (e.g., a housing development), the purpose of the Proposed Project is largely to correct existing ongoing impairments in water quality caused by discharges from irrigated agricultural lands. In other words, the purpose of the Proposed Project is to benefit the environment. Additionally, the baseline conditions, against which the potential impacts of the Proposed Project and alternatives are evaluated, are



unacceptable from an environmental standpoint in that beneficial uses are not being protected and other serious water quality impacts are occurring. Therefore, although the Proposed Project would result in several significant impacts relative to baseline conditions (reduced to less than significant with implementation of mitigation measures), it would result in a number of beneficial effects and would correct existing impairments that are represented in the baseline conditions.

~~As discussed in Section 4.4, the Ag Organization Alternative would avoid the significant and unavoidable effects of the Proposed Project related to conversion of agricultural land to non-crop uses as a result of the setback requirements. The Environmental Advocate Alternative, by requiring a blanket 30-foot minimum riparian setback, would reduce the potential agricultural land conversion effects of the Proposed Project, although these effects would still likely be significant and unavoidable. However, the setback requirements included in the Proposed Project would be highly effective in reducing discharges of pollutants to waterbodies and correcting many of the existing impairments in the central coast region caused by irrigated agriculture. Therefore, while the two action alternatives would reduce adverse effects on agricultural resources, they also would not achieve the same level of beneficial effects that would be realized by the Proposed Project. There is also the consideration that much of the agricultural land potentially converted by the Proposed Project may have itself recently been converted from riparian to bare ground or cropped areas due to concerns over potential food safety risks (see Section 3.1, *Agriculture and Forestry Resources* and Section 3.8, *Hazards and Hazardous Materials* for further discussion).~~

~~Similarly, t~~The Ag Organization Alternative likely would result in less construction of new management practices (e.g., sediment basins, vegetated filter strips, denitrifying bioreactors, etc.) relative to the Proposed Project and Environmental Advocate Alternative. As such, it would likely have reduced potential construction effects related to air quality, energy, GHGs, hazards and hazardous materials, hydrology and water quality, and noise. However, once installed, management practices would be beneficial for water quality in reducing discharges of agricultural pollutants; thus, while the Ag Organization Alternative could potentially reduce some construction-related (i.e., short-term) effects, it likely would not achieve the same long-term benefits from increased management practice implementation under the Proposed Project and Environmental Advocate Alternative.

The Environmental Advocate Alternative would require a minimum 30-foot riparian buffer/setback for ranches with waterbodies on or adjacent to the ranch. While this requirement would likely be very effective in curbing pollutant discharges to waterbodies and correcting existing water quality impairments in the region, it also would result in Important Farmland being converted to non-agricultural uses. This is a significant impact under CEQA. The Proposed Project would not include requirements for riparian setbacks but would maintain Agricultural Order 3.0's prohibition on removal of existing riparian vegetation. Thus, the Proposed Project would likely not achieve the same level of benefits to water quality from having minimum buffers between waterbodies and agricultural activity; however, it would not result in substantial conversion of existing agricultural land to non-agricultural uses. Finally, the Ag Organization Alternative would remove the prohibition on removal of existing riparian vegetation and thus potentially allow for removal of riparian vegetation not protected under the Clean Water Act.

In other words, the Proposed Project and the alternatives considered each involve environmental tradeoffs, including environmental costs and benefits relative to baseline conditions. **Table 4-4** provides a relative ranking for the Proposed Project and action alternatives with respect to the primary environmental costs and benefits, which are discussed in greater detail in Chapter 3 of this FEIR and Section 4.4 above. As shown in Table 4-4, taking into account all the relevant factors, staff find that the Proposed Project best accomplishes the water quality goals of CCWB, while minimizing environmental impacts to the extent possible.

**Table 4-4. Relative Ranking of the Proposed Project and Action Alternatives with Respect to Primary Environmental Costs and Benefits**

Relevant Cost or Benefit	Proposed Project	Ag Organization Alternative	Environmental Advocate Alternative <sup>3</sup>
<b><i>Environmental Costs</i></b>			
Conversion of Agricultural Lands to Non-Agricultural Uses	<u>1</u> <sup>2</sup> <del>3</del>	1 <sup>2</sup>	<u>3</u> <del>2</del>
Construction-Related Effects from Implementation of Management Practices	2	1	3
Compliance Costs for Growers	<u>2</u> <del>3</del>	1	<u>3</u> <del>2</del>
<b><i>Environmental Benefits</i></b>			
Protection / Creation of Riparian Vegetation and Habitat	<u>2</u> <del>1</del>	3	<u>1</u> <del>2</del>
Long-Term Water Quality Benefits from Implementation of Management Practices	1 <sup>2</sup>	3	1 <sup>2</sup>
Overall Effectiveness of Discharge Reduction / Water Quality Protection	<u>2</u> <del>1</del>	3	<u>1</u> <del>2</del>
<b><i>Cumulative Score</i><sup>1</sup></b>	<b><u>10</u><del>1</del></b>	<b>12</b>	<b>12</b>

Note: 1. Lower cumulative score indicates higher ranking (i.e., is better).

2. Where there was a tie between the alternatives and/or Proposed Project, the same score was awarded.

3. Note that some of the rankings in the Environmental Advocate Alternative changed. This was due to a change in the relative ranking compared to the revised Proposed Project (i.e., change in riparian requirements). The Alternative itself was not changed.

## Chapter 5

# Other Statutory Considerations

### 5.1 Introduction

This chapter presents discussions of significant and unavoidable impacts, growth-inducing impacts, and cumulative impacts as required by the California Environmental Quality Act (CEQA) Guidelines.

### 5.2 Significant and Unavoidable Impacts

Section 15126.2(b) of the CEQA Guidelines requires that an environmental impact report (EIR) describe any significant impacts that cannot be mitigated to a less-than-significant level. ~~No~~The following impacts were found to be significant and unavoidable for the Proposed Project:

- ~~▪ Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to non-agricultural use. (Section 3.1, Agriculture and Forestry Resources)~~
- ~~▪ Impact AG-2: Conflict with existing zoning for agriculture use or a Williamson Act contract. (Section 3.1, Agriculture and Forestry Resources)~~

### 5.3 Growth Inducement

Section 15126.2(d) of the CEQA Guidelines requires that an EIR include a detailed statement of a proposed project's anticipated growth-inducing impacts. The analysis of growth-inducing impacts must discuss the ways in which a proposed project could foster economic or population growth or the construction of additional housing in the surrounding environment. The analysis must also address project-related actions that would remove existing obstacles to population growth, tax existing community service facilities and require construction of new facilities that cause significant environmental effects, or encourage or facilitate other activities that could, individually or cumulatively, significantly affect the environment. A project would be considered growth-inducing if it induces growth directly (through the construction of new housing or increasing population) or indirectly (increasing employment opportunities or eliminating existing constraints on development). Under CEQA, growth is not assumed to be either beneficial or detrimental.

As described in Chapter 2, *Project Description*, the majority of irrigated farmlands in the central coast region are enrolled in Agricultural Order 3.0 and most growers are already implementing some management practices to address nutrients, irrigation, pesticides, and sediment and comply with Agricultural Order 3.0. Reasonably foreseeable management practices under the Proposed Project with the greatest potential for environmental impacts would require

temporary workers during the construction phase. Example management practices that would require construction workers for installation include efficient irrigation systems, buffer strips, vegetated filter strips, swales, sediment retention basins, bioreactors, and riparian buffer areas. It is anticipated that implementing these management practices would rely on construction workers in the local work force and construction would be short term, and therefore, would have a small overall effect on job creation within the Project area. ~~In addition, while implementing the setback requirements under Agricultural Order 4.0 may result in conversion of agricultural land (up to 1,968 acres of Prime Farmland), as described in Section 3.1, *Agricultural Resources*, this land would be converted to riparian vegetation or non-crop areas with adequate sediment and erosion control, and not urban uses. As such, implementation of the setback requirements, specifically, would not induce substantial growth.~~

As discussed in Section 3.5, *Economics*, Agricultural Order 4.0 could result in increased costs for growers due to additional monitoring and reporting requirements, as well as the potential need to implement additional management practices to comply with the discharge limits. However, as discussed in Section 3.5 and throughout this FEIR, these potentially increased costs are largely speculative due to the facts that (1) growers would have considerable discretion as to how they comply with the requirements; (2) there are considerable cost differences between the individual vs. ~~cooperative third-party program~~ option for compliance with the riparian setback requirements, as well as several of the monitoring and reporting requirements; and (3) the compliance costs associated with Agricultural Order 4.0 would depend on the specific characteristics of individual ranches/operations, including crop mix, operating costs/capital, cash reserves, and other factors. For all of these reasons, the potential for agricultural lands to be converted to urban uses as a result of increased costs from Agricultural Order 4.0 is speculative. Along the same lines, it is also speculative as to whether the Proposed Project would foster economic and population growth.

## 5.4 Cumulative Impacts

According to State CEQA Guidelines Section 15130(a)(1), a cumulative impact is created by the combination of a proposed project with other past, present, and probable future projects causing related impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (State CEQA Guidelines Section 15355[b]). Under CEQA, an EIR must discuss the cumulative impacts of a project when the project's incremental contribution to the group effect is "cumulatively considerable." An EIR does not need to discuss cumulative impacts that do not result, in part, from the project evaluated in the EIR. Where an incremental effect is not cumulatively considerable, the basis for concluding that the incremental effect is not cumulatively considerable must be described.

To meet the adequacy standard established by State CEQA Guidelines Section 15130, an analysis of cumulative impacts should contain the following elements:

- an analysis of related past, present, and reasonably foreseeable projects or planned development that would affect resources in the project area similar to those affected by the proposed project;

- a summary of the environmental effects expected to result from those projects with specific reference to additional information stating where that information is available; and
- a reasonable analysis of the combined (cumulative) impacts of the relevant projects.

#### 5.4.1. Approach to Analysis

The following analysis of cumulative impacts focuses on whether the impacts of the Proposed Project are cumulatively considerable within the context of impacts resulting from the Proposed Project and other past, present, or reasonably foreseeable future projects. The cumulative impact scenario considers other projects proposed within the area defined for each resource topic that have the potential to contribute cumulatively considerable impacts.

State CEQA Guidelines Section 15130 provides the following two alternative approaches for analyzing and preparing an adequate discussion of significant cumulative impacts:

- the list approach, which involves listing past, existing, and probable future projects or activities that have or would produce related or cumulative impacts, including, if necessary, those projects outside the control of the lead agency; or
- the projection approach, which uses a summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions and their contribution to the cumulative effect.

This chapter utilizes both approaches. The list approach was utilized by developing a list of past, present, and reasonably foreseeable future related projects, as shown in **Table 5-1**. Table 5-1 was developed based on review of information available on local county websites. In addition, while not included in Table 5-1, this FEIR takes into consideration past agricultural orders that have regulated waste discharge from irrigated lands in the central coast region, including Agricultural Order 3.0, which is currently in effect. For discussion of Agricultural Orders 1.0 and 2.0, refer to Section 2.2.1 in Chapter 2, *Project Description*. The general plans for the counties of Monterey (2010), Kern (2009), San Benito (2015), San Luis Obispo (2010), San Mateo (2013), Santa Barbara (1997 and updates), Santa Clara (1984), Santa Cruz (1994), and Ventura (2019) were also used in considering potential cumulative impacts and the Proposed Project's contribution to any cumulative significant impacts. **Table 5-2** summarizes anticipated population growth for each of these counties between 2020 and 2030. For each resource topic evaluated, the possible impacts are considered cumulatively in light of similar possible impacts as Agricultural Order 4.0.

**Table 5-1. Summary of Related Cumulative Projects**

Related Project	Project Summary	Activities that Could Affect Resources Similar to the Proposed Project
County of San Mateo Routine	The County of San Mateo is developing a draft routine maintenance program manual that describes the maintenance responsibilities of	Vegetation management activities near irrigated agricultural land including

<b>Related Project</b>	<b>Project Summary</b>	<b>Activities that Could Affect Resources Similar to the Proposed Project</b>
Maintenance Program	County Department of Public Works and Parks Department. The manual provides a more comprehensive and consistent approach for conducting routine maintenance activities.	mowing, pruning and trimming, herbicide application.
Santa Clara Valley Water District's Stream Maintenance Program	Under the Santa Clara Valley Water District's (Valley Water's) Stream Maintenance Program, maintenance work is performed along creeks throughout Santa Clara County to reduce the risk of flooding and for public safety purposes. Valley Water owns and maintains 275 miles of streams. Work occurs on an annual basis and generally includes removing accumulated sediment, vegetation management, clearing trash and debris, and bank stabilization along banks that have eroded during high flows. Each year, Valley Water evaluates portions of their streams and prioritizes maintenance projects.	Vegetation management activities including pruning, herbicide application, mowing, discing, flaming, and grazing. Other related activities include sediment removal.
Salinas River Stream Maintenance Program	The Salinas River Stream Maintenance Program is a coordinated approach to vegetation and sediment management that is implemented on a voluntary basis by landowners, growers, and municipalities along the main stem of the Salinas River (miles 2 to 94) and three tributaries: Gonzales Slough, Bryant Canyon Channel, and San Lorenzo Creek. The program is intended to improve flood protection and channel capacity on the Salinas River and above-mentioned tributaries. (Monterey County Water Resources Agency 2014)	Vegetation maintenance activities including non-native invasive and native vegetation removal, herbicide application, sediment removal, and associated grading throughout the main stem of the Salinas River and the following tributaries: Gonzales Slough, Bryant Canyon Channel, and San Lorenzo Creek.
Pure Water Monterey Groundwater Replenishment	The Pure Water Monterey project is a water supply project that would serve northern Monterey County. The project would provide (1) up to 3,500 acre-feet per year (af/yr) of purified recycled water for injection into the Seaside Groundwater Basin and subsequent extraction and delivery to California American Water's (CalAm's) urban customers on the Monterey peninsula, and (2) up to 5,900 af/yr of recycled water to augment the Castroville Seawater Intrusion Project's agricultural	Water sources of the Pure Water Monterey project include agricultural drainage and agricultural wash water, which would also be affected by the Proposed Project.

Related Project	Project Summary	Activities that Could Affect Resources Similar to the Proposed Project
	<p>irrigation supplies. The project would include source water diversion and storage facilities, a new advanced water treatment plant, product water conveyance pipelines, injection wells, and distribution pipelines to deliver water that is extracted from the Seaside Groundwater Basin to CalAm customers. The source water for the project includes stormwater, agricultural drainage, and agricultural wash water from various sources that are currently either conveyed via the Salinas River to Monterey Bay or conveyed to the Monterey One Water's (formerly MRWPCA's) regional wastewater treatment plant prior to being discharged via an existing ocean outfall. (MRWPCA and MPWMD 2016)</p>	
Regional Urban Water Augmentation Project	<p>Marina Coast Water District (MCWD) is constructing this project involving a recycled water transmission and distribution system that will serve both the MCWD Water Augmentation Program and Pure Water Monterey. The project will provide 1,427 af/yr of water from sources other than groundwater within the District and up to 3,700 af/yr of Pure Water to the Monterey Peninsula. (MCWD 2018)</p>	<p>Operation of the Regional Urban Water Augmentation Project would reduce groundwater demands and help improve groundwater quality conditions in the Seaside Basin, which could also be affected by the Proposed Project.</p>
Monterey Peninsula Water Supply Project (MPWSP)	<p>CalAm is proposing the MPWSP to develop 6,260 af/yr of water supplies for the Monterey peninsula. The project is needed to reduce the region's reliance on surface water supplies from the Carmel River and protect critical habitat for federally endangered species. The project would include a subsurface seawater intake system, a 6.4 million gallons per day (MGD) desalination plant, injection/extraction wells for aquifer storage and recovery of desalinated water supplies, conveyance pipelines, and pump stations. The project extends approximately 18 miles, from Castroville in the north to the city of Carmel in the south.</p>	<p>Operation of MPWSP would reduce groundwater demands and help improve groundwater quality conditions in the Seaside Basin, which could also be affected by the Proposed Project.</p>

Related Project	Project Summary	Activities that Could Affect Resources Similar to the Proposed Project
	<p>Pipeline construction activities for the MPWSP are currently underway and construction of the desalination plant is expected to commence in 2020.</p> <p>(California Public Utilities Commission [CPUC] and Monterey Bay National Marine Sanctuary [MBNMS] 2017; Monterey Peninsula Water Supply Project 2019).</p>	
San Luis Obispo Waterway Management Plan	<p>The Zone 9 Advisory Committee, which includes representatives from various personnel from the City of San Luis Obispo, Caltrans, and Cal Poly State University, developed the San Luis Obispo Waterway Management Plan. The Plan includes an approach to addressing flooding, erosion, water quality and ecological issues in the San Luis Obispo Creek Watershed. Volume 2 of the Plan includes a Stream Management and Maintenance Program which outlines routine stream maintenance including vegetation management, bank repair, and sediment removal activities.</p>	<p>Vegetation management activities including riparian tree pruning, trimming, non-native plant removal, and revegetation.</p>
Santa Barbara County Flood Control District Updated Routine Maintenance Program	<p>The objective of the Santa Barbara County Flood Control District Updated Routine Maintenance Program is to maintain the capacity of key watercourses in Santa Barbara County and to preserve existing conveyance capacity to prevent accumulation of sediment and vegetation that could increase flood hazards. The program includes various maintenance activities including desilting, channel shaping, herbicide spraying, and channel clearing activities in most creeks and streams throughout Santa Barbara County.</p>	<p>Application of herbicide and other vegetation management activities that take place in Santa Barbara County flood control channels. (Santa Barbara County Flood Control District 2001)</p>
Total Maximum Daily Loads (TMDLs) and associated implementation actions	<p>As described in Section 3.9, <i>Hydrology and Water Quality</i>, and shown in Figure 3.9-1, CCWB has established dozens of TMDLs for numerous water quality impairments including but not limited to nutrients (e.g., nitrates), pesticides, toxicity, and sediment.</p>	<p>Dischargers assigned TMDL waste load allocations or load allocations, through permits issued to them, are required to reduce pollutant loading to receiving waters that could be affected by the Proposed Project.</p>



**Table 5-2.** Population Growth Projections 2020 – 2030

County	Population		
	2020	2030	% Increase
Kern County	928,308	1,062,325	14%
Monterey County	451,001	483,740	7%
San Benito County	62,346	69,120	11%
San Luis Obispo County	282,744	296,782	5%
San Mateo County	785,650	833,868	6%
Santa Barbara	459,787	489,554	6%
Santa Clara County	1,996,394	2,194,079	10%
Santa Cruz County	278,997	296,728	6%
Ventura County	863,528	909,779	5%

Source: California Department of Finance 2019

### ***Resource Topics Considered and Dismissed***

The Proposed Project would have the potential to make a considerable contribution to cumulative impacts related to the following resource topics: Agricultural Resources, Air Quality, Biological Resources, and Cultural Resources. Greenhouse gas emissions are a cumulative issue and are already addressed in Section 3.7, *Greenhouse Gas Emissions*; therefore, this topic is not discussed further in this section. Similarly, cumulative effects on air quality are addressed in Section 3.2, *Air Quality*, and therefore are not discussed further in this section. For all other resource topics described in this EIR, as shown in **Table 5-3**, either significant cumulative impacts do not exist, or the Proposed Project would not have the potential to make a considerable contribution to any significant cumulative impacts. These resource topics have been dismissed from consideration in the analysis of cumulative impacts and are not discussed further.

**Table 5-3.** Resource Topics Dismissed from Further Consideration in the Analysis of Cumulative Impacts

Resource Topic Not Discussed Further	Rationale
Economics	As discussed in Section 3.5, <i>Economics</i> , the potential for agricultural lands to be converted to non-agricultural uses as a result of increased costs of compliance from Agricultural Order 4.0 is speculative. The specific impacts of Agricultural Order 4.0 would depend on the specific characteristics of individual ranches/operations (e.g., crop mix, operating costs/capital, cash reserves) which can also change season by season and year to year for various reasons. Additionally, even with increased compliance costs, it is speculative to determine whether this

Resource Topic Not Discussed Further	Rationale
	would lead individual growers to sell or stop renting their lands, and then whether the new landowners would convert those lands to non-agricultural uses. Lastly, none of the projects listed in Table 5-1 would necessarily result in increased costs for farms or ranches such that conversion of irrigated agricultural lands to non-agricultural uses would occur. For these reasons, the Proposed Project would not contribute to a cumulative significant impact related to economics.
Energy	As discussed in Section 3.6, <i>Energy</i> , while implementation of many reasonably foreseeable management practices would result in some energy consumption during both the construction and operation phases, this energy use would not be substantial nor wasteful, inefficient, or unnecessary. Many practices are currently being implemented under current Agricultural Order 3.0 and some could result in a reduction in energy use (e.g. reducing tillage, optimizing use of fertilizer and water) relative to baseline conditions. Many of the cumulative projects listed in Table 5-1 would use energy, such as from use of equipment in routine maintenance activities and operation of water treatment/desalination facilities once constructed, and this energy use generally would not be wasteful, inefficient, or unnecessary. Existing laws and regulations prevent the unnecessary idling of construction vehicles that may be used during implementation of the projects listed in Table 5-1, and the projects are needed for maintenance of streams, flood protection, and water supply. Therefore, the Proposed Project would not contribute to a cumulative significant impact related to energy.
Hazards and Hazardous Materials	Impacts related to hazards and hazardous materials from other projects (e.g., those listed in Table 5-1) and development throughout CCWB's jurisdiction would be site-specific and, like the Proposed Project, would be required to comply with federal, state, and local standards, as described in Section 3.8, <i>Hazards and Hazardous Materials</i> . In general, compliance with such standards would prevent workers and the public from being exposed to hazardous materials during construction. Like the Proposed Project, none of the cumulative projects listed in Table 5-1 would involve new housing or buildings, which could be constructed on existing hazardous materials sites, within airport land use plan areas, or within Very High Fire Hazard Severity Zones, such as to potentially expose people or structures to hazards. As described in Section 3.8, Agricultural Order 4.0 could decrease chemical use on many irrigated lands and thereby reduce excessive pesticide use and associated exposure of pesticides to agricultural workers. For these reasons, the Proposed Project would not contribute to a cumulatively significant impact regarding hazards and hazardous materials.

<b>Resource Topic Not Discussed Further</b>	<b>Rationale</b>
Hydrology and Water Quality	<p>As described in Section 3.9, <i>Hydrology and Water Quality</i>, management practices implemented under Agricultural Order 4.0 would be expected to improve water quality and would largely have a beneficial effect on receiving waters. The primary objectives of Agricultural Order 4.0 are to reduce or minimize discharges of pollutants (e.g., nitrate/nitrogen, pesticides, and sediment) from irrigated lands. While it is possible that efficient irrigation systems (if implemented under the Proposed Project) could reduce the amount of irrigation water applied and thereby result in less water reaching nearby streams (i.e., resulting in less surface water flow in adjacent waterbodies), this effect is largely speculative. Like the Proposed Project, the cumulative projects listed in Table 5-1 would largely improve water quality conditions in streams within specific areas (e.g., counties of Santa Clara, San Mateo, San Luis Obispo, and Santa Barbara; and Salinas River watershed). Many of the projects in Table 5-1 also would beneficially affect groundwater supplies by reducing dependence on groundwater for water supply; the Proposed Project likewise would have a beneficial overall effect on groundwater by improving groundwater quality and potentially resulting in decreased pumping (e.g., through improved water use efficiency). As a result, the Proposed Project would not substantially contribute to significant cumulative water quality impacts.</p>
Noise and Vibration	<p>Noise associated with constructing various reasonably foreseeable management practices under the Proposed Project would be localized and temporary at any given site. As discussed in Section 3.10, <i>Noise</i>, while it is impossible to know precisely which management practices will be implemented in which locations, it is reasonable to assume that construction of management practices would occur on agricultural lands where few noise-sensitive receptors are typically located. Given that these construction activities would be short-term and temporary and would be required to comply with existing local noise ordinances, these impacts would not be significant. Similarly, while the Proposed Project could result in some new permanent sources of noise (e.g., pumps associated with new monitoring wells or efficient irrigation systems), these noise sources would most likely be placed in rural areas and Mitigation Measure NOI-1 would reduce any potential impacts. Like the Proposed Project, noise impacts from the cumulative projects listed in Table 5-1 would be localized and largely temporary (e.g., operation of equipment during routine stream maintenance activities). New permanent noise sources from water treatment/recycling facilities could impact immediately surrounding areas, but it can be assumed that these facilities would be sited in accordance with existing land use laws such as to minimize impacts. Overall, the increase in noise levels from other cumulative projects in combination with the Proposed Project would not be substantial.</p>

Resource Topic Not Discussed Further	Rationale
Wildfire	As discussed in Section 3.12, <i>Wildfire</i> , most reasonably foreseeable management practices that could be implemented under the Proposed Project would have limited to no potential to increase wildfire risks. Construction of certain types of management practices (e.g., buffer strips, vegetated filter strips, swales, sediment retention basins, and bioreactors) could require use of internal combustion-engine equipment, which could potentially provide a spark to landscapes. However, growers, third party members, or their contractors would be required to follow state laws for fire safety during construction. The Proposed Project, like the cumulative projects listed in Table 5-1, would not include any housing that could place people or structures at risk from exposure to wildfires, nor would it substantially change existing land uses such as to potentially increase wildfire risk/hazard <del>(implementation of the setback requirements could increase vegetative cover, but since this vegetation would be immediately adjacent to waterbodies, it would not be anticipated to be especially combustible)</del> . For these reasons, the Proposed Project would not contribute to a cumulatively significant impact related to wildfire.

### ***Geographic Scope of Analysis***

The scope of individual Agricultural Order 4.0 activities generally would be limited to small geographic areas on irrigated agricultural land. For the purposes of the cumulative analysis, the overall geographic scope is agricultural lands within CCWB's jurisdiction. This includes irrigated agricultural land in the following counties: San Mateo, Santa Clara, Santa Cruz, San Benito, Monterey, San Luis Obispo, Santa Barbara, Ventura, and Kern. The geographic scope of the cumulative impact analysis for each resource topic is focused on the areas where potential effects of Agricultural Order 4.0 could contribute to cumulative impacts. **Table 5-4** defines the geographic scope of the cumulative impact analysis for those resource topics that are evaluated in this chapter.

**Table 5-4.** Geographic Scope for Resources with Cumulative Impacts Relevant to the Proposed Project

Resource	Geographic Scope	Explanation for the Geographic Scope
Agricultural Resources	Irrigated agricultural lands within the central coast region.	This area covers the extent of irrigated agricultural lands where agricultural lands could be taken out of production or otherwise converted to non-agricultural uses due to the Proposed Project, cumulative projects identified in Table 5-1, and development throughout the central coast region.

Resource	Geographic Scope	Explanation for the Geographic Scope
Biological Resources	Wetlands and other waters, riparian habitat, sensitive natural communities, and other habitats in or near the vicinity of irrigated agricultural areas within the central coast region that might support special-status species.	This area covers habitats and wildlife species that could be temporarily or permanently affected by the Proposed Project, cumulative projects identified in Table 5-1, and development throughout central coast region including areas that might be disturbed during construction/installation of certain management practices.
Cultural Resources	Areas within or adjacent to existing irrigated agricultural lands in the central coast region that could contain cultural resources including prehistoric archaeological sites, historic-era archaeological sites, historic-era buildings, structures, landscapes, districts and linear features.	This area generally covers the same geographic area as the Proposed Project where impacts on cultural resources could occur due to the Proposed Project, cumulative projects identified in Table 5-1, and development throughout the central coast region.

### 5.4.2. Cumulative Impact Analysis by Resource

#### ***Impact CUM-1: Cumulative Impacts on Agricultural Resources.***

As described in Section 3.1, *Agriculture and Forestry Resources*, Prime Farmland has been decreasing (10 percent between 1984 and 2014/16) in the central coast region, while Farmland of Statewide Importance and Unique Farmland have been increasing (29 percent increase over the same period). Additionally, there has been no discernable change in rates of conversion since adoption of Agricultural Orders 1.0 and 2.0. The decrease in Prime Farmland is consistent with the California-wide trend of decreasing acreage for Prime Farmland, and agricultural land acreage in the state has generally been declining alongside increasing urbanization. In the cumulative context, although none of the projects listed in Table 5-1 would be expected to result in conversion of agricultural land to non-agricultural uses, it is reasonable to assume that other ongoing development throughout the central coast region will continue to result in conversion of agricultural land to urban and built-up land. This is considered a significant cumulative impact on agricultural resources.

The Proposed Project would retain the existing prohibition on removal of riparian vegetation that is included in Agricultural Order 3.0 and would require monitoring and reporting on the current riparian area within or bordering ranches, but otherwise would not require that any

current agricultural lands be taken out of production or be converted to non-agricultural uses. The extent to which increased costs associated with compliance with the Proposed Project requirements could lead growers to go out of business or sell their lands, ultimately leading to a conversion of agricultural lands to non-agricultural uses, is speculative (refer to Section 3.5, *Economics*). Implementation of the setback requirements under Agricultural Order 4.0 could result in conversion of agricultural land (including Prime Farmland, Unique Farmland, and Farmland of Statewide importance) to non-crop uses. As discussed in Section 3.1, up to 4,064 acres of land could be taken out of production as a result of the Proposed Project, although this estimate is conservative, and the actual amount of agricultural land taken out of production could be significantly lower depending on several factors, including the compliance pathway selected by growers and whether a sufficient setback already exists that was not accounted for in the analysis. This conversion would be phased over time and the lands would be converted to riparian vegetation rather than urban land uses. Nonetheless, given the magnitude of Important Farmland conversion expected to occur under Agricultural Order 4.0 (no feasible mitigation is available to reduce these adverse effects; see Section 3.1, *Agriculture and Forestry Resources* for further discussion) Therefore, the Proposed Project's contribution to this cumulative impact on agricultural resources would be less than considerable.

### ***Impact CUM-2: Cumulative Impacts on Biological Resources.***

As described in Section 3.3, *Biological Resources*, the Proposed Project is expected to have a largely beneficial effect on biological resources, including special-status species and habitat. One of the primary objectives of the Proposed Project is to protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan ~~partially through protecting and restoring riparian and wetland habitat. While c~~Compliance with the proposed discharge, receiving water, and application limits would reduce ongoing discharges of pollutants from irrigated agricultural lands and thereby improve water quality and aquatic habitats, ~~implementation of the riparian setback requirements would restore/create riparian habitat and vegetation in the region.~~

In spite of these beneficial effects, the Proposed Project has potential for some adverse effects on biological resources where construction of certain management practices (i.e., those involving ground disturbance) may take place. Such activities could result in direct impacts to special-status species (e.g., mortality or injury of individuals by being crushed by vehicles and equipment or loss of an active nest or burrow) or indirect effects (e.g., disturbance of nesting birds or other species or runoff of sediments from the construction area). While it is reasonable to assume that the majority of construction activities conducted under the Proposed Project would occur within existing agricultural lands that are generally maintained to be free of special-status plants and animals and other sensitive habitats (e.g., wetlands and riparian habitat), some management practices could result in ground-disturbance on lands outside of existing irrigated agricultural lands (e.g., denitrifying bioreactors or sediment basins). In the event that special-status species are present in such areas, the Proposed Project could result in adverse effects on such species; however, implementation of **Mitigation Measure BIO-1** would minimize these potential impacts. Additionally, compliance with existing laws and regulations and implementation of **Mitigation Measures HAZ-1** and **HWQ-1** would avoid or minimize potential adverse indirect effects on aquatic habitats from discharge of pollutants during construction activities.

The cumulative impact on biological resources resulting from the Proposed Project in combination with other projects listed in Table 5-1 and other development projects throughout the central coast region would depend in part upon site-specific factors and the relative effectiveness of impact avoidance and minimization efforts prescribed by planning documents, CEQA mitigation measures, and permit requirements for each project. The cumulative impact would also depend on the benefits that would be realized from adopted habitat conservation plans described in Section 3.3.2. While detailed review of each avoidance and minimization measure for each potential past, present, and future project in the region is beyond the scope of this analysis, it is reasonable to assume that most projects would employ relatively effective measures to prevent especially substantial impacts to biological resources. Like the Proposed Project, none of the cumulative projects listed in Table 5-1 would eliminate large areas of habitat or substantially block migration corridors for special-status or common species. While the routine maintenance programs would have potential for impacts if implemented unskillfully, these programs would also benefit aquatic habitats through removal of excessive vegetation, sediment, and debris.

Additionally, the general plans for the counties of Monterey, Kern, San Benito, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Ventura contain conservation measures and/or policies that would benefit biological resources (see Volume 2, Appendix B for applicable goals and policies), as well as measures to avoid, minimize, and mitigate impacts to these resources. Potential best management practices and mitigation measures for cumulative projects may include pre-construction surveys and avoidance measures to protect plants, wildlife, waters of the U.S. and state, and sensitive natural communities and breeding.

Given (1) implementation of Mitigation Measures BIO-1, HAZ-1, and HWQ-1; (2) the beneficial effects of the Proposed Project on water quality, aquatic habitat, and riparian habitat, and (3) the fact that many management practices would have limited to no potential to adversely affect biological resources, and the remainder of practices would primarily be implemented/constructed within existing irrigated agricultural fields (where special-status species are unlikely to occur), the Proposed Project's contribution to this cumulative impact would be **less than considerable**.

### ***Impact CUM-3: Cumulative Impacts on Cultural Resources.***

As described in Section 3.4, *Cultural Resources*, many of the activities conducted under Agricultural Order 4.0 (e.g., nutrient management, integrated pesticide management, crop rotations, etc.) would have no potential to adversely affect cultural resources. However, construction or installation of some management practices that would involve new ground disturbance and excavation could potentially cause damage to, disrupt, or adversely affect archaeological resources, paleontological resources, or human remains. While the majority of management practices are expected to occur within existing irrigated agricultural fields where soils have generally been repeatedly disturbed, it is possible that some management activities could occur on the periphery of existing fields where previous disturbance has not occurred or within existing fields but to depths of soil that have not previously been disturbed, potentially resulting in adverse effects on buried, unknown cultural resources. Implementation of **Mitigation Measures CUL-1, CUL-2, and CUL-3** would prevent or minimize such potential impacts on cultural resources, paleontological resources, and undocumented human remains.

Some of the projects listed in Table 5-1 and many other development projects throughout the central coast region would also involve ground-disturbing activities that would have potential to adversely affect cultural resources, primarily buried archaeological materials, paleontological resources (e.g., fossils), and human remains. Given the nature of buried cultural resources, it is difficult to ascertain the magnitude of potential ongoing cumulative impacts to these resources since in many cases it is not known precisely what is present below the surface soil and it may not be known what is lost through excavation activities. Due to the widespread, ongoing development in California, much of which has the potential to disturb known and unknown cultural resources, it can be assumed that the cumulative impact is significant. However, there are robust federal and state laws, as well as local laws and policies, which require the proper treatment and mitigation for potential impacts to cultural and tribal cultural resources, which the Proposed Project and the projects listed in Table 5-1 would need to follow, at least partially mitigating the cumulative impact.

Overall, given implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3, and the fact that most management practices and monitoring activities would take place within disturbed areas of existing irrigated agricultural lands, the Proposed Project's contribution to this cumulative impact would be **less than considerable**.



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## Chapter 7 References

### Executive Summary

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### Chapter 1 Introduction

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## Chapter 3 Environmental Analysis

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## **Chapter 6      Report Preparation**

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