

Waste Discharge Requirements for Nonpoint Source Discharges Related to Certain Activities Conducted by the USFS and BLM on Federal Lands

Public Draft Environmental Impact Report

April 2024

Prepared by:

MONTROSE ENVIRONMENTAL

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California Regional Water Quality Control Board, Central Valley Region

Waste Discharge Requirements for Nonpoint Source Discharges Related to Certain Activities Conducted by the USFS and BLM on Federal Lands

Draft Environmental Impact Report

SCH #2021030313

Prepared for: **California Regional Water Quality Control Board, Central Valley Region**
364 Knollcrest Drive, #205
Redding, CA 96002

Contact: Angela Wilson

Prepared by: **Montrose Environmental**
1 Kaiser Plaza, Suite 340
Oakland, CA 94612

Contact: Patrick Donaldson

April 2024

Montrose Environmental. 2024. Waste Discharge Requirements for Nonpoint Source Discharges Related to Certain Activities Conducted by the USFS and BLM on Federal Lands – *Draft Environmental Impact Report.* (SCH #2021030313). April. (21.044) Oakland, CA.

Table of Contents

Executive Summary **ES-1**

ES.1 Overview of the Proposed Project ES-2

ES.2 Nature of the Discretionary Action Considered in the EIR ES-18

ES.3 Public Involvement Process ES-18

ES.4 Areas of Known Controversy ES-20

ES.5 Issues to Be Resolved ES-20

ES.6 Overview of Environmental Topics Evaluated in the Draft Environmental Impact Report ES-20

ES.7 Alternatives Considered ES-21

Chapter 1, Introduction **1-1**

1.1 Background and Need for the Proposed Project 1-1

1.2 Overview of the Proposed Federal Nonpoint Source Permit 1-2

1.3 Activities that Could Occur under the Federal Nonpoint Source Permit and Scope of the Environmental Analysis 1-4

1.4 Overview of CEQA Requirements 1-5

1.5 Scope and Intent of this Document 1-5

1.6 Public Involvement Process 1-6

1.6.1 Notice of Preparation and Scoping Comment Period 1-6

1.6.2 Draft Environmental Impact Report and Draft Federal Nonpoint Source Permit Public Review and Comment Period 1-9

1.6.3 Preparation of the Final Environmental Impact Report 1-9

1.7 Organization of this DEIR 1-10

Chapter 2, Project Description **2-1**

2.1 Introduction 2-1

2.2 Background and Need for the Proposed Project 2-2

2.2.1 Current Regulatory Approach 2-2

2.2.2 Federal Planning Framework 2-3

2.2.3 Environmental Review of Federal Plans, Projects, and Activities and Development of Site-Specific Best Management Practices 2-7

2.2.4 Statutory Requirements Related to Nonpoint Source Pollution 2-8

2.2.5 Water Quality Conditions in the Central Valley Region....2-8
2.3 Project Location....2-9
2.4 Project Purpose & Objectives....2-9
2.5 Summary of the Proposed Federal Nonpoint Source Permit....2-15
2.5.1 Covered Activities....2-15
2.5.2 Activity Categorization by Relative Threat to Water Quality....2-21
2.5.3 Permit Conditions....2-22
2.5.4 Controllable Sediment Source Reduction Program....2-24
2.5.5 Monitoring 2-25
2.5.6 Notice of Planned Operations....2-25
2.5.7 Reporting 2-26
2.5.8 Auditing 2-26
2.5.9 Training and Certification....2-26
2.6 Activities that Could Occur Under the Federal Nonpoint Source Permit and Scope of the Environmental Analysis....2-26
2.6.1 Implementation and Effectiveness of Best Management Practices Currently Being Implemented by the Federal Agencies....2-27
2.6.2 Frequency and Extent of Covered Activities under Existing Conditions and in the Future 2-36
2.6.3 Existing Controllable Sediment Discharge Sources on Federal Lands Requiring Treatment 2-47
2.6.4 Non-Applicable Best Management Practices under the Proposed Federal Nonpoint Source Permit....2-55
2.6.5 Common or Reasonably Foreseeable Management Measures by Activity Type and Potential Environmental Impacts....2-56
2.6.6 Equipment Potentially Used in the Implementation of Management Measures....2-64
2.6.7 Monitoring and Reporting Activities and Potential Environmental Impacts....2-64
2.7 Intended Uses of this EIR....2-64

Chapter 3, Environmental Analysis....3.0-1

3.0 Introduction to the Environmental Analysis....3.0-1
3.0.1 Introduction to the Resource Sections....3.0-1
3.0.2 Significance of Environmental Impacts....3.0-1
3.0.3 Environmental Baseline of Analysis....3.0-2
3.0.4 Impact Terminology....3.0-3
3.1 Aesthetics....3.1-1
3.1.1 Introduction....3.1-1

3.1.2 Terminology Overview 3.1-1
3.1.3 Regulatory Setting 3.1-2
3.1.4 Environmental Setting 3.1-4
3.1.5 Impact Analysis 3.1-16
3.2 Agriculture and Forestry Resources 3.2-1
3.2.1 Introduction 3.2-1
3.2.2 Regulatory Setting 3.2-1
3.2.3 Environmental Setting 3.2-3
3.2.4 Impact Analysis 3.2-11
3.3 Air Quality 3.3-1
3.3.1 Introduction 3.3-1
3.3.2 Regulatory Setting 3.3-1
3.3.3 Environmental Setting 3.3-9
3.3.4 Impact Analysis 3.3-29
3.4 Biological Resources 3.4-1
3.4.1 Introduction 3.4-1
3.4.2 Regulatory Setting 3.4-1
3.4.3 Environmental Setting 3.4-7
3.4.4 Impact Analysis 3.4-29
3.5 Cultural Resources 3.5-1
3.5.1 Introduction 3.5-1
3.5.2 Regulatory Setting 3.5-1
3.5.3 Environmental Setting 3.5-6
3.5.4 Impact Analysis 3.5-10
3.6 Energy 3.6-1
3.6.1 Introduction 3.6-1
3.6.2 Regulatory Setting 3.6-1
3.6.3 Environmental Setting 3.6-4
3.6.4 Impact Analysis 3.6-5
3.7 Geology and Soils 3.7-1
3.7.1 Introduction 3.7-1
3.7.2 Regulatory Setting 3.7-1
3.7.3 Environmental Setting 3.7-7
3.7.4 Impact Analysis 3.7-31
3.8 Greenhouse Gas Emissions 3.8-1

3.8.1 Introduction 3.8-1
3.8.2 Regulatory Setting 3.8-1
3.8.3 Environmental Setting 3.8-3
3.8.4 Impact Analysis 3.8-7
3.9 Hazards and Hazardous Materials 3.9-1
3.9.1 Introduction 3.9-1
3.9.2 Regulatory Setting 3.9-1
3.9.3 Environmental Setting 3.9-8
3.9.4 Impact Analysis 3.9-15
3.10 Hydrology and Water Quality 3.10-1
3.10.1 Introduction 3.10-1
3.10.2 Regulatory Setting 3.10-1
3.10.3 Environmental Setting 3.10-11
3.10.4 Impact Analysis 3.10-36
3.11 Mineral Resources 3.11-1
3.11.1 Introduction 3.11-1
3.11.2 Regulatory Setting 3.11-1
3.11.3 Environmental Setting 3.11-3
3.11.4 Impact Analysis 3.11-13
3.12 Noise 3.12-1
3.12.1 Introduction 3.12-1
3.12.2 Acoustic Fundamentals 3.12-1
3.12.3 Vibration Fundamentals 3.12-2
3.12.4 Regulatory Setting 3.12-3
3.12.5 Environmental Setting 3.12-5
3.12.6 Impact Analysis 3.12-5
3.13 Public Services 3.13-1
3.13.1 Introduction 3.13-1
3.13.2 Regulatory Setting 3.13-1
3.13.3 Environmental Setting 3.13-2
3.13.4 Impact Analysis 3.13-3
3.14 Transportation 3.14-1
3.14.1 Introduction 3.14-1
3.14.2 Regulatory Setting 3.14-1
3.14.3 Environmental Setting 3.14-5

3.14.4 Impact Analysis 3.14-11
3.15 Tribal Cultural Resources 3.15-1
3.15.1 Introduction 3.15-1
3.15.2 Regulatory Setting 3.15-1
3.15.3 Environmental Setting 3.15-4
3.15.4 Impact Analysis 3.15-10
3.16 Utilities and Service Systems 3.16-1
3.16.1 Introduction 3.16-1
3.16.2 Regulatory Setting 3.16-1
3.16.3 Environmental Setting 3.16-3
3.16.4 Impact Analysis 3.16-19
3.17 Wildfire 3.17-1
3.17.1 Introduction 3.17-1
3.17.2 Regulatory Setting 3.17-1
3.17.3 Environmental Setting 3.17-5
3.17.4 Impact Analysis 3.17-11

Chapter 4, Alternatives Analysis 4-1
4.1 Introduction 4-1
4.2 Regulatory Requirements 4-1
4.3 Alternatives Development and Screening Process 4-2
4.3.1 Alternatives Screening Criteria 4-2
4.4 Alternatives Analysis 4-4
4.4.1 No Project Alternative 4-5
4.4.2 Reduced Management Measure Implementation Alternative 4-14
4.5 Alternatives Considered but Dismissed 4-27
4.5.1 Individual Waste Discharge Requirements Alternative 4-28
4.5.2 Expanded Coverage Alternative 4-29
4.6 Environmentally Superior Alternative 4-30

Chapter 5, Other Statutory Considerations 5-1
5.1 Introduction 5-1
5.2 Significant and Unavoidable Impacts 5-1
5.3 Significant Irreversible Environmental Changes 5-1
5.4 Growth Inducement 5-2
5.5 Cumulative Impacts 5-3

5.5.1. Approach to Analysis 5-3
5.5.2. Cumulative Impact Analysis by Resource 5-21

Chapter 6, Report Preparation 6-1

Chapter 7, References 7-1

List of Appendices

Appendix A. Draft Federal Nonpoint Source Permit
Appendix B. Federal Agency BMP Manuals
Appendix C. Memorandum Describing Resource Topics and Significance Criteria Eliminated from Detailed Analysis in the Environmental Impact Report
Appendix D. Biological Resources Background Information
Appendix E. Tribal Consultation Materials
Appendix F. Mitigation Monitoring and Reporting Program

List of Tables

Table ES-1. Summary of Impacts and Mitigation Measures ES-25
Table 1-1. Summary of Scoping Comments Relevant to the Environmental Analysis 1-7
Table 2-1. United States Forest Service Lands within the Central Valley Water Board Boundary and Status of Forest and Land Resource Management Plans 2-4
Table 2-2. Bureau of Land Management Lands within the Central Valley Water Board Boundary and Resource Management Plan Year 2-6
Table 2-4. National BMP Monitoring Evaluations for USFS Projects Attended by Water Boards Staff 2-30
Table 2-5. Field Visits Conducted by Water Boards Staff on Bureau of Land Management Lands 2-33
Table 2-6. United States Forest Service Road Work Accomplished – Pacific Southwest Region – Fiscal Years 2015 to 2020 2-37
Table 2-7. United States Forest Service Timber Harvest Activities – Central Valley Region – Completed, Fiscal Years 2015 to 2021 2-37
Table 2-8. Bureau of Land Management Activities and Capital Improvements – California – Fiscal Years 2015 to 2020 2-40
Table 2-9. Bureau of Land Management Projects[1] in California Related to Covered Activities – 2015 to 2021 2-43
Table 2-10. Potential Category A and B Projects 2-46
Table 2-11. Non-Applicable Best Management Practices 2-55
Table 2-12. Equipment List 2-64
Table 3.2-1. Important Farmland Acreages in the Central Valley Region 3.2-3
Table 3.2-2. Timber Harvest in the Central Valley Region 3.2-5
Table 3.3-1. Federal and State Ambient Air Quality Standards 3.3-2
Table 3.3-2. Air Districts in the Central Valley Region 3.3-11
Table 3.3-3. Criteria Pollutant Attainment Status in the Central Valley Region 3.3-25
Table 3.3-4. Ambient Air Quality Monitoring Data for Air Basins in the Central Valley Region 3.3-27
Table 3.3-5. Ambient Air Quality Monitoring Data for Select Class 1 in the Central Valley Region 3.3-28
Table 3.4-1. Generalized Land Cover Types on United States Forest Service and Bureau of Land Management Lands within the Central Valley Region 3.4-8
Table 3.5-1. Project Actions that Could Potentially Impact Historical Resources 3.5-11
Table 3.6-1. Energy Sources for Central Valley Region Electric Service Providers 3.6-4
Table 3.7-1. Geologic Characteristics for Geomorphic Provinces within the Proposed Project Area 3.7-7
Table 3.7-2. Geologic Units and Characteristics 3.7-9
Table 3.7-3. Impacts on Geology and Soils Associated with Activities on Lands Managed by USFS and BLM 3.7-14
Table 3.10-1. Water Quality Data and Analysis for Central Valley Region Groundwater Basins Designated as High or Medium Priority – Basin Prioritization 3.10-34
Table 3.12-1. Examples of Common Noise Levels 3.12-2
Table 3.12-2. State Land Use Compatibility Standards for Community Noise Environment 3.12-4
Table 3.12-3. Typical Construction Equipment Associated with Reasonably Foreseeable Management Practices 3.12-7
Table 3.12-4. Estimated Noise Levels at Various Distances 3.12-7

Table 3.14-1. Federal and State Highways in Central Valley Water Board Jurisdiction that Cross[1] United States Forest Service and Bureau of Land Management Lands by County 3.14-6
Table 3.15-1. Tribal Consultation 3.15-5
Table 3.17-1. Annual Wildfires and Acres Burned 3.17-6
Table 3.17-2. Year to Date Wildfire Statistics (CAL FIRE and Federal) 3.17-8
Table 3.17-3. Top 20 Most Destructive California Wildfires 3.17-9
Table 5-1. Summary of Related Cumulative Activities on USFS Managed Lands 5-5
Table 5-2. Summary of Related Cumulative Activities on BLM Managed Lands 5-10
Table 5-3. Resource Topics Dismissed from Further Consideration in the Analysis of Cumulative Impacts 5-13
Table 5-4. Geographic Scope for Resources with Cumulative Impacts Relevant to the Proposed Project 5-21

List of Figures

Figure ES-1. Project Area ES-5
Figure 2-1. Proposed Project Area 2-11
Figure 2-2. Composite BMP Evaluation Ratings across All BMP Monitoring Protocols for Evaluations Completed in Fiscal Year 2014 2-28
Figure 2-3. Composite BMP Evaluation Ratings, by Resource Category, for Evaluations Completed in Fiscal Year 2014 2-28
Figure 2-4. Example Photographs of Controllable Sediment Discharge Sources 2-49
Figure 2-5. Example Photographs of Common Management Measures 2-62
Figure 3.1-1. State Scenic Highways, Federal Scenic Byways, and Scenic Vistas 3.1-7
Figure 3.1-2. Representative Photographs 3.1-13
Figure 3.2-1. Important Farmland 3.2-7
Figure 3.3-1. Air Basin and Air District Boundaries 3.3-17
Figure 3.3-2. Naturally Occurring Asbestos 3.3-21
Figure 3.4-1. Land Cover Types 3.4-17
Figure 3.4-2. Groundwater Dependent Ecosystems 3.4-21
Figure 3.4-3. Critical Habitat 3.4-25
Figure 3.7-1. Geologic Provinces 3.7-15
Figure 3.7-2. Geologic Units 3.7-19
Figure 3.7-3. Fault Zones 3.7-23
Figure 3.7-4. Landslide Potential 3.7-27
Figure 3.8-1. Greenhouse Gas Emissions by Source in California (2019) 3.8-5
Figure 3.8-2. Distribution of Biomass and Soil Carbon Stocks in the California Landscape (2014) 3.8-5
Figure 3.9-1. Schools, Airports, and Hazardous Materials Clean-up Sites 3.9-11
Figure 3.10-1. Watersheds and Surface Waterbodies 3.10-13
Figure 3.10-2. 30-Year Normal Annual Precipitation 3.10-17
Figure 3.10-3. Surface Water Rights 3.10-23
Figure 3.10-4. Groundwater Basins 3.10-29
Figure 3.10-5. California Statewide Groundwater Elevation Monitoring System – Basin Prioritization 3.10-33

Figure 3.11-1. Surface Mines and Quarries....3.11-5
Figure 3.11-2. Oil, Gas, and Geothermal Resources....3.11-9
Figure 3.14-1. Transportation Network....3.14-7
Figure 3.16-1. Solid Waste Disposal Facilities....3.16-7
Figure 3.16-2. Electrical Utility Transmission Infrastructure....3.16-11
Figure 3.16-3. Communication Sites....3.16-15
Figure 3.17-1. Annual Wildfires and Acres Burned (1991–2020)....3.17-7
Figure 3.17-2. Percentage Acreage Burned by Ownership....3.17-7
Figure 3.17-3. Top 20 Largest California Wildfires....3.17-10

Acronyms and Abbreviations

°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
A	
A	attainment
AB	assembly bill
ACS	Aquatic Conservation Strategy
AI/AN	American Indian and Alaska Native
AIRFA	American Indian Religious Freedom Act
Alquist-Priolo Act	[California] Alquist-Priolo Earthquake Fault Zoning Act
am	ante meridiem
AMS	Aquatic Management Strategy
AMZ	Aquatic Management Zone
APCD	Air Pollution Control District
AQMD	Air Quality Management District
ARPA	Archaeological Resources Protection Act
ASM1	Aerial Supervision Modules
ATCM	Airborne Toxic Control Measure
B	
BAAQMD	Bay Area Air Quality Management District
BAER	Burned Area Emergency Response
Basin Plan	water quality control plan
BLM	Bureau of Land Management
BMP	best management practice
C	
CAA	[Federal] Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAC	county agricultural commissioner
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Office of Emergency Services
CalEPA	California Environmental Protection Agency
Cal/OSHA	California Department of Industrial Relations, Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CalVTP	California Vegetation Treatment Program
CAP	climate action plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board

CASGEM	California Statewide Groundwater Elevation Monitoring
CBC	California Building Code
CBIA	California Building Industry Association
CCA	Community Choice Aggregators
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDCA	California Desert Conservation Area
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CDPR	California Department of Pesticide Regulation
CEC	California Energy Commission
Central Valley Water Board	California Regional Water Quality Control Board, Central Valley Region
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also known as the Superfund Act)
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFMA	California Cooperative Wildland Fire Management and Stafford Act Response Agreement
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CIWMA	California Integrated Waste Management Act
CIWMB	California Integrated Waste Management Board
CNEL	community noise equivalent level
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CRS	Congressional Research Service
CSDS	Controllable Sediment Discharge Sources
CSSRP	Controllable Sediment Source Reduction Program
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CVWB	Central Valley Water Board
CWA	Clean Water Act
CWCG	California Wildland Fire Coordinating Group

CWE	cumulative watershed effects
CWHRS	California Wildlife Habitat Relationships System

D

dB	decibel
dBA	A-weighted decibel
DEIR	draft environmental impact report
DHS	[U.S.] Department of Homeland Security
DOGGR	[California] Division of Oil, Gas, and Geothermal Resources
DOI	Department of the Interior
DPM	diesel particulate matter
DTSC	[California] Department of Toxic Substances Control
DWR	[California] Department of Water Resources

E

EA	environmental assessment
EA	even age
EIR	environmental impact report
EIS	environmental impact statement
EO	Executive Order
ESA	Endangered Species Act
ESA	environmental site assessment
ESFs	Emergency Support Functions

F

Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FE	federal endangered
Federal NPS Permit	Waste Discharge Requirements for Nonpoint Source Discharges Related to Certain Activities Conducted by Bureau of Land Management and United States Forest Service on Federal Lands
FEIR	final environmental impact report
FEMA	Federal Emergency Management Agency
FH	final harvest
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FLAME Act	Federal Land Assistance, Management, and Enhancement Act
FLPMA	Federal Land Policy and Management Act
FMMP	Farmland Mapping and Monitoring Program
FONSI	finding of no significant impact
FP	federal proposed
FP	State Fully Protected

FRA	Federal Responsibility Area
FSH	Forest Service Handbook
FSM	Forest Service Manual
FT	Federal threatened
FTA	Federal Transit Administration
FVEG	California Department of Forestry and Fire Protection vegetation geographic information system data
FY	fiscal year

G

GDE	groundwater dependent ecosystem
GHG	greenhouse gas
GIS	geographic information system
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
GWP	Global Warming Potential

H

H_2S	hydrogen sulfide
HAP	hazardous air pollutant
HCP	habitat conservation plan
Hz	Hertz

I

IB	Information Bulletin
IEPR	Integrated Energy Policy Report
IM	Instruction Memorandum
IPCC	International Panel on Climate Change
IPM	Integrated Pest Management

L

Lahontan Water Board	California Regional Water Quality Control Board, Lahontan Region
LCFS	Low Carbon Fuel Standard
L_{dn}	energy average of the A-weighted sound levels occurring during a 24-hour period
L_{eq}	equivalent continuous sound level
LEV	Low-Emission Vehicle
LID	Low Impact Development
L_{max}	maximum sound level
L_{min}	minimum sound level
LOS	level of service
LRMP	Forest and Land Resource Management Plan
LS	less than significant

LSM	less than significant with mitigation
LUST	leaking underground storage tank
L_{XX}	sound level exceeded x percent of a specific time period

M

MAA	Management Agency Agreement
MBTA	Migratory Bird Treaty Act
MCAB	Mountain Counties Air Basin
MCL	maximum contaminant level
MIST	minimal impact suppression techniques
MM	mitigation measure
MT	metric tons
MMT CO_2e	million metric tons of carbon dioxide equivalents
MOU	memorandum of understanding
MPs	management practices
MPO	metropolitan planning organization
MRP	Monitoring and Reporting Program
MRZ	Mineral Resource Zone
MS4	municipal separate sanitary sewer system

N

N	nonattainment
N_2O	nitrogen oxide
NAAQS	National Ambient Air Quality Standards
NAA	nonattainment area
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NASA	National Aeronautics and Space Administration
NCCP	natural community conservation plan
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NFS	National Forest System
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NI	no impact
NICC	National Interagency Coordination Center
NIFC	National Interagency Fire Center
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOA	notice of availability
NOA	naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration

NOC	notice of completion
NOD	notice of determination
NOP	notice of preparation
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPO	notification of planned operations
NPS	Nonpoint Source
NPSM	Nonpoint Source Measures
NRF	National Response Framework
NRH	not regeneration harvest
NRHP	National Register of Historic Places
NTR	National Toxics Rule
NWFP	Northwest Forest Plan

O

O_3	ozone
OEHHA	[California] Office of Environmental Health Hazard Assessment
OHV	off-highway vehicle
OPR	[Governor's] Office of Planning and Research
OSHA	Occupational Safety and Health Administration

P

PCB	polychlorinated biphenyl
PDF	Portable Document Format
PERP	Portable Equipment Registration Program
PG&E	Pacific Gas and Electric Company
Planning Rule	National Forest System Land Management Planning Rule
PL	Public Law
pm	post meridiem
PM	particulate matter
PM10	particulate matter with aerodynamic radius of 10 micrometers or less
PM2.5	particulate matter with aerodynamic radius of 2.5 micrometers or less
Porter–Cologne Act	Porter–Cologne Water Quality Control Act
POD	point of diversion
PPE	personal protective equipment
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resource Code

Proposed Project	Waste Discharge Requirements for Nonpoint Source Discharges Related to Certain Activities Conducted by Bureau of Land Management and United States Forest Service on Federal Lands
PRPA	Paleontological Resources Preservation Act

R

RCRA	Resource Conservation and Recovery Act of 1976
RH	regeneration harvest
RMP	Resource Management Plan
ROD	Record of Decision
ROG	reactive organic gas
RPS	[California] Renewables Portfolio Standard
RTP	regional transportation plan
RWQCB	Regional Water Quality Control Board

S

S	significant
SAFE	Safer Affordable Fuel-Efficient
SARA	Superfund Amendments and Reauthorization Act of 1986
SB	senate bill
SC	State candidate
SCE	Southern California Edison
SCS	sustainable communities strategy
SDWA	Safe Drinking Water Act
SE	State endangered
SEATS	single engine air tankers
SFBAB	San Francisco Bay Air Basin
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SJV	San Joaquin Valley
SJVAPCD	San Joaquin Vallely Air Pollution Control District
SMARA	Surface Mining and Reclamation Act of 1975
SNFPA	Sierra Nevada Forest Plan and amendments
SO_2	sulfur dioxide
SOPA	Schedule of Proposed Actions
SR	state route
SRA	state fire responsibility area
SSC	State Species of Special Concern
ST	State threatened
State Water Board	State Water Resources Control Board
SU	significant and unavoidable

SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Prevention Plan

T

T	Nonattainment-Transitional
TAC	toxic air contaminant
TCP	traditional cultural property
TCR	tribal cultural resource
TISG	Transportation Impact Study Guide
TMDL	total maximum daily load
TPA	transit priority area

U

U.S.	United States
U	Unclassified
UA	uneven age
UBC	Universal Building Code
USACE	United States Army Corps of Engineers
USC	United States. Code
USDA	United States. Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

V

VdB	vibration velocity in decibels
VMT	vehicle miles traveled
VOC	volatile organic compound

W

WBWG	Western Bat Working Group
WDRs	waste discharge requirements
Williamson Act	California Land Conservation Act of 1965
WTP	Watershed Treatment Plan
WQMA	Water Quality Management Agency
WQO	Water quality objective
WUI	Wildland Urban Interface

Y

YTD	year to date

Z

ZEV	zero emission vehicle

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Executive Summary

The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) is responsible for the protection of water quality in approximately 60,000 square miles (38.4 million acres) of land in the central part of California. Collectively, 29 percent of the land in the Central Valley Region is managed by two federal agencies: the United States Forest Service (USFS) and the Bureau of Land Management (BLM). The State of California currently regulates nonpoint source (NPS)[1] pollutant discharges from activities on federal lands by USFS and BLM through separate agreements with the respective agencies; however, the Central Valley Water Board's experience and monitoring have demonstrated that relying solely on these agreements to reduce NPS discharges on lands managed by USFS and BLM does not result in consistent compliance with water quality standards.

The Central Valley Water Board intends to establish the proposed Waste Discharge Requirements (WDRs) for NPS Discharges Related to Certain Activities Conducted by the USFS and BLM on Federal Lands (Proposed Project or Federal NPS Permit). This permit would regulate NPS discharges from federal lands related to the following activities conducted by the USFS and BLM: vegetation management, transportation management, recreation facilities management, post-emergency recovery, restoration activities, and emergency response activities[2]. As described further below, the proposed Federal NPS Permit would include requirements for best management practice (BMP) implementation and effectiveness monitoring; actively addressing Controllable Sediment Discharge Sources (CSDS), and conditions for post-fire management and reforestation planning.

The Central Valley Water Board has prepared this draft environmental impact report (DEIR) to provide an up-to-date, transparent, and comprehensive evaluation of the environmental effects that could occur from implementing the Proposed Project. The DEIR 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.).

[1] 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 (State Water Resource Control Board 2021). NPS pollution occurs when rainfall flows off the land, roads, and other features of the landscape. This diffuse runoff may carry pollutants associated with human activities (e.g., sediment, pesticides, hazardous materials, etc.) and discharge into lakes, rivers, wetlands, bays, and aquifers.

[2] Response and management of emergency situations on federal lands may involve human caused or naturally occurring disasters such as wildfire, flooding, landslides, severe storms (wind, hail, or snow damage), or other emergencies. Under CEQA Guidelines Section 15269, these activities are exempt from the requirements of CEQA. Thus, the emergency response activities are not discussed or evaluated in this EIR.

ES.1 Overview of the Proposed Project

Purpose and Objectives

The overarching purpose of the proposed Federal NPS Permit is to ensure protection of water quality and beneficial uses by addressing threats to water quality resulting from actual or potential NPS discharges. Specific goals and objectives of the Proposed Project are as follows:

1. Protect and preserve water quality through the following:

    a. Implementation of appropriate BMPs that will effectively protect water quality;

    b. Timely corrective action and adaptive management informed by actively monitoring BMP effectiveness in protecting water quality;

    c. Preservation of high-quality waters (anti-degradation); and

    d. Identification and reduction of existing and potential sediment discharges and other pollutant discharges from USFS and BLM lands.

2. Ensure regulatory compliance with legal requirements, including but not limited to the Central Valley Basin Plans, NPS Policy, Division 7 of the California Water Code, and other state and federal regulatory requirements.

3. Provide regulatory certainty for two of the larger land management agencies in the Central Valley Region through the following:

    a. Clear programmatic permit requirements that are less focused on nonessential paperwork and more focused on performance (including effective BMPs) leveraging where possible existing USFS/BLM mandates;

    b. Increased communication between the Central Valley Water Board and USFS/BLM staff;

    c. Coverage of multiple activities within a single permit; and

Project Area

The Proposed Project would be implemented throughout USFS and BLM lands within the Central Valley Water Board's jurisdictional area, as shown in **Figure ES-1.** The Central Valley Region includes a wide diversity of landscapes, climatic conditions, and land use types. Lands managed by the USFS and BLM in the Central Valley Region include parts of Modoc, Siskiyou, Shasta, Lassen, Tehama, Plumas, Glenn, Butte, Sierra, Colusa, Sutter, Yuba, Nevada, Placer, El Dorado, Yolo, Solano, Sacramento, Amador, Calaveras, Contra Costa, San Joaquin, Alameda, Stanislaus,

Tuolumne, Mariposa, Merced, Madera, Fresno, San Benito, Kings, Tulare, San Luis Obispo, and Kern counties.

National Forests within the Central Valley Region include the Modoc, Shasta-Trinity, Lassen, Plumas, Mendocino, Tahoe, Eldorado, Inyo, Stanislaus, Sierra, Sequoia, Los Padres, Humboldt-Toiyabe, Lake Tahoe Basin Management Unit, and Klamath. BLM Field Offices within the Central Valley Region include Applegate, Eagle Lake, Redding, Central Coast, Mother Lode, Bakersfield, and Ukiah.

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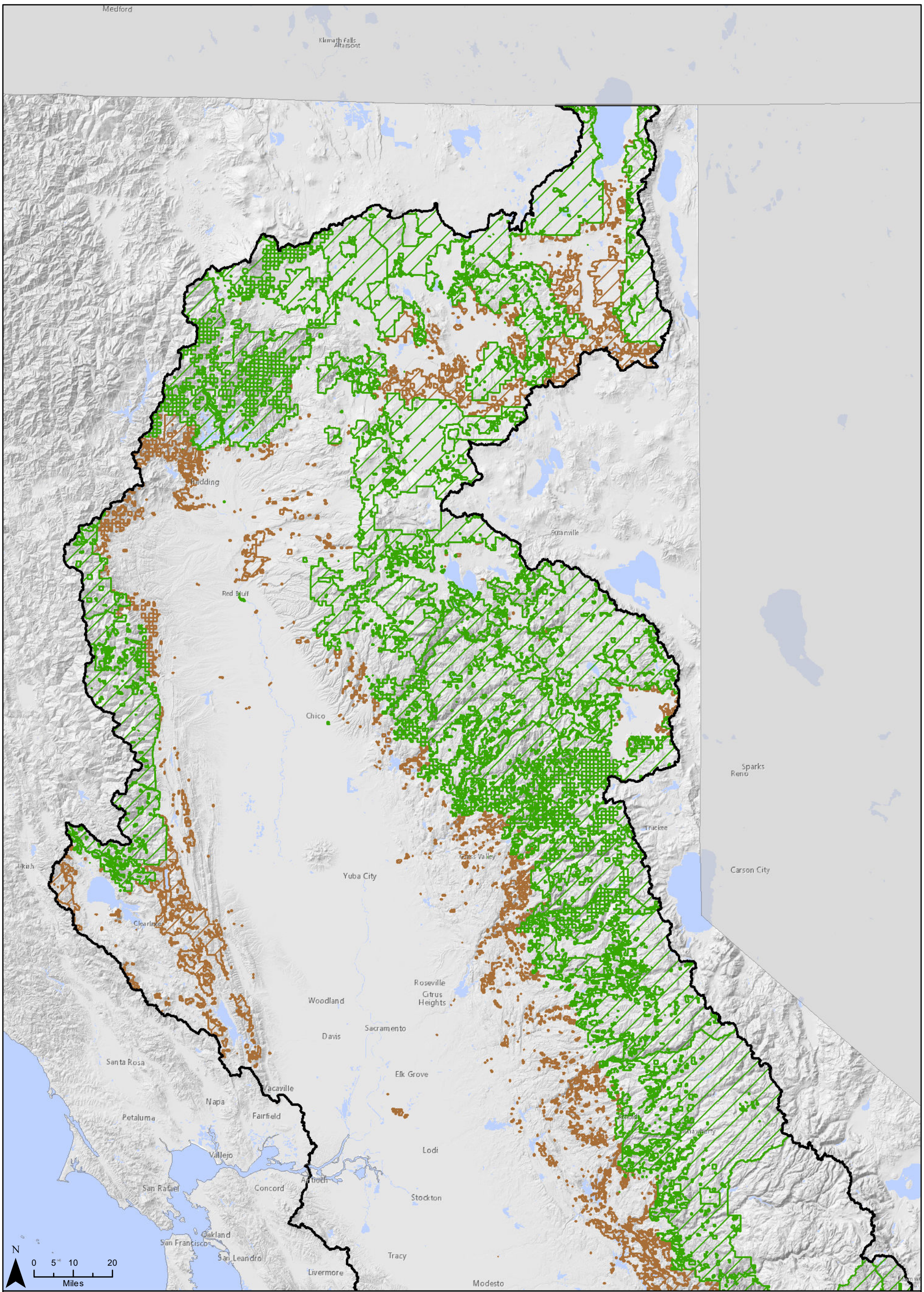


Figure ES-1
Project Area

Sheet 1 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon
WATER and ENVIRONMENT

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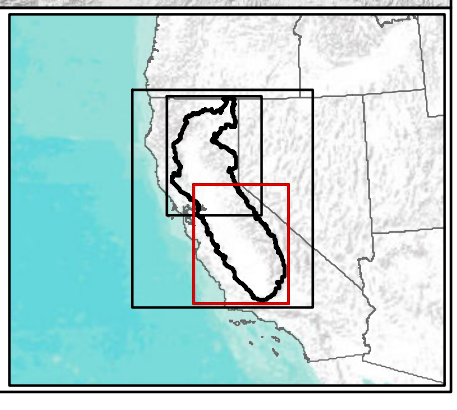
Yuba City
Carson City
Roseville
Citrus Heights
Woodland
Sacramento
Davis
Hawthorne
Elk Grove
Vacaville
Lodi
Antioch
Stockton
Tracy
Livermore
Modesto
Mammoth Lakes
Turlock
San Jose
Merced
Los Banos
Gilroy
Watsonville
Madera
Clovis
Fresno
Salinas
Soledad
Visalia
Lemoore
Coalinga
Porterville
Delano
Bakersfield
Tehachapi
San Luis Obispo
Santa Maria
Lancaster
Lompoc
Palmdale

N
0 5 10 20
Miles

Central Valley RWQCB Boundary
Bureau of Land Management Lands
U.S. Forest Service Lands

Figure ES-1
Project Area

Sheet 2 of 2



Horizon WATER and ENVIRONMENT

Federal Nonpoint Source Permit
Draft Environmental Impact Report

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Summary of the Proposed Federal Nonpoint Source Permit

The proposed Federal NPS Permit (Proposed Project) would provide for implementation of BMPs for certain activities on USFS and BLM lands within the Central Valley Region, as well as monitoring and reporting for covered activities to ensure the effectiveness of water quality control measures. The activities covered by the proposed Federal NPS Permit are on-going and part of the existing conditions. The proposed draft Federal NPS Permit is included as Appendix A; refer to that document for detailed information on the proposed permit requirements.

Covered Activities

The proposed Federal NPS Permit would cover the following activities which would be subject to the CEQA analysis:

- **Vegetation Management.** The USFS and BLM manage vegetation on federal lands to improve forest health, reduce fuel loading, remove hazard trees, and harvest timber. Operations that occur as part of these activities can result in erosion and sediment-related NPS pollution from soil disturbance and reduced ground cover from removal of vegetation and the use of roads, skid trails, landings, and yarding corridors. NPS pollution may also occur from the use of pesticides to minimize and control competing vegetation, noxious weeds, or other pests.

- **Transportation Management.** The USFS and BLM manage extensive road and trail networks serving multiple uses across federal lands. All phases of road and trail management – including construction, road and trail use, maintenance, reconstruction, upgrades, and decommissioning – can lead to erosion and sediment-related NPS pollution. Roads and trails can cause disruptions in hillslope drainage patterns, slope instability, and soil erosion.

- **Recreation Facilities Management.** The USFS and BLM manage federal lands to meet multiple-use objectives such as providing recreational opportunities for the public. This may include the development, maintenance, and management of recreation facilities such as campgrounds, staging areas or parking lots, high use recreation sites, and recreational event locations. The construction or maintenance of recreational facilities may require ground disturbing operations and recreational use activities that may result in NPS pollution, as well as aquatic or riparian habitat alteration.

- **Post-Emergency Recovery Activities.** The USFS and BLM manage wildfires and other emergencies (e.g., flooding, landslides, and severe storm damage) on federal lands including suppression activities and post-emergency recovery activities. Activities conducted as part of wildfire suppression repair, post-emergency recovery, and long-term post-emergency recovery may include erosion and sediment control, watercourse crossing repair or replacement, timber salvage, hazard tree removal, revegetation, and pesticide application. These activities may result in erosion and sediment related NPS pollution from ground disturbance, and dependent on fire/emergency characteristics, reduced ground cover and canopy cover, as well as damage to infrastructure such as roads, culverts, and other watercourse crossings.

- **Restoration Activities.** These activities are restorative in nature and are often designed to improve habitat, prevent degradation, and reduce long-term erosion and sedimentation. Restoration projects may include watercourse crossing improvement, channel and bank stabilization, stream channel and floodplain habitat enhancement, and meadow restoration. Such projects may result in short-term impacts to water quality for a long-term gain.

Activity Categorization by Relative Threat to Water Quality

Within the covered activity classes listed above, the proposed Federal NPS Permit would establish and provide coverage for two categories (A and B) of project operations based on the relative threat to water quality, as follows:

- **Category A (low threat of impact).** Activities that present a low threat of causing impacts to water quality that would affect beneficial uses would be eligible for Category A. Category A projects require minimal category-specific conditions.

- **Category B (increased threat of impact).** Activities that pose an increased risk of causing or contributing to exceedances of water quality objectives would be eligible for Category B and as such require additional protection measures.

The factors that increase the potential for water quality impacts for determination of whether an activity would fall under Category A or B include the following:

- Proximity of activity to surface waters;

- Type, size and timing of the disturbance, and

- On-the-ground conditions (e.g., slope, soil type, soil saturation, ground cover, soil burn severity, etc.).

Permit Conditions

The proposed Federal NPS Permit would impose general conditions that apply to both Category A and B activities. Additional conditions and requirements would apply to Category B activities, as these activities pose an increased threat to water quality. The proposed permit conditions are summarized below; for complete information, refer to Appendix A.

General Conditions (Category A and B)

The proposed Federal NPS Permit would require that all activities comply with the federal agencies' BMP manuals to prevent, minimize, and mitigate NPS discharges of waste to waters of the state. The BMP manual for USFS includes the National Core BMP Technical Guide (USFS 2012), as well as state-specific guidance, such as the Water Quality Management Handbook for the USFS Pacific Southwest Region and any future updates. The BMP manual for BLM includes the Best Management Practices for Water Quality Bureau of Land Management California (September 2022). See Appendix B for the relevant BMP manual documents.

Generally, the federal agencies' BMP manuals are written in broad, non-prescriptive language; as such, the Federal NPS Permit would require USFS and BLM to develop and implement site-specific prescriptions to fulfill the broader BMPs. These site-specific prescriptions would be documented in all contracts, agreements, and other instruments used to direct the activities of contractors, USFS and/or BLM personnel, volunteers, or any other persons or entities conducting activities covered under the Federal NPS Permit on behalf of USFS and/or BLM to ensure measures to protect water quality are implemented appropriately. USFS and BLM would be required to take corrective action when a BMP, or a site-specific prescription is found to be ineffective, improperly installed, or not installed and necessary for the protection of water quality. A structured adaptive management approach for the selection and application of BMPs must be employed by each agency.

USFS and BLM would be required to consider the requirements of the Federal NPS Permit in the project planning process for all projects that have a potential to impact water quality. This would include noticing/inclusion of the Central Valley Water Board in all applicable phases of federal environmental review processes (e.g., National Environmental Policy Act [NEPA]) and ensuring that Federal NPS Permit requirements are met throughout the life of project activities.

Projects covered under the Federal NPS Permit must be conducted in accordance with any associated NEPA document(s) prepared for the Project including, but not limited to, general and site-specific BMPs, integrated design features, resource protection measures, management actions, mitigation measures, and monitoring plans. Any proposed change to a land management activity that results in a change in qualification under the proposed Federal NPS Permit from a Category A to Category B must follow all criteria, conditions, monitoring, and reporting under Category B.

Pesticide Application

All activities obtaining coverage would be subject to pesticide application requirements. For projects involving individual hand application[3] of pesticides, USFS and BLM would be required to adhere to all pesticide label application and storage instructions. For projects that include broadcast, aerial, or soil application of pesticides, USFS and BLM must:

- Adhere to all pesticide label application and storage instructions.
- Not apply pesticides within the Watercourse and Lake Protection Zone widths (refer to Table 1 in the draft Federal NPS Permit [Appendix A]).
- Post-Wildfire Management projects only. Application must not occur in areas burned within the previous 3 years on slopes greater than 30 percent unless 50 percent or greater effective ground cover is present to prevent transport to surface waters.
- Follow notification requirements, as described in the Federal NPS Permit.

[3] Including, but not limited to, foliar and basal spot spraying, stem injection (hack-and-squirt), cut-stump/cut-stem treatment (borax/paint-on-stem), crack-and-crevice treatment (for use inside and around buildings).

Additional Conditions for Category B Activities

Additional requirements imposed on activities falling within Category B would include identification, prioritization, and treatment of CSDS; and other requirements, as described below.

- **Controllable Sediment Discharge Sources[4].** USFS/BLM would be required to actively address CSDS or pre-existing threats to water quality through identification, prioritization, and treatment of such sites within Category B Projects and/or through the implementation of the Controllable Sediment Source Reduction Program (CSSRP) (see below). CSDS information would be gathered for Category B Projects, and USFS/BLM would be required to track CSDS information over time.

- **Other Requirements.** Other requirements for Category B Projects include the following:

    - Soils disturbed by project activities within designated riparian zones must be stabilized prior to the beginning of the winter period, and either prior to sunset if the National Weather Service forecasts a "chance" (30 percent or more) of rain within the next 24 hours or at the conclusion of operations, whichever is sooner.

    - Watercourse crossings must be designed to accommodate 100-year flood flows, including sediment and debris, and allow for aquatic organism passage during all stages of life.

    - Roadside berms, or other sidecast material generated from transportation management activities (e.g., road grading) must be deliberately breeched or completely removed to allow for adequate road drainage and to reduce the potential for hydrologic connectivity of road surface runoff.

    - Waste generated from transportation management activities such as spoil piles from the removal of sediment, debris, or other materials from the road surface or drainage features must be removed off site or stabilized so that there is no potential for that material to discharge or threaten to discharge to surface waters.

[4] A CSDS is a feature caused or affected by human activity and limited to agency owned or controlled infrastructure (whether permanent or temporary) that has caused or threatens to cause discharge of sediment to receiving waters in a manner that negatively impacts water quality or its beneficial uses. A CSDS may feasibly and reasonably be treated through planned project activities, routine maintenance, storm-proofing, emergency work, or as a stand-alone project.

Controllable Sediment Source Reduction Program

The proposed Federal NPS Permit would put into place and include requirements for a CSSRP and associated Watershed Treatment Plans (WTP) in order to treat existing sediment sources at a specific geographic scale in a progressive manner across the ownership.

Each WTP would include a compliance schedule to complete CSDS treatment within 10 years. The CSSRP would include an assessment of readily available information regarding water quality condition as well as a prioritization system to focus WTP activities on treatment of erosion and sediment sources, including those CSDS that are identified but not treated during implementation of Category B Project activities. CSDS identified through development of a specific Category B Project that are not able to be treated during implementation of that specific project will result in a backlog of untreated CSDS across the landscape. The record of untreated CSDS will continue to build as federal staff evaluate new areas during project development and NEPA planning. Additionally, CSDS may be identified on access roads, through the Burned Area Emergency Response (BAER) process, or through discharge incident reporting.

Refer to Appendix A for details regarding the CSSRP assessment and prioritization process, WTP contents and format, CSDS treatment and prioritization considerations, reporting timelines, etc.

Monitoring

Similar to the permit conditions, monitoring requirements would be applied based on the relative threat to water quality (i.e., Category A or B). All projects would require monitoring and reporting of discharge incidents, while Category B would be subject to additional monitoring requirements.

Monitoring for All Projects (Category A and B)

The following types of monitoring would be required for all projects covered under the Federal NPS Permit:

- **Federal Agency Monitoring.** All projects and activities covered under the proposed Federal NPS Permit may be subject to USFS and BLM agency monitoring as required by NEPA, individual Forest Plans (USFS), Resource Management Plans (BLM), or other federal directives. The USFS is currently under federal direction to conduct regular National BMP Monitoring across a large variety of projects, and the BLM California state office having recently established standardized BMPs is expected to follow a similar path.

- **Discharge Incident Monitoring.** All projects and activities covered under the proposed Federal NPS Permit would be subject to discharge incident monitoring. A Discharge Incident means waste that is currently discharging or threatens to discharge to surface or ground water in quantities and/or concentrations that exceed Water Quality Objective or result in significant individual or cumulative adverse impacts to the beneficial uses of waters of the state.

Category B Monitoring:

Category B Projects are subject to implementation and effectiveness monitoring requirements, as well as potential photo-point monitoring. Please refer to the Monitoring and Reporting Program (Appendix A, Attachment B) for detailed information regarding the Category B monitoring requirements.

Notice of Planned Operations

Under the Central Valley Water Board's programmatic permitting approach for the proposed Federal NPS Permit, USFS and BLM would not be required to enroll projects individually. Permit requirements will automatically apply to certain land management activities that meet criteria and conditions set forth in the Federal NPS Permit, and the USFS and BLM would submit a notice of planned operations (NPO) annually for covered projects. An NPO for Category A projects is not required; however, USFS and BLM would be required to retain records of activities covered under Category A (including any environmental analysis conducted prior to, during, or after the project, as well as any information pertinent to monitoring and reporting). Such records would be made available to Central Valley Water Board staff upon request.

The NPO would be required for all Category B projects expected to be active during the next 12-month period. Refer to Appendix A, Attachment B for information required to be included in the NPO prior to the commencement of operations.

Reporting

USFS and BLM would be required to report discharge incidents any time that they have been identified. Moreover, USFS/BLM would be required to notify the Central Valley Water Board regarding any violations (threatened or actual) of applicable water quality objectives (e.g., turbidity, sediment, temperature, dissolved oxygen, pesticides, etc.). Violations of water quality objectives may be caused by failed management measures, failure to implement appropriate management measures, natural sediment sources (e.g., landslide/unstable areas), or legacy land management land disturbances (as assessed during monitoring).

A written report regarding discharge incidents would need to be submitted to the Central Valley Water Board following the detection. Among other information, the written report would include an implementation schedule for additional corrective actions. See Appendix A, Attachment B for details.

The proposed Federal NPS Permit would require an annual summary report for covered projects, emergency response actions, and annual interim reporting and completion reporting for each WTP.

Auditing

Central Valley Water Board staff would conduct audits to assess permit compliance and identify areas that may require additional attention. Audits would be conducted at the Forest (USFS) or Field Office (BLM) level and require participation from both federal and Water Board staff. During an audit, Central Valley Water Board staff may request submission of project-specific

documents and may conduct field visits to assess the overall effectiveness of on-the-ground water quality protection measures within covered project activity areas.

Training and Certification

The Central Valley Water Board has documented a need for additional and continuous training of federal staff in identification of water quality issues/concerns, and associated BMP design, selection, and implementation. While Central Valley Water Board staff would conduct permit focused roll-out training for the federal agencies after adoption of the proposed Federal NPS Permit, a formal training and certification program will be provided upon Board adoption of the permit or soon after. Certification would be required to ensure that federal staff responsible for implementing or complying with permit conditions are appropriately trained.

Reasonably Foreseeable Management Measures for Water Quality Protection

The Proposed Project would result in the implementation of a number of reasonably foreseeable management measures. As indicated above, the proposed Federal NPS Permit would require that USFS and BLM implement BMPs in their respective BMP manuals for the covered activities. While the BMPs generally allow for development of site-specific solutions, implementation of the BMPs and compliance with the Federal NPS Permit would result in any number of on-the-ground measures/actions, as described below. These reasonably foreseeable management measures, along with monitoring actions pursuant to the Proposed Project, are the focus of the environmental analysis in the environmental impact report (EIR).

Vegetation Management

- Slash packing a skid trail no longer in use (piling of limbs and left-over material from processing trees)
- Installing water bars on skid trails or landings
- Seeding disturbed bare soil
- Tilling compacted soil surface
- Adding straw mulch for ground cover
- Maintaining watercourse protection buffers and following application requirements for herbicide/pesticide use
- Adding woody material to disturbed soil or existing areas of erosion
- Creating vehicle access barriers (rocks, logs, earthen berms) at skid trails to prevent motorized public use
- Water Drafting
    - Rock armoring the drafting pad where water trucks park to fill up

- Placing vehicle barriers (rock, logs, berms, straw bales, etc.) near the edge of the water source to prevent vehicle encroachment on the banks

- Having an emergency spill kit on site (primarily for petroleum products)

Transportation Management

- Hydrologic Disconnection – disconnecting road surface runoff from entering directly into watercourses or other surface waters. May be accomplished in a variety of ways but most often is achieved by the installation of adequate road drainage features (i.e., rolling dips, water bars, outsloping, cross drains, etc.)

- Rock armoring the road fill below a road drainage feature (ditch relief culvert, rolling dip, water bar, over-side drains, etc.) to prevent erosion

- Adding rock below a culvert outlet to dissipate concentrated flows to protect against scour

- Adding armor/creating a hardened surface to the inlet or outlet of a culverted watercourse crossing to prevent erosion

- Adding road surface material such as rock to native surface roads to protect against erosion and sediment transport

- Adding straw, or other organic materials within or at the head cut of gullies and rills to minimize further migration and scour

- Removal of outside berms on road surfaces created by side cast materials resulting from grading operations.

    - Complete removal would require placing the spoils in a location where the material will not mobilize and enter surface waters

    - Partial removal, or deliberately breeching small portions of berms to direct surface water runoff may be done if the concentrated runoff and associated sediment transport does not pose a risk of entering surface waters

- Installing road drainage features

    - Rolling dips – used to allow surface water runoff to escape the road prism in a purposefully placed location

    - Ditches – typically used on the inside of a road prism to collect cut bank and road surface runoff to be drained at strategic locations (i.e., rolling dips, ditch relief culvert)

    - Leadoff ditches – used where surface water runoff is restricted to the road prism (through-cut road) where a ditch and/or cross drains are impracticable

and where vegetation will provide a filtering effect on runoff. This is to allow road drainage to occur and dissipate before entering surface waters.

Recreation Facilities Management

- Developing campsites away from surface waters or riparian areas
- Adding hardened surface to parking areas, watercraft launch sites, and staging areas to prevent erosion
- Having designated fueling locations for OHV use to prevent petroleum contamination of surface and ground water
- Having regularly maintained and contained waste management facilities (garbage bins/outhouse/pit-toilets/etc.) to prevent contamination of surface and ground water
- Placing vehicle access barriers in areas not authorized for motorized vehicle use
- Providing signage for authorized parking and camping areas
- Adding erosion control measures where warranted (i.e., ground cover such as mulch, straw, wood chips, bark, slash, rock, etc.)
- Adding sediment control measures where warranted (i.e., straw wattles, water bars, rock, etc.)

Post-Emergency Recovery

- During active wildfire suppression activities, the following measures may be implemented:
    - BMPs to protect soil, water quality, and riparian resources exist for wildfire suppression activities, but must not compromise public or firefighter safety. The most common strategy used for resource protection during wildland fire suppression is the implementation of minimal impact suppression techniques (MIST). MIST is the minimum force necessary to effectively achieve wildfire suppression objectives. Examples include using water as a fire line instead of handline or dozer line construction, or the use of rubber wheeled vehicles instead of tracked equipment or letting the fire burn to natural fire breaks. MIST implies a greater sensitivity to the impacts of suppression tactics and their long-term effects.
- For suppression repair and wildland fire recovery:
    - Rehabilitating wildfire and suppression damage may include:
        - installing water bars on fire lines
        - slash packing fire lines

- adding ground cover on exposed soils such as straw mulch, slash, woody material, or revegetating
- repairing or replacing damaged or at-risk infrastructure such as culverts, watercourse crossings
- repairing roads
- clearing inboard ditches and culvert inlets
- Blocking dozer lines, temporary roads, trails, or other access points from public motorized use

Restoration

- Pulling back altered stream banks to a natural grade and providing ground cover on exposed or disturbed soils
- Retention of bank stabilizing vegetation
- Removal and stabilization of spoil piles
- Revegetating with native seed
- Other resource protection measures are similar or the same in nature as previously listed in the other activity areas

ES.2 Nature of the Discretionary Action Considered in the EIR

This EIR is intended to provide CEQA compliance for the adoption of the proposed Federal NPS Permit, which would govern specific activities conducted by USFS and BLM on federally managed lands within the Central Valley Region. To achieve this, the EIR considers the proposed permit conditions, monitoring requirements, and reasonably foreseeable activities that could occur as a result of the proposed Federal NPS Permit, as described in Chapter 2, *Project Description*. The Central Valley Water Board will use the EIR in deciding whether to approve, approve with modifications, or deny the Proposed Project.

ES.3 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 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, Scoping Meeting, and Scoping Comments

A notice of preparation (NOP) of an EIR was prepared for the Proposed Project in accordance with CEQA Guidelines Section 15082, and was submitted to the State Clearinghouse on March 12, 2021. The NOP was also posted on the Central Valley Water Board's website and distributed electronically via its email list service ("lyris"). Submittal of the NOP marked the beginning of the scoping comment period, which lasted for 45 days, ending on April 27, 2021.

The NOP invited interested persons to attend a scoping meeting to be held online via Zoom to solicit input on the proposed Federal NPS Permit. The scoping meeting was held on Tuesday, April 13, 2021, from 10 am to 11:30 am. Approximately 45 individuals attended the scoping meeting. The format of the scoping meeting consisted of a presentation by Central Valley Water Board staff providing an overview of the proposed Federal NPS Permit development and CEQA compliance process, followed by an opportunity for meeting attendees to provide oral comments.

During the scoping comment period, the Central Valley Water Board received three written comment letters. Additionally, one individual provided oral comments during the scoping meeting. Refer to Table 1-1 in Chapter 1, *Introduction* for a summary of the scoping comments received that are relevant to the environmental analysis.

Draft Environmental Impact Report and Draft Federal Nonpoint Source Permit Public Review and Comment Period

The Central Valley Water Board has issued a notice of availability (NOA) of an EIR to provide agencies and the public with formal notification that this DEIR is available for review. The Draft Federal NPS Permit is being circulated for review concurrently with the DEIR and is included as Appendix A to this DEIR. The NOA has been sent to all responsible and trustee agencies and any person or organization requesting a copy. A legal notice has also been published in a number of general-circulation newspapers. The Central Valley Water Board has also submitted the NOA and a notice of completion (NOC) to the State Clearinghouse.

Publication of the NOA initiated a 45-day public review period, during which the Central Valley Water Board will receive and collate public and agency comments on the DEIR and the proposed draft Federal NPS Permit. The purpose of the public circulation is to provide public agencies, other stakeholders, and interested individuals with opportunities to comment on or express concerns regarding the contents of the DEIR and draft permit. Please see Section ES.8 below for information on how to submit comments on the DEIR.

The Central Valley Water Board is tentatively scheduled to consider certification of the EIR and adoption of the Federal NPS Permit at its 22/23 August 2024 Board meeting; however, this hearing date may change.

ES.4 Areas of Known Controversy

Section 15123(b)(2) of the 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. To date, no areas of known controversy have been raised or identified.

ES.5 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.6 Overview of Environmental Topics Evaluated in the Draft Environmental Impact Report

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

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas (GHG) Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Mineral Resources
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

Remaining resource topics in the State CEQA Guidelines Appendix G (i.e., Land Use and Planning, Population and Housing, and Recreation) 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.* Additionally, several significance criteria or checklist questions within Appendix G with respect to the Public Services resource topic were dismissed from detailed consideration due to lack of potential for impacts. **Table ES-1** at the end of this Executive Summary summarizes the impacts analyses and significance determinations for the Proposed Project.

No significant and unavoidable impacts were identified for the Proposed Project. All potentially significant effects identified for the Proposed Project (largely due to construction-related effects during construction/installation of management practices) would be less than significant given

adherence to USFS' and BLM's existing protective requirements or with implementation of mitigation measures.

ES.7 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 DEIR since that is required by statute. Additionally, a Reduced Management Measure Implementation Alternative was considered, as it was found to achieve most of the Proposed Project objectives while being potentially feasible and avoiding or reducing one or more of the Proposed Project's significant impacts.

Additionally, two alternatives were considered but dismissed from detailed analysis in the EIR because they failed to meet the alternatives screening criteria: an Individual WDRs Alternative and an Expanded Coverage Alternative.

No Project Alternative

Under the No Project Alternative, the Central Valley Water Board would not implement the proposed Federal NPS Permit. In this scenario, NPS discharges from the certain activities conducted by USFS and BLM on federal lands would continue to be governed by the current agreements between the State of California and the federal agencies (1981 Management Agency Agreement [MAA], 1992 Memorandum of Understanding [MOU], and Timberland Management General Order; see discussion in Section 2.2.1 in Chapter 2, *Project Description*). Central Valley Water Board staff would continue to review individual project plans and materials submitted by USFS and BLM, potentially issuing individual WDRs or otherwise placing conditions on each individual project with the potential to negatively impact waters of the State. However, under current conditions, the federal agencies do not submit project materials or notifications for many projects that could impact waters. Thus, the No Project Alternative would not result in the Central Valley Water Board reviewing and issuing individual WDRs for all projects with potential for impacts.

None of the permit conditions, monitoring and reporting requirements, and other aspects of the Proposed Project would go into effect. No CSSRP would be established and thus there would be no regulatory mechanism for identifying, tracking, and treating CSDS across the federal lands in the region.

Reduced Management Measure Implementation Alternative

Under the Reduced Management Measure Implementation Alternative, the Central Valley Water Board would limit the types of management measures that can be implemented under the permit to address NPS discharges associated with activities conducted by USFS and BLM on federal lands. Since the majority of the potential environmental impacts from the Proposed Project are related to those certain management measures involving ground disturbance in their

construction/installation, this alternative would limit the management measures that can be employed to those that don't involve substantial ground disturbance. As such, management measures such as water bars, rolling dips, and other means of hydrologic disconnection from roads that would involve grading or excavation to install would be prohibited, as would tilling of compacted soil. Additionally, rock armoring could only be conducted in select areas (e.g., not riparian areas) where it would have no potential to impact sensitive biological resources and where the rock could be installed from existing roads or other stabilized surfaces.

Under this alternative, other aspects of the proposed Federal NPS Permit would remain (see summary in Section ES.1). Namely, the monitoring and reporting requirements included in the Proposed Permit (e.g., discharge incident monitoring, implementation and effectiveness monitoring, etc.) would remain. The USFS would still need to implement BMPs from their respective BMP manuals in accordance with the permit conditions; however, the potential management measures (or site-specific prescriptions) that could be used to implement the BMPs would be limited to those that are non-ground disturbing.

Environmentally Superior Alternative

Of the alternatives analyzed in detail in the EIR, the Central Valley Water Board finds that the Proposed Project is environmentally superior. While both the No Project Alternative and Reduced Management Measure Implementation Alternative would avoid or reduce impacts of the Proposed Project (primarily short-term impacts from construction/installation of certain management measures), these alternatives would not fully achieve the objectives of the Proposed Project. This includes the overarching purpose of the proposed Federal NPS Permit, which is to ensure protection of water quality and beneficial uses by addressing threats to water quality resulting from actual or potential NPS discharges. With respect to the No Project Alternative, the current regulatory framework/arrangement with the federal agencies has been shown to be insufficient in protecting water quality; thus, the need for the Proposed Project. The Reduced Management Measure Implementation Alternative would avoid or reduce potential short-term, construction-related impacts by eliminating the management measures involving ground-disturbance; however, this alternative would also be eschewing substantial long-term water quality benefits, since the ground-disturbing management measures (e.g., water bars, rolling dips, etc.) are often some of the most effective measures in terms of reducing NPS discharges over the long-term.

The Proposed Project would be the most effective in achieving the fundamental objectives to protect and preserve water quality. Although it would have some potential adverse impacts to environmental resources, all of these impacts would be less than significant given adherence to USFS/BLM protective requirements or with implementation of mitigation measures. Given the current unacceptable conditions and ongoing impacts to water quality on the USFS and BLM managed lands, the Central Valley Water Board finds that it is reasonable and necessary to trade potential short-term impacts to water quality for long-term gains.

ES.8 Submittal of Comments

The purpose of circulating the DEIR is to provide agencies and interested individuals with opportunities to comment on or express concerns regarding the DEIR's contents and analysis.

Information regarding the public review period will be provided in the NOA, in newspaper notices, and on the Central Valley Water Board's website:

https://www.waterboards.ca.gov/centralvalley/water_issues/forest_activities/federal_lands/

For those interested, written comments or questions concerning this DEIR should be submitted (preferably via email in Microsoft Word or Adobe PDF format) and directed to the following:

Central Valley Regional Water Quality Control Board
Attention: Angela Wilson
364 Knollcrest Drive #205
Redding, CA 96002

Angela.wilson@waterboards.ca.gov

This CEQA document is available for review at the Proposed Project website (see above). In addition, hard copies can be reviewed at the Central Valley Water Board's offices in Redding, Rancho, and Fresno, California. To arrange to view documents during business hours, call (530) 224-4845. This DEIR also can be viewed electronically at libraries throughout the Central Valley Region.

Written comments received in response to the DEIR during the public review period will be addressed in the Responses to Comments chapter of the final environmental impact report (FEIR). Comments submitted to the Central Valley Water Board, and the commenter's name, are considered public information.

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Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Aesthetics			
Impact AES-1: Have a substantial effect on a scenic vista.	LS	None	LS
Impact AES-2: Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.	LS	None	LS
Impact AES-3: In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	LS	None	LS
Impact AES-4: Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.	LS	None	LS
Agriculture and Forestry Resources			
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 of the California Resources Agency, to non-agricultural use.	LS	None	LS
Impact AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract.	NI	None	NI
Impact AG-3: Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.	NI	None	NI

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact AG-4: Result in the loss of forest land or conversion of forest land to non-forest use.	LS	None	LS
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
Air Quality			
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
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
Biological Resources			
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 California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	S	▪ **MM BIO-1:** Avoid and Minimize Impacts on Sensitive Biological Resources	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
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	▪ **MM BIO-1:** Avoid and Minimize Impacts on Sensitive Biological Resources	LSM
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.	LS	None	LS
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.	LS	None	LS
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	▪ **MM BIO-1:** Avoid and Minimize Impacts on Sensitive Biological Resources	LSM
Cultural Resources			
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.	LS	None	LS
Impact CUL-2: Disturb any human remains, including those interred outside of dedicated cemeteries.	LS	None	LS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Energy			
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
Geology and Soils			
Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:			
i. Rupture of a known earthquake fault	NI	None	NI
ii. Strong seismic ground shaking	NI	None	NI
iii. Seismic-related ground failure, including liquefaction	LS	None	LS
iv. Landslides	LS	None	LS
Impact GEO-2: Result in substantial soil erosion or the loss of topsoil.	LS	None	LS
Impact GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	LS	None	LS
Impact GEO-4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	LS	None	LS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact GEO-5: Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.	NI	None	NI
Impact GEO-6: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	LS	None	LS
Greenhouse Gas Emissions			
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
Hazards and Hazardous Materials			
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.	LS	None	LS
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
Impact HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to	NI	None	NI

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Section 65962.5 of the Government Code and, as a result, create a significant hazard to the public or the environment.			
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.	LS	None	LS
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
Hydrology and Water Quality			
Impact HWQ-1: Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality.	LS	None	LS
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	LS	None	LS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding	LS	None	LS
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.	LS	None	LS
Impact HWQ-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	LS	None	LS
Mineral Resources[1]			
Impact MR-1: Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	LS	None	LS
Impact MR-2: Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.	NI	None	NI
Noise			
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.	LS	None	LS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
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
Public Services			
Impact PUB-1: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:[1]			
i. Fire protection	LS	None	LS
Transportation			
Impact TR-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	LS	None	LS
Impact TR-2: Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).	LS	None	LS
Impact TR-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	LS	None	LS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact TR-4: Result in inadequate emergency access.	LS	None	LS
Tribal Cultural Resources			
Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource.	LS	None	LS
Utilities and Service Systems			
Impact UTIL-1: Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	LS	None	LS
Impact UTIL-2: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.	LS	None	LS
Impact UTIL-3: Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	LS	None	LS
Impact UTIL-4: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	LS	None	LS
Impact UTIL-5: Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	LS	None	LS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Wildfire			
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

Notes:

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

1. Impacts to other public services listed in Appendix G (i.e., police protection, schools, parks, and other public facilities) were dismissed from detailed consideration in the DEIR due to lack of potential for significant impacts from the proposed Federal NPS Permit.

Chapter 1
Introduction

The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) has prepared this draft environmental impact report (DEIR) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the proposed Waste Discharge Requirements (WDRs) for Nonpoint Source (NPS)[1] Discharges Related to Certain Activities Conducted by the United States Forest Service (USFS) and the Bureau of Land Management (BLM) on Federal Lands (Proposed Project or Federal NPS Permit). The Proposed Project would establish a permit regulating NPS discharges from activities conducted by the USFS and BLM on federal lands that would be more protective of water quality compared to current agreements between the State of California and the federal agencies. In accordance with the Central Valley Water Board's authority and mandates under the California Water Code, the purpose of the Proposed Project is to ensure protection of water quality and beneficial uses by addressing threats to water quality resulting from actual or potential NPS discharges.

This DEIR 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, Section 15000 et seq.). The primary purpose of this DEIR is to provide a comprehensive and transparent discussion and analysis of the Proposed Project's environmental impacts.

1.1 Background and Need for the Proposed Project

The USFS and BLM collectively manage 29 percent of the land (approximately 10,896,327 acres) in the Central Valley Water Board's jurisdictional area. These federal agencies undertake a variety of activities on their lands that have potential to discharge NPS pollutants, which can affect waters of the state. Pursuant to Section 208 of the federal Clean Water Act (CWA), the State of California has entered into separate agreements (see Chapter 2, *Project Description* for further discussion) with the USFS and BLM to manage water quality impacts from federal activities conducted in California. While these agreements stipulate implementation of best management practices (BMPs) for water quality protection, sole reliance on the agreements has not led to sufficient protection of water quality nor substantial progress in addressing existing controllable sediment sources. In particular, the federal agencies under the current regulatory

[1] 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 (State Water Board 2021). NPS pollution occurs when rainfall flows off the land, roads, and other features of the landscape. This diffuse runoff may carry pollutants associated with human activities (e.g., sediment, pesticides, hazardous materials, etc.) and discharge into lakes, rivers, wetlands, bays, and aquifers.

framework lack a robust monitoring and reporting component to ensure that management measures[2] are implemented properly and effectively.

The Central Valley Water Board is responsible for addressing NPS pollution within its jurisdictional area. Under the CWA, states are directed to develop and implement plans to address NPS water pollution (33 U.S. Code Section 1329). The State Water Resources Control Board (State Water Board) adopted the Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy) in 2004. The NPS Policy requires each of the nine Regional Water Quality Control Boards (RWQCBs) to regulate NPS pollution by issuing: (1) WDRs (Water Code Section 13260); (2) Waiver of WDRs (Water Code Section 13269); or establishing (3) Basin Plan Prohibition(s) (Water Code Section 13243). The Plan for California's Nonpoint Source Pollution Control Program (NPS Program Plan), adopted in 1999 and which the NPS Policy implements, was approved by the United States Environmental Protection Agency and the National Oceanic and Atmospheric Administration. In issuing WDRs or a waiver of WDRs, the State or RWQCBs may adopt programmatic permits to authorize certain types of similar discharges from many dischargers, based on the proposed discharge meeting certain criteria and conditions.

The proposed Federal NPS Permit would be a WDRs programmatic permit that would cover certain activities conducted by USFS and BLM on federal lands. As noted above, the proposed Federal NPS Permit is needed to ensure satisfactory implementation of water quality protection management measures and treatment of existing sources of NPS pollution. Additionally, the proposed Federal NPS Permit would allow for more efficient regulation of a large swath of activities by the federal agencies given available Central Valley Water Board staff resources.

1.2 Overview of the Proposed Federal Nonpoint Source Permit

The proposed Federal NPS Permit would cover the following activities which are subject to the CEQA analysis[3]:

- **Vegetation Management:** The USFS and BLM manage vegetation on federal lands to improve forest health, reduce fuel loading, remove hazard trees, and harvest timber.

[2] "Management measure" is used in this DEIR to refer to any number of practices that may be implemented to reduce NPS pollution from activities occurring on federal lands. Management measure is a collective term that may refer to federal agency BMPs, on-the-ground prescriptions, or site-specific prescriptions. Most often, for the environmental analysis, the term is used to refer to physical measures or tools that are implemented to reduce NPS discharges. Examples include installation of water bars to skid trails or roads, tilling compacted soils, adding straw mulch for ground cover, seeding disturbed bare soils, etc.

[3] Note that the proposed Federal NPS Permit would also provide coverage for emergency response activities. Response and management of emergency situations on federal lands may involve human caused or naturally occurring disasters such as wildfire, flooding, landslides, severe storms (wind, hail, or snow damage), or other emergencies. Under CEQA Guidelines Section 15269, such emergency response activities are exempt from the requirements of CEQA. Thus, the emergency response category of activities is not discussed or evaluated in this EIR.

Operations that occur as part of these activities can result in erosion and sediment-related NPS pollution from soil disturbance and reduced ground cover from removal of vegetation and the use of roads, skid trails, landings, and yarding corridors. NPS pollution may also occur from the use of pesticides to minimize and control competing vegetation, noxious weeds, or other pests.

- **Transportation Management:** The USFS and BLM manage extensive road and trail networks serving multiple uses across federal lands. All phases of road and trail management – including construction, road and trail use, maintenance, reconstruction, upgrades, and decommissioning – can lead to erosion and sediment-related NPS pollution. Roads and trails can cause disruptions in hillslope drainage patterns, slope instability, and soil erosion.

- **Recreation Facilities Management:** The USFS and BLM manage federal lands to meet multiple-use objectives such as providing recreational opportunities for the public. This may include the development, maintenance, and management of recreation facilities such as campgrounds, staging areas or parking lots, high use recreation sites, and recreational event locations. The construction or maintenance of recreation facilities may require ground disturbing operations and recreational use activities may result in NPS pollution, as well as aquatic or riparian habitat alteration.

- **Post-Emergency Recovery:** The USFS and BLM manage wildfires and other emergencies (e.g., flooding, landslides, and severe storm drainage) on federal lands including suppression activities and post-emergency recovery activities. Activities conducted as part of wildfire suppression repair, post-emergency recovery, and long-term post-emergency recovery may include erosion and sediment control, watercourse crossing repair or replacement, timber salvage, hazard tree removal, revegetation, and pesticide application. These activities may result in erosion and sediment related NPS pollution from ground disturbance, and dependent on fire/emergency characteristics, reduced ground cover and canopy cover, as well as damage to infrastructure such as roads, culverts and other watercourse crossings.

- **Restoration Activities:** These activities are restorative in nature and are often designed to improve habitat, prevent degradation, and reduce long-term erosion and sedimentation. Restoration projects may include watercourse crossing improvement, channel and bank stabilization, stream channel and floodplain habitat enhancement, and meadow restoration. Such projects may result in short-term impacts to water quality for a long-term gain.

Within these classes of activities, the proposed Federal NPS Permit would specify two categories (A and B) based on the relative threat to water quality. Activities that would be eligible for

Category A would present a low threat of causing impacts to water quality[4] and as such, require minimal category-specific requirements.

Activities that would be eligible for Category B would pose an increased risk of causing or contributing to exceedances of water quality objectives and as such, require additional protection measures. The proposed Federal NPS Permit would prescribe additional requirements for Category B projects such as a notice of planned operations (NPO), the assessment, tracking, and treatment of controllable sediment discharge sources (CSDS) and monitoring. The proposed Federal NPS Permit also would require development of a Controllable Sediment Source Reduction Program to address existing sources of erosion and sediment on a watershed scale.

Refer to Chapter 2, *Project Description,* for a more detailed summary of the Proposed Project, and refer to Appendix A for the proposed Draft Federal NPS Permit.

1.3 Activities that Could Occur under the Federal Nonpoint Source Permit and Scope of the Environmental Analysis

The proposed Federal NPS Permit would require implementation of management measures for water quality protection in accordance with the federal agencies' BMP manuals. Federal agency staff would need to develop management measures for specific activities covered under the proposed Federal NPS Permit based on the BMPs, and conduct monitoring and reporting. Chapter 2, *Project Description*, describes a range of reasonably foreseeable management measures that may be implemented in compliance with the proposed Federal NPS Permit. These measures are commonly implemented to control erosion and sediment discharges, or other NPS pollutant discharges, for the activity types covered by the permit.

Given that the proposed Federal NPS Permit would cover existing (i.e., ongoing) activities being conducted on federal lands, the scope of the environmental analysis concerns the potential effects of implementing management measures, as well as monitoring activities that could result in environmental impacts (e.g., emissions from traveling to individual sites). Although USFS and BLM are currently required to implement BMPs for water quality protection (in particular, USFS, which has a formalized National BMP Program), it is reasonable to assume that, with the increased monitoring and reporting of activities, the proposed Federal NPS Permit would result in increased management measure implementation compared to existing conditions.

[4] Specific factors that increase the potential for water quality impacts include (1) proximity of activity to water; (2) type, size and timing of the disturbance, and (3) on-the-ground conditions (e.g., slope, soil type, soil saturation, ground cover, soil burn severity, etc.).

1.4 Overview of CEQA Requirements

CEQA's basic purposes are to (CEQA Guidelines Section 15002):

- 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 changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; 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 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.

The Central Valley Water Board is the lead agency under CEQA for preparation of this EIR for adopting the proposed Federal NPS Permit.

1.5 Scope and Intent of this Document

The Central Valley Water Board's proposed permit requirements under the Federal NPS Permit are described in Chapter 2, *Project Description*, of this DEIR, and the Draft Federal NPS Permit is included as Appendix A to this DEIR. The reasonably foreseeable management measures as they would likely be implemented in the future pursuant to the proposed Federal NPS Permit are also described in Chapter 2. The federal agency BMP manuals are included/referenced in Appendix B.

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

1.6 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 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 are provided below, as they apply to this document.

1.6.1 Notice of Preparation and Scoping Comment Period

A notice of preparation (NOP) of an EIR was prepared for the Proposed Project in accordance with CEQA Guidelines Section 15082, and was submitted to the State Clearinghouse on March 12, 2021. The NOP was also posted on the Central Valley Water Board's website and distributed electronically via its email list service ("lyris"). Submittal of the NOP marked the beginning of the scoping comment period, which lasted for 45 days, ending on April 27, 2021.

The NOP invited interested persons to attend a scoping meeting to be held online via Zoom to solicit input on the proposed Federal NPS Permit. The scoping meeting was held on Tuesday, April 13, 2021, from 10 am to 11:30 am. Approximately 45 individuals attended the scoping meeting. The format of the scoping meeting consisted of a presentation by Central Valley Water Board staff providing an overview of the proposed Federal NPS Permit development and CEQA compliance process, followed by an opportunity for meeting attendees to provide oral comments.

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

- California Farm Bureau
- California Native Plant Society
- Tulare Kings Audubon Society Chapter

Additionally, one individual, John Buckley of Central Sierra Environmental Research Center, provided oral comments during the scoping meeting. **Table 1-1** summarizes the primary comments and concerns relevant to the environmental analysis as expressed in written scoping comment letters and during the public outreach meetings.

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

Written Comment Letters

California Farm Bureau Federation

- Fully evaluate potential impacts on agricultural resources, which are part of the environment.
- Accurately and completely describe existing agricultural lands and include the acreage of farmland that will be converted from the Proposed Project.
- Ensure that the EIR accurately and completely depicts agricultural and forest lands surrounding the Project area through the usage of the Farmland Mapping and Monitoring Program's Maps.
- Ensure that changes in the existing environment due to the Proposed Project which, due to its locations or nature, could result in conversion of agricultural and forest lands to nonagricultural use are examined.
- Analyze all potential impacts to agricultural and forestry resources, such as land use conversion, prevention in use of federal lands for agricultural activities, fuel management, impacts to grazing permits, and negative impacts to private and federal timber harvest management.
- Completely analyze impacts to agricultural lands and other resources, including direct, indirect, and reasonably foreseeable cumulative impacts.
- Identify and examine a full range of feasible alternatives to the Proposed Project.
- Evaluate potential social and economic impacts, particularly as it relates to the cost of compliance and potential loss of farmland.
- Analyze potential conflicts with local, state, and federal laws, regulations, goals, and agreements, such as those related to fuel management and treatment, forest restoration projects, wildfire management, prevention and mitigation, reestablishing wildland resiliency, and existing water quality protections for activities on forest lands.

California Native Plant Society

- Include impacts associated with the NPS, including Nonpoint source pollution includes runoff containing pesticides, insecticides, and herbicides; volatile organic compounds (VOCs) and toxic chemicals from runoff and industrial discharges; sediment from road construction and construction sites; and modification of hydrologic flow patterns.
- Activities covered by the permit may violate water quality standards or waste discharge requirements, substantially degrade surface or ground water quality, or substantially alter the existing drainage pattern of a treatment site or area through ground disturbing activities and should be considered in the EIR.
- The NPS Permit and environmental analysis should include third parties, such as grazers, logging companies, and recreation management companies.
- Grazing impacts that should be considered: accelerated erosion, sedimentation, and the discharge of nutrients, bacteria, and other pathogens into waterways.
- The EIR should analyze the potential adverse effects from pesticides on both water quality and native plant communities.

- The standards and mitigation measures for water quality contained in the California Vegetation Treatment Program (CalVTP) program EIR should be applied to the Proposed Project, where appropriate.
- The EIR should provide a range of best management practices and mitigation measures that will allow the use of herbicide or pesticide treatments to be tailored to the specific site where the treatment will be used.
- The EIR should address the potential impacts related to erosion and develop best management practices, mitigation measures, and monitoring requirements to reduce them.
- The EIR should include a detailed analysis of the expected sedimentation that will result from the five activities, and provide a broad range of best management practices, mitigation measures, and monitoring requirements that will reduce the impacts of sedimentation to less than significant levels.

Tulare Kings Audubon Society Chapter

- Suggests developing a plan for well-managed grazing on public lands.
- The EIRs should ensure that its analysis takes into account the unique circumstances in each region.
- Consider effects and developing a plan for permit coverage of livestock grazing on public lands.
- Evaluate forest health with a process for actively managing grazing to improve water quality.
- Analyze impacts on birds from soil disturbance, erosion, and the presence of NPS pollution in small streams and meadows clearly caused by cattle.
- Include mitigation and permit compliance monitoring that is measurable, with consequences for noncompliance.
- Include potential impacts from third parties operating on BLM or USFS lands.
- Consider Tulare Kings Audubon Society Chapter as a local partner to urge legislators to improve funding and as volunteer environmental stewards who will aid in monitoring compliance.

Oral Comments – April 13, 2021

John Buckley – Central Sierra Environmental Research Center

- "The first comment I share: it's frustrating that there is no attempt by the water boards to deal with livestock nonpoint source discharges on federal lands, which is the most widespread source of varying levels of pathogenic bacteria in the tributary streams. But for the five areas of focus that are being proposed for regulation here are three quick points:
- The first is, is our center urges that this process lead to the regional boards and the sister agency of the Forest Service and BLM actually producing clear requirements for measurable, meaningful, BMPs that are tied to, at least some degree, of mandated monitoring requirements in order to actually show whether the BMPs are or are not achieving water quality objectives. So measurable and meaningful.
- A second key point, is that it is always a likely pressure for a sister agency like the Regional Board not to press for a federal agency to have to take on new burdens and responsibilities. But our center urges that there be a reasonable range of alternatives considered that are not restricted to simply managing with the status

quo requirements, but actually envision what opportunities may be meaningful to add requirements

- The third key point is: the most important, our center urges that waste discharge requirements for nonpoint source discharges have clear measurable triggers and, then clear consequences, that actually result when failures are documented.
- I'll end with just a question that I know won't be answered but I ask you now, but I to think about: why is the water board proposing to not regulate discharges from third parties that are permitted on federal lands, since those are directly a result of Forest Service or BLM permits to allow those activities."

1.6.2 Draft Environmental Impact Report and Draft Federal Nonpoint Source Permit Public Review and Comment Period

The Central Valley Water Board is now circulating this DEIR for public review and comment. The Central Valley Water Board issued a notice of availability (NOA) of an EIR to provide agencies and the public with formal notification that the DEIR is available for review. The Draft Federal NPS Permit is being circulated for review concurrently with the DEIR. The NOA has been sent to all responsible and trustee agencies and any person or organization requesting a copy. The NOA was posted on the Central Valley Water Board's website and a legal notice was published in the newspaper of largest circulation among the newspapers of general circulation in the Proposed Project area. The Central Valley Water Board also submitted the NOA and a notice of completion (NOC) to the State Clearinghouse.

Publication of the NOA initiated a 45-day public review period, during which the Central Valley Water Board will receive and collate public and agency comments on the DEIR and the Draft Federal NPS Permit. The purpose of the DEIR and Draft Federal NPS Permit circulation is to provide public agencies, other stakeholders, and interested individuals with opportunities to comment on the content of the DEIR and the Draft Federal NPS Permit.

The Central Valley Water Board is tentatively scheduled to consider certification of the EIR and adoption of the Federal NPS Permit at its August 22/23 Board meeting; however, this hearing date may change.

1.6.3 Preparation of the Final Environmental Impact Report

CEQA requires the lead agency to prepare a final environmental impact report (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.

The Central Valley Water Board will prepare a FEIR for the Proposed Project, in accordance with CEQA requirements, including responses to all comments received on the DEIR and identification of any changes to the substantive discussion in the DEIR. The FEIR (when certified by the Central Valley Water Board) will inform the Central Valley Water Board's exercise of its

discretion as a lead agency under CEQA in deciding whether to approve, approve with modifications, or deny the Proposed Project.

If the Central Valley Water Board chooses to approve the Proposed Project, and if significant impacts are identified in the DEIR that cannot be mitigated, a statement of overriding considerations must be included in the record of project approval and mentioned in the notice of determination (NOD). The statement of overriding considerations would describe the Central Valley Water Board's reasons for approving the Proposed Project despite its significant impacts. If the Proposed Project is approved, the NOD will be filed with the California Governor's Office of Planning and Research (CEQA Guidelines Section 15094[c]).

1.7 Organization of this DEIR

Executive Summary. This chapter provides a summary of the proposed Federal NPS Permit (Proposed Project), a description of the issues of concern, a discussion of the alternatives considered, 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 DEIR.

Chapter 2, Project Description. This chapter describes the Proposed Project, including the location, purpose, and Project objectives; the proposed Federal NPS Permit requirements; the reasonably foreseeable management measures that could be implemented under the Federal NPS Permit; 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. The chapter then goes on to present separate sections for each resource topic carried forward for analysis, as follows:

Section 3.1, Aesthetics

Section 3.2, Agriculture and Forestry Resources

Section 3.3, Air Quality

Section 3.4, Biological Resources

Section 3.5, Cultural Resources

Section 3.6, Energy

Section 3.7, Geology and Soils

Section 3.8, Greenhouse Gas Emissions

Section 3.9, Hazards and Hazardous Materials

Section 3.10, Hydrology and Water Quality

Section 3.11, Mineral Resources

Section 3.12, Noise

Section 3.13, Public Services

Section 3.14, Transportation

Section 3.15, Tribal Cultural Resources

Section 3.16, Utilities and Service Systems

Section 3.17, 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 DEIR; presents an impact analysis and conclusions for alternatives carried forward; and discusses the environmentally superior alternative.

Chapter 5, Other Statutory Considerations. This chapter describes any significant and unavoidable impacts of the Proposed Project; cumulative effects of the Proposed Project when combined with the effects 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 DEIR.

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

Appendices

- **Appendix A, Draft Federal NPS Permit.** This appendix includes the draft Federal NPS Permit.
- **Appendix B, Federal Agency BMP Manuals.** This appendix includes BMP manuals for the USFS and BLM.
- **Appendix C, Memorandum Describing Resource Topics and Significance Criteria Eliminated from Detailed Analysis in the Environmental Impact Report.** This appendix provides a discussion and explanation of the reasoning for dismissing certain resource topics and significance criteria (i.e., land use and planning, population and housing, recreation, and public services [except the criterion pertaining to fire services]) from detailed analysis in the DEIR.

- **Appendix D, Special-Status Species Tables.** This appendix provides tables listing the special-status plant and animal species in the Central Valley Region and discusses their potential to occur in areas potentially affected by the Proposed Project. Appendix D supports the analysis in Section 3.4, “Biological Resources”.

- **Appendix E, Tribal Consultation Materials.** This appendix provides copies of the tribal consultation materials, to date, including letters sent to tribes and correspondence received in return.

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

Chapter 2
Project Description

2.1 Introduction

The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) is responsible for the protection of water quality in approximately 60,000 square miles (38.4 million acres) of land in the central part of California. Collectively, 29 percent of the land in the Central Valley Region is managed by two federal agencies: the United States Forest Service (USFS) and the Bureau of Land Management (BLM). The State of California currently regulates nonpoint source (NPS)[1] pollutant discharges from activities on federal lands by USFS and BLM through separate agreements with the respective agencies; however, Central Valley Water Board experience and monitoring have demonstrated that relying solely on these agreements to reduce NPS discharges on lands managed by USFS and BLM does not result in consistent compliance with water quality standards.

The proposed Waste Discharge Requirements (WDRs) for NPS Discharges Related to Certain Activities Conducted by the USFS and BLM on Federal Lands (Proposed Project or Federal NPS Permit) would establish a permit regulating NPS discharges from activities conducted by the USFS and BLM on federal lands that would be more protective of water quality compared to the current agreements. As described further below, the proposed Federal NPS Permit would include requirements for implementation and effectiveness monitoring; actively addressing Controllable Sediment Discharge Sources (CSDS), and conditions for pesticide application. The proposed Federal NPS Permit would cover the following types of activities conducted by the USFS and BLM on federal lands: vegetation management, transportation management, recreation facilities management, post-emergency recovery, restoration activities, and emergency response activities[2].

[1] 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 (State Water Resources Control Board [State Water Board] 2021). NPS pollution occurs when rainfall flows off the land, roads, and other features of the landscape. This diffuse runoff may carry pollutants associated with human activities (e.g., sediment, pesticides, hazardous materials, etc.) and discharge into lakes, rivers, wetlands, bays, and aquifers.

[2] Response and management of emergency situations on federal lands may involve human caused or naturally occurring disasters such as wildfire, flooding, landslides, severe storms (wind, hail, or snow damage), or other emergencies. Under CEQA Guidelines Section 15269, such emergency response activities are exempt from the requirements of CEQA. Thus, the emergency response category of activities is not discussed or evaluated in this EIR.

2.2 Background and Need for the Proposed Project

2.2.1 Current Regulatory Approach

The State of California currently regulates NPS discharges from USFS and BLM managed lands through agreements with the respective agencies in accordance with Section 208 of the federal Clean Water Act (CWA) (33 U.S. Code Section 1288). Additionally, the Central Valley Water Board has adopted a WDR General Order for Discharges Related to Timberland Management Activities for Non-Federal and Federal Lands ("Timberland Management General Order") (Order R5-2017-0061), which specifically regulates timberland management activities on non-federal and USFS lands in the Central Valley Region. This current regulatory approach is discussed further below.

United States Forest Service Management Agency Agreement

Section 208 of the federal CWA (33 U.S. Code Section 1288) requires states to identify areas with "substantial water quality problems" and to designate a Water Quality Management Agency (WQMA) to develop an area-wide plan for addressing water pollution. In 1981, the State Water Resources Control Board (State Water Board): (a) certified a plan entitled "Water Quality Management for National Forest System Lands in California" that was developed and submitted by the USFS; (b) designated the USFS as the WQMA for specified activities on National Forest System lands in California that may result in NPS discharges, including timber management, vegetative manipulation, fuels management, road construction and watershed management; and (c) executed a Management Agency Agreement (MAA) with the USFS for the purpose of implementing the certified plan and WQMA designation.

The MAA contemplates that the Water Boards will waive issuance of WDRs for USFS nonpoint source discharges, provided that the USFS designs and implements its projects to fully comply with state water quality standards. The Forest Service 208 Report resulted in subsequent SWRCB certification of a Water Quality Management Plan, which included a set of best management practices (BMPs) for water quality protection; however, these have since been replaced by the USFS's National BMPs (see discussion in Section 2.2.2).

Bureau of Land Management Memorandum of Understanding

In 1992, State Water Board entered into a memorandum of understanding (MOU) with BLM based on the agencies' shared interest in maintaining, protecting, and improving the quality of the waters of the State. Through the MOU, the State Water Board sought to utilize the personnel and expertise of BLM to increase the development and implementation of water quality programs and projects relative to, but not limited to, agricultural, animal husbandry, silvicultural, mining, and construction activities on the public lands managed by BLM within the State of California. Specifically, through the MOU, BLM agreed to:

- Integrate water quality concepts and management techniques into the BLM planning system and into environmental review and clearance of land-use proposals to address surface and ground water NPS pollution.

- Provide copies of draft Resource Management Plans, draft Environmental Impact Statements, and draft Environmental Assessments, which have significant water quality issues, to the California Regional Water Quality Control Boards (RWQCBs) responsible for the area affected.

- Provide BLM activity plans for those actions which have NPS issues as a primary concern to the responsible RWQCBs for review and comment.

- Incorporate BMP/[Management Measures] MM/[Nonpoint Source Measures] NPSM into BLM land uses and BLM permitted land uses, when necessary, to protect or maintain water quality.

Timberland Management General Order

The Timberland Management General Order was adopted by the Central Valley Water Board in 2017 and regulates discharges related to timberland management activities from non-federal and federal (USFS) lands in the Central Valley Region. Under the Order, "timberland management activities" means commercial activities relating to forest management and timberland conversions[3]. The Order establishes five categories (with A and B subcategories) based on the type of project/plan and relative threat to water quality. Based on the category and subcategory, there are varying requirements for enrollment and notification of the Central Valley Water Board, as well as conditions for water quality protection and implementation of management practices. The Order also includes a Monitoring and Reporting Program (MRP) including implementation, forensic, and effectiveness monitoring of management measures.

2.2.2 Federal Planning Framework

While the agreements between the State Water Board and USFS/BLM require implementation of BMPs to curb NPS pollution from activities on federal lands, these agreements are implemented in the context of the federal agencies' larger planning processes. Each agency has a complex framework through which plans and projects are developed and implemented. The USFS also has a National BMP Program, which guides its water quality protection efforts and would be leveraged in the proposed Federal NPS Permit. To provide background and context for the proposed Federal NPS Permit, the USFS/BLM planning frameworks are described below.

United States Forest Service

USFS lands are managed according to Federal guidance, which is applied through a nested hierarchy of spatial scales (e.g., nationally, regionally, provinces, forest, district, watershed, site). Forest Service Manuals (FSMs) provide national direction for USFS lands. Forest Service Handbooks (FSH) provide regional policy direction. While overarching directives and goals may

[3] Including, but not limited to: cutting or removal of timber and other solid wood forest products; construction, reconstruction and maintenance of roads, fuel breaks, firebreaks, watercourse crossings, landings, skid trails, or beds for the falling of trees; fire hazard abatement and fuel reduction activities; pesticide applications; site preparation that involves disturbance of soil or burning of vegetation following timberland management activities; but excluding preparatory treemarking, surveying or roadflagging.

be set at the regional and national levels, most project planning is conducted at the forest (i.e., local) level. Every 15-20 years each National Forest develops a Forest and Land Resource Management Plan (LRMP) which considers how to best manage the forest while providing for multiple uses. These plans serve as the principal guidance document and are interchangeably referred to as Land Management Plans or Forest Plans. LRMPs frequently include monitoring requirements and standards for a variety of programs and activities. Many of these plans in California are overdue for an update, and several are in the process of being updated. **Table 2-1** shows the acreage of USFS lands by National Forest within the Central Valley Water Board's boundary and the status of the respective LRMPs.

Table 2-1. United States Forest Service Lands within the Central Valley Water Board Boundary and Status of Forest and Land Resource Management Plans

National Forests	Total Acreage[1, 2]	Acreage[1] within CVWB Boundary	Current LRMP Year / Status
Modoc	1,679,166	912,352	1991 – in initial stages of forest plan revision
Shasta-Trinity	2,139,248	871,557	1995
Lassen	1,155,351	931,108	1992 – in initial stages of forest plan revision
Plumas	1,205,706	1,169,131	1988
Mendocino	918,350	447,974	1995
Tahoe	854,798	712,892	1990
Eldorado	615,035	614,947	1989
Stanislaus	898,739	898,649	1991 – update in progress
Sierra	1,316,196	1,316,150	1991 – update in progress
Inyo	1,985,973	259,997	1988 – update in progress[3]
Sequoia	1,114,948	1,101,016	1988 – update in progress
Los Padres	1,780,498	70,324	2005[4]
Humboldt-Toiyabe	43	12	1986
Lake Tahoe Basin Management Unit	121,525	314	2016
Klamath	1,505,966	3,172	2010

Notes:
CVWB = Central Valley Water Board; LRMP = Forest and Land Resource Management Plan
1. Acreage rounded to the nearest hundred.

2. Total acreage is limited to the total acreage within USFS Pacific Southwest Region 5. Certain National Forests that include portions outside of Region 5 (e.g., Humboldt-Toiyabe) may not have the total acreage of the National Forest reflected in the table.
3. Inyo NF Update expected in 2019; in objection resolution phase.
4. Southern California National Forest Plan includes Angeles, Cleveland, Los Padres, and San Bernardino National Forests.

Individual LRMPs, and regional plans such as the Sierra Nevada Forest Plan and amendments (SNFPA)[4] and Northwest Forest Plan (NWFP)[5] that provide analysis and planning on a multiple-forest scale, generally include standards and guidelines for water quality protection. The SNFPA contains an Aquatic Management Strategy (AMS), while the NWFP contains an Aquatic Conservation Strategy (ACS). AMS and ACS components, including riparian protections, are included in LRMPs for each affected National Forest.

National Best Management Practice Program

The USFS has a formalized National BMP Program that was developed to improve management of water quality consistent with the CWA and State water quality programs. The National BMP Program consists of four main components: (1) The National Core BMP Technical Guide (Volume 1, FS-990a, April 2021); (2) The National Core BMP Monitoring Technical Guide (Volume 2, FS-990b, in preparation); (3) Revised National Direction, and (4) A national data management and reporting system. The National BMPs are written in broad, non-prescriptive terms, focusing on 'what to do', not necessarily 'how to do it'. Each BMP in the technical guide has a list of recommended practices that should be used, as appropriate or when required, to meet the BMP objective. Not all recommended practices are applicable in all settings, and there may be other practices not listed in the BMP that would work as well, or better, to meet the BMP objective in a given situation. For example, the National Core BMP Technical Guide provides direction to develop site-specific BMP prescriptions for the following practices (*Individual National BMPs*), as appropriate or when required, using State BMPs, Forest Service regional guidance, land management plan direction, BMP monitoring information, and professional judgment.

The National BMP Program documents are included in Appendix B. Section 2.6 lists the specific USFS BMPs that would be applicable under the Federal NPS Permit and describes the common or reasonably foreseeable management measures[6] that are associated with the BMPs.

[4] The SNFPA affects the following USFS National Forests, all of which have lands within the Central Valley Water Board boundary: Lassen, Plumas, Lake Tahoe Basin Management Unit, Tahoe, Eldorado, Stanislaus, Sequoia, Sierra, Modoc, and Inyo National Forests of California, and that portion of the Humboldt-Toiyabe National Forest that is in the California Sierra Nevada.

[5] The NWFP amended 17 National Forest and seven BLM RMPs through the Pacific Northwest. National Forests within the Central Valley Water Board boundary affected by the NWFP include Mendocino, Shasta-Trinity, and a portion of the Modoc. BLM units affected by the NWFP include Ukiah, Arcata, and Redding field office areas.

[6] "Management measure" is used in this DEIR to refer to any number of practices that may be used to reduce NPS pollution from activities occurring on federal lands. Management measure is a collective term that may refer to federal agency BMPs, on-the-ground prescriptions, or site-specific prescriptions. Most often, for the environmental analysis, the term is used to refer to physical measures or tools that are implemented to reduce NPS discharges.

Bureau of Land Management

The California State BLM Office oversees 15 million acres of public lands in California extending across rangelands, forests, high mountains, and deserts. These public lands are managed for multiple uses with the goal of achieving a balance between uses and protection of resources. The BLM in California is further divided into three Districts, which each have several field offices:

- *Northern California District*
  Applegate [Alturas], Arcata, Eagle Lake [Susanville], and Redding Field Offices

- *Central California District*
  Bakersfield, Bishop, Central Coast [Marina], Mother Lode [El Dorado Hills], and Ukiah Field Offices

- *California Desert District*
  Barstow, El Centro, Needles, Palm Springs-South Coast, and Ridgecrest Field Offices

BLM's land use planning process originates from the Federal Land Policy and Management Act (FLPMA), which requires all BLM management actions to be completed under the direction of an approved Resource Management Plan (RMP). Under the FLPMA, RMPs must be prepared and maintained at the field office level; however, in more recent years, RMPs have been developed to include multiple field offices, similar landscapes, and/or in line with landscape management goals. In varying scale, RMPs set resource management goals and objectives, identify measures needed to achieve goals and objectives, and establish parameters for using BLM-managed lands. Decisions derived from RMPs guide later site-specific implementation. **Table 2-2** shows acreage of BLM lands by field office area in the Central Valley Water Board boundary and the current RMP year.

Table 2-2. Bureau of Land Management Lands within the Central Valley Water Board Boundary and Resource Management Plan Year

BLM Field Office	Total Acreage	Acreage within CVWB Boundary	Current RMP Year
Applegate	1,748,123	381,722	2008
Eagle Lake	1,011,449	12,068	2008
Central Coast	286,229	211,012	2007[1] & 2013[2]
Redding	253,259	154,522	1993
Mother Lode	230,594	230,476	2007
Bakersfield	620,667	368,701	2009[3] & 2014
Ukiah	266,531	228,231	2006

Notes:

Examples include installation of water bars to skid trails or roads, tilling compacted soils, adding straw mulch for ground cover, seeding disturbed bare soils, etc.

BLM = Bureau of Land Management; CVWB = Central Valley Water Board; RMP = Resource Management Plan

1. Southern Diablo Mountain Range and Central Coast
2. Clear Creek
3. Carrizo Plain National Monument

Source: BLM 2021a, 2021b

The BLM has implemented multiple Conservation Plans that guide management and serve as amendments to the RMPs within portions of the area potentially covered by the proposed Federal NPS Permit. These include the aforementioned NWFP, as well as Greater Sage-Grouse Conservation Plans and the California Desert Conservation Area (CDCA) Plan.

BLM policy is further organized by manuals, handbooks, and directives in the form of Instruction Memorandums (IMs) and Informational Bulletins (IBs). Manuals contain overarching program level policy and procedures as well as define the basic authority for performing tasks and the responsible party for seeing that tasks are accomplished. Handbooks provide detailed instructions, techniques, procedures, and processes for implementing the policy and direction described in BLM Manuals. BLM issues IMs as supplements to BLM Manuals and Handbooks to provide new or revised policies or procedures. IMs are published with the intent of informing BLM employees quickly, providing interpretation of existing policies, or providing one-time guidance for incident-specific or evolving activities. As such, IMs are published as either permanent or temporary. IBs are temporary directives intended to disseminate information of interest to BLM employees. They do not contain new policy, procedures, or instructional material but may call attention to existing policies or procedures or transmit material such as publications and announcements.

BLM California has recently developed a BMP manual to reduce water quality impacts from BLM activities conducted within the State. This manual is included as Appendix C. Section 2.6 further lists the specific BMPs in the manual that would apply under the Federal NPS Permit and describes the common or reasonably foreseeable management measures.

2.2.3 Environmental Review of Federal Plans, Projects, and Activities and Development of Site-Specific Best Management Practices

As part of the planning processes described in Section 2.2.2, federal agency plans, projects, and activities typically undergo environmental review pursuant to the National Environmental Policy Act (NEPA). NEPA documents incorporate elements of the applicable overarching plans (such as the SNFPA and LRMPs) and National BMPs, and are frequently where activity-specific management measures are developed and incorporated into a project[7]. Some BMPs are broader and some, frequently referred to as Design Features in NEPA documents, are much more specific and detailed. These BMPs are then included in implementation documents such as

[7] Note that while activity-specific BMPs, on-the-ground prescriptions, and/or mitigation measures may be identified in an Environmental Assessment (EA) or Environmental Impact Statement (EIS), these documents alone do not commit the federal agencies to implementing such measures. The BMPs, on-the-ground prescriptions, and/or mitigation measures that USFS and BLM commit to are in the project-related decision documents.

contracts, engineering drawings, and timber sales. Engineering drawings may further develop certain BMPs by including drawings and details or schematics.

2.2.4 Statutory Requirements Related to Nonpoint Source Pollution

The Central Valley Water Board is responsible for addressing NPS pollution within its jurisdictional area. Specifically, the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code) tasks the RWQCBs with regulating waste discharges that could affect the quality of the waters of the state. The Central Valley Water Board maintains two water quality control plans or basin plans for its region: Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Fifth Edition, February 2019 (Sacramento and San Joaquin Basin Plan) and the Water Quality Control Plan for the Tulare Lake Basin, Third Edition, May 2018 (Tulare Lake Basin Plan). These are the master water quality control planning documents for the Central Valley Region and they designate beneficial uses and water quality objectives for waters of the state, including surface water and groundwater.

Under the CWA, states are directed to develop and implement plans to address NPS water pollution (33 U.S. Code Section 1329). The State Water Board adopted the Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy) in 2004. The NPS Policy is the State Water Board's framework for addressing NPS pollution, and requires each of the nine RWQCBs to regulate NPS pollution by issuing (1) WDRs (Water Code Section 13260); or (2) Waiver of WDRs (Water Code Section 13269); or establishing (3) Basin Plan Prohibition(s) (Water Code Section 13243). The Plan for California's Nonpoint Source Pollution Control Program (NPS Program Plan), adopted in 1999 and which the NPS Policy would implement, was approved by the United States Environmental Protection Agency and the National Oceanic and Atmospheric Administration.

Additionally, the Central Valley Water Board must implement State Water Resolution No. 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California ("Antidegradation Policy"), as required by the Legislature. This policy 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.

2.2.5 Water Quality Conditions in the Central Valley Region

Water quality conditions in many waterbodies within and/or downstream of federal lands managed by USFS and BLM within the Central Valley Region have been and continue to be affected primarily by sediment discharges, despite the history of agreements regarding BMP implementation between the federal agencies and the Central Valley Water Board. The Central Valley Water Board's experience and monitoring have demonstrated that relying solely on the 1981 MAA framework to regulate NPS discharges on lands managed by the USFS does not result in consistent compliance with water quality standards, and thus does not comply with the State Water Board's 2004 NPS Policy nor the Antidegradation Policy. Similarly, sole reliance on the 1992 MOU for regulation of NPS discharges from BLM lands has not led to sufficient protection of water quality.

Section 2.6.1 describes recent BMP evaluations conducted on federal lands within the Central Valley Water Board's jurisdiction indicating a lack of effective BMP implementation in many cases. As such, the Proposed Project is needed to provide for consistent application of effective BMPs on federal lands to minimize NPS pollution and adverse water quality impacts.

2.3 Project Location

The Proposed Project would be implemented throughout USFS and BLM managed lands within the Central Valley Water Board's jurisdictional area, as shown in **Figure 2-1**. The Central Valley Region includes a wide diversity of landscapes, climatic conditions, and land use types. Lands managed by the USFS and BLM in the Central Valley Region include parts of Modoc, Siskiyou, Shasta, Lassen, Tehama, Plumas, Glenn, Butte, Sierra, Colusa, Sutter, Yuba, Nevada, Placer, El Dorado, Yolo, Solano, Sacramento, Amador, Calaveras, Contra Costa, San Joaquin, Alameda, Stanislaus, Tuolumne, Mariposa, Merced, Madera, Fresno, San Benito, Kings, Tulare, San Luis Obispo, and Kern counties.

National Forests within the Central Valley Region include the Modoc, Shasta-Trinity, Lassen, Plumas, Mendocino, Tahoe, Eldorado, Inyo, Stanislaus, Sierra, Sequoia, Los Padres, Humboldt-Toiyabe, Lake Tahoe Basin Management Unit, and Klamath. BLM Field Offices within the Central Valley Region include Applegate, Eagle Lake, Redding, Central Coast, Mother Lode, Bakersfield, and Ukiah.

2.4 Project Purpose & Objectives

The overarching purpose of the Federal NPS Permit is to ensure protection of water quality and beneficial uses by addressing threats to water quality resulting from actual or potential NPS discharges. Specific goals and objectives of the Proposed Project are as follows:

1. Protect and preserve water quality through the following:

    a. Implementation of appropriate BMPs that will effectively protect water quality;

    b. Timely corrective action and adaptive management informed by actively monitoring BMP effectiveness in protecting water quality ;

    c. Preservation of high-quality waters (anti-degradation); and

    d. Identification and reduction of existing and potential sediment discharges and other pollutant discharges from USFS and BLM lands.

2. Ensure regulatory compliance with legal requirements, including but not limited to the Central Valley Basin Plans, NPS Policy, Division 7 of the California Water Code, and other state and federal regulatory requirements.

3. Provide regulatory certainty for two of the larger land management agencies in the Central Valley Region through the following:

a. Clear programmatic permit requirements that are less focused on nonessential paperwork and more focused on performance (including effective BMPs) leveraging where possible existing USFS/BLM mandates;

b. Increased communication between the Central Valley Water Board and USFS/BLM staff; and

c. Coverage of multiple activities within a single permit.

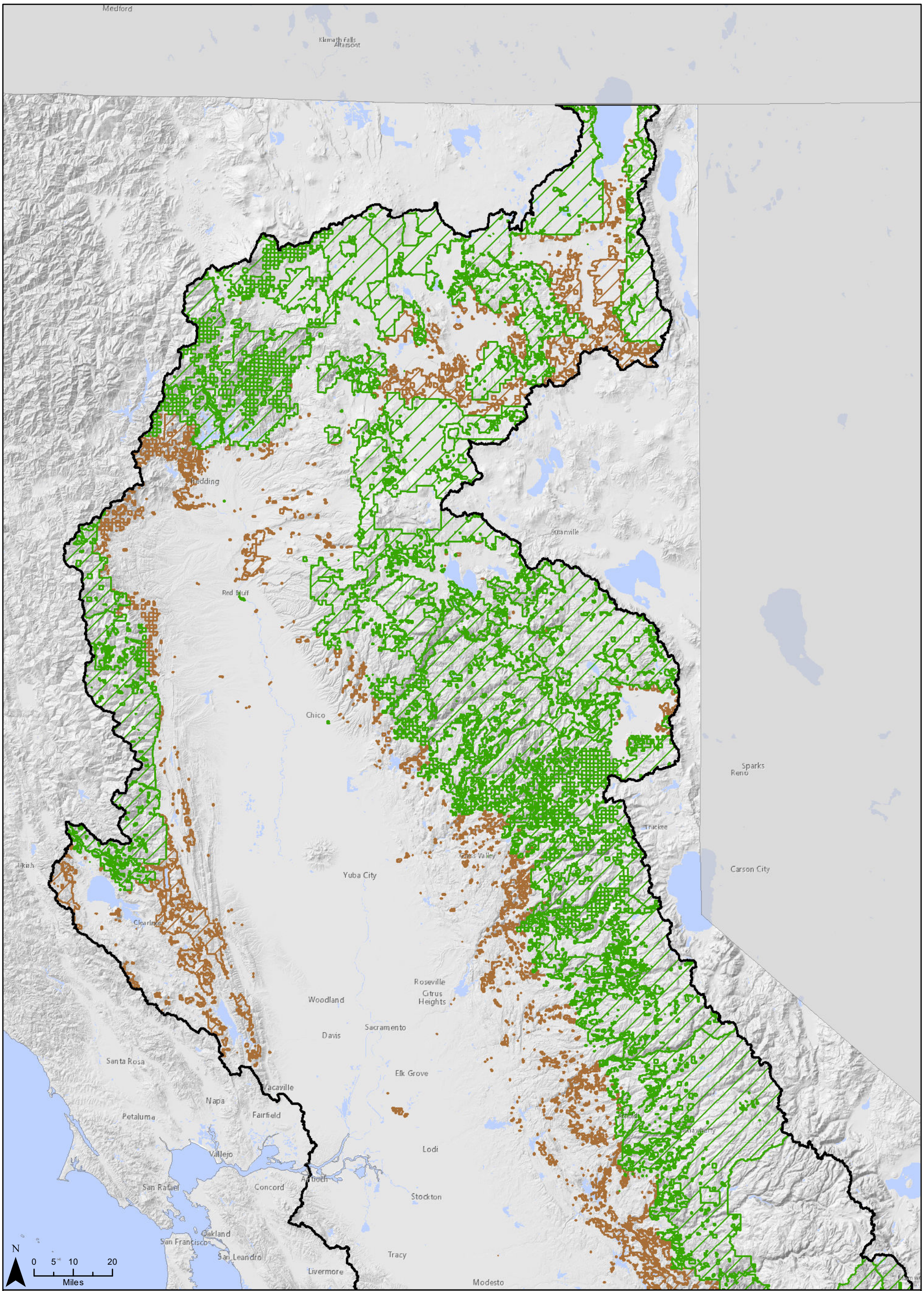


Figure 2-1
Project Area

Sheet 1 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

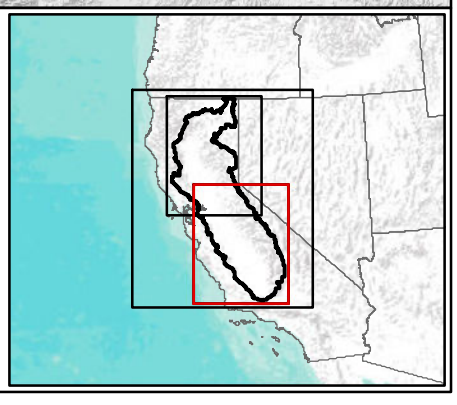
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Yuba City
Carson City
Roseville
Citrus Heights
Woodland
Sacramento
Davis
Hawthorne
Elk Grove
Vacaville
Lodi
Stockton
Tracy
Livermore
Modesto
Mammoth Lakes
Turlock
San Jose
Merced
Los Banos
Gilroy
Watsonville
Madera
Clovis
Fresno
Salinas
Soledad
Visalia
Lemoore
Coalinga
Porterville
Delano
Bakersfield
Tehachapi
Santa Maria
Lancaster
Lompoc
Palmdale
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0 5 10 20
Miles

Figure 2-1
Project Area

Sheet 2 of 2

Central Valley RWQCB Boundary
Bureau of Land Management Lands
U.S. Forest Service Lands



Horizon WATER and ENVIRONMENT

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2.5 Summary of the Proposed Federal Nonpoint Source Permit

The proposed Federal NPS Permit would provide for implementation of BMPs for certain activities on federal lands within the Central Valley Region, as well as monitoring and reporting for covered activities to ensure the effectiveness of water quality control measures. The activities covered by the proposed Federal NPS Permit are on-going and part of the existing conditions. The proposed draft Federal NPS Permit is included as Appendix A; refer to that document for detailed information on the proposed permit requirements. The summary provided here is intended to describe the key components of the proposed draft Federal NPS Permit, with an emphasis on the components of most relevance for the CEQA evaluation.

2.5.1 Covered Activities

The proposed Federal NPS Permit would cover the following activities which are subject to the CEQA analysis:

- Vegetation Management
- Transportation Management
- Recreation Facilities Management
- Post-Emergency Recovery
- Restoration Activities

Each of these classes of activities is discussed below and examples of common activities within the classes are provided. Common terms used with respect to each of the activity classes are also discussed below. Common site-specific prescriptive measures for water quality protection employed in each of the activity classes are described in Section 2.6.4.

Vegetation Management

The USFS and BLM manage vegetation on federal lands to improve forest health, reduce fuel loading, remove hazard trees, and harvest timber. Operations that occur as part of these activities can result in erosion and sediment-related NPS pollution from soil disturbance and reduced ground cover from removal of vegetation and the use of roads, skid trails, landings, and yarding corridors. NPS pollution may also occur from the use of pesticides to minimize and control competing vegetation, noxious weeds, or other pests.

Examples of Common Vegetation Management Activities

- Commercial Timber Harvesting – The cutting, removal, and sale of trees.
- Salvage Logging – Commercial timber harvesting of damaged trees to regain economic value that would otherwise be lost (*salvageable*).

- Hazard Tree Abatement/Removal – The cutting and removal of dead or dying trees either from physical damage, disease, insects, fire, or other natural causes that pose a threat to infrastructure, human life, property, or other resources (can include a commercial component – i.e., salvageable timber).
- Mastication – The use of heavy equipment that has a mulching/grinding head attached; typically used for roadside fuel reduction.
- Thinning Operations – Thinning of a timber stand either by hand or machine.
    - Precommercial Thinning – Thinning of stands dominated by either brush or small diameter (unmerchantable) trees.
    - Commercial Thinning – Partial harvesting of a stand of timber.
- Prescribed Fire – A planned burn for the reduction of fuels where the size and intensity of the fire is controlled.
    - Broadcast Burning – Controlled fire used as vegetation management to burn a designated area within a well-defined boundary for the purpose of reducing surface fuels (i.e., *vegetation that can carry fire across the surface of the ground*).
    - Pile Burning – The controlled burn of vegetative matter in "burn piles" distributed across a defined area. Can be accomplished by machine piling (*using heavy equipment to move and stack material*) or hand piling.
        - Vegetation matter is usually leftover material from harvest or thinning operations, i.e., limbs, bark, treetops, unmerchantable woody material, etc.
        - Specific dimensions may be given for determining size limitations that piles can be, i.e., 6 feet diameter by 6 feet in height).
- Invasive Plant Treatment – May include biological, manual, or chemical treatment (use of herbicides).
- Water Drafting – The filling of water trucks typically used for the maintenance or construction of roads or for general dust abatement during operations.

Common Terms Used in Vegetation Management Activities[8]

- Skidding – Transport of felled trees by trailing or dragging them behind a piece of logging equipment (i.e., skidder).
- Skid Trail – Corridor through the forest or timber stand the skidder uses to drag trees to the landing.
- Landing – Collection point for harvest trees in a unit; this is where trees are processed and loaded onto logging trucks.

[8] There are many more terms used in vegetation management activities, particularly in relation to timber harvesting. The terms provided here are the most common and/or relevant to the analysis in this DEIR. See a more complete list available here: https://www.srs.fs.usda.gov/pubs/gtr/gtr_so073.pdf

- Yarding – The dragging of trees by suspension cables from a single location such as the landing.
- Decking – The stacking of processed trees and would now be referred to as logs.
- Logging Road – Road designed and maintained for high level of use in support of timber harvest operations (may also serve as a haul route).
- Precommercial Thinning – Thinning of stands dominated by either brush or small diameter (unmerchantable) trees.
- Commercial Thinning – Partial harvesting of a stand of timber.
- Group Selection – Typically includes the harvesting of groups of trees between 0.5 acre to 2 acres in size, artificial regeneration (planting) and natural regeneration.
- Coppice – In silviculture, a tree cutting method in which renewal of a newly cutover area depends primarily on vegetative reproduction like sprouting.
- Clearcut – Cutting all trees in an area to a minimum diameter, such as 4 inches.
- Skyline – Cableway stretched tautly between two spar trees and used as a track for a skyline carriage.
- Single-Span Skyline – Skyline without intermediate support spars.
- Spar Tree – Tree or mast on which rigging is hung for one of the many cable hauling systems.
- Felling – Cutting or uprooting standing trees, causing them to fall as a result of the cutting or uprooting.
- Bunching – Gathering and arranging trees or parts of trees in small piles.
- Feller Buncher – Self-propelled machine designed to fell standing trees and arrange them in bunches on the ground. May travel-to-bunch or swing-to-bunch.
- Piling – Picking up tree-length logs or bolts and depositing them in large piles so that the logs are horizontal and parallel to each other and the ends are approximately in the same vertical planes.
- Grapple – Hinged mechanism capable of being opened and closed; used to grip logs during yarding or loading.
- Salvage Logging – *Timber harvest* operation that collects merchantable material that was damaged from natural disturbances including but not limited to wildfire, disease, insect damage, or severe storm events before the economic value is lost.
- Loading – Picking up trees or parts of trees from the ground or from a vehicle, transporting them, and then piling them into another vehicle (such as a highway logging truck or rail car).
- Loader – Self-propelled or mobile machine with grapple and supporting structure - designed to pick up and place trees or parts of trees for the purpose of piling or loading. Operation may be swing-to-load, slide-to-load, or travel-to-load. Also known as hydraulic loader or knuckleboom if it swings to load and has hydraulically activated boom members.

- Chipping – Breaking or cutting trees into small pieces of controlled fiber length.
- Chipper – Designed to chip whole trees or parts of trees.

Transportation Management

The USFS and BLM manage extensive road and trail networks serving multiple uses across federal lands. All phases of road and trail management – including construction, road and trail use, maintenance, reconstruction, upgrades, and decommissioning – can lead to erosion and sediment-related NPS pollution. Roads and trails can cause disruptions in hillslope drainage patterns, slope instability, and soil erosion.

Examples of Common Transportation Management Activities

- Road Building – The construction of new roads on lands managed by the federal agencies.
    - Temporary Roads – Roads constructed in order to implement the proposed project/project activity. Temporary roads are usually decommissioned after the objective of the project activity has been met.
    - Permanent Roads – Roads constructed to become part of the permanent transportation network on the federal agencies' lands.
- Road Reconstruction – The reshaping, resurfacing, or rerouting of existing road networks usually to add better resource protection (i.e., road reconstructed to be outsloped versus insloped to distribute surface water runoff more evenly).
- Road Maintenance – Routine road maintenance includes surface blading (grading operations), removal of sidecast material generated during grading operations, the cleaning of inboard ditches and associated ditch relief culverts, the reestablishment of existing rolling dips or water bars.
- Road Decommissioning – Existing roads may either be blocked from motorized vehicle use (rocks, logs, earthen berms), or completely restored to a natural grade and slope, and revegetated.
- Watercourse Crossings (culverts)
    - Maintenance – Usually involves the cleaning of culvert inlets to ensure anticipated flows will pass unobstructed.
    - Repair – Culvert inlets and outlets are easily damaged by equipment during maintenance practices, such as partial crushing of an inlet by an excavator while cleaning out soil or debris. Repairs can include recontouring the inlets and outlets, or mitering the ends, or adding a flared wingwall.
    - Replacement – Culverts that are in need of replacement are usually showing signs of impending failure, or are no longer functional due to excessive damage, or are undersized for anticipated flows. Replacement should include calculating the size of the culvert to accommodate predicted 100-year storm eventflows, and associated debris and sediment loads.
- Other watercourse crossings

- Examples of other watercourse crossings include bridges and fords, which require regular monitoring and maintenance to ensure proper function.
- Bridge or ford replacement may require the need for professional engineering specifications and certification.

Common Terms Used in Transportation Management Activities

- Rip-Rap – Rock, typically boulders of various sizes, placed on areas vulnerable to erosion to prevent scouring by water flow.
- Armoring – Material applied to harden and protect components of the road prism or the inlets or outlets of watercourse crossings.
- Grading / surface blading – Leveling of the road surface by heavy equipment (grader).
- Spoils – Excess material left over or excavated during road maintenance, construction, or decommissioning.

Recreation Facilities Management

The USFS and BLM manage federal lands to meet multiple-use objectives such as providing recreational opportunities for the public. This may include the development, maintenance, and management of recreation facilities such as campgrounds, staging areas or parking lots, high use recreation sites, and recreational event locations. The construction or maintenance of recreation facilities may require ground disturbing operations and recreational use activities may result in NPS pollution, as well as aquatic or riparian habitat alteration.

Examples of Common Recreation Facilities Management Activities

- Managing developed campgrounds – Developed and managed sites provided by the federal agencies.
- Managing dispersed campsites – User created undeveloped sites.
- Managing Off-Highway Vehicle (OHV) use.
- Managing other recreation facilities such as trails, trail heads, boat ramps, docks, bathrooms, showers, potable water supplies, washing areas, etc.

Common Terms Used in Recreation Facilities Management Activities

- Parking areas – Designated and authorized locations for recreationists to park their vehicles.
- Motorized and unmotorized trail use – OHV trails and hiking trails.
- Staging areas – Gathering locations usually for a group of OHV users to meet and refuel if necessary.
- Watercraft Launch Site – Boat ramp.

Post-Emergency Recovery

The USFS and BLM manage wildfires and other emergencies (e.g., flooding, landslides, and severe storm damage) on federal lands including suppression activities and post-emergency recovery activities. Activities conducted as part of wildfire suppression repair, post-emergency recovery, and long-term post-emergency recovery may include erosion and sediment control, watercourse crossing repair or replacement, timber salvage, hazard tree removal, revegetation, and pesticide application. These activities may result in erosion and sediment related NPS pollution from ground disturbance, and dependent on fire/emergency characteristics, reduced ground cover and canopy cover, as well as damage to infrastructure such as roads, culverts, and watercourse crossings.

Examples of Common Post-Emergency Recovery Activities

- Wildland fire suppression.
- Salvage Logging (see vegetation management).
- Rehabilitating fire and suppression damage (recovery).
- Reforestation
- Prescribed fire – see Vegetation Management.

Common Terms Used in Post-Emergency Recovery Activities

- Wildland Urban Interface (WUI) – The WUI is the zone of transition between unoccupied land and human development. It is the line, area or zone where structures and other human development meet or intermingle with the undeveloped wildland or vegetative fuels.
- Dozer Line (fire line) – A wide (>6 feet or more) linear feature for the removal of vegetative ground cover (surface fuels) by the use of heavy equipment (e.g., bulldozers) to expose bare mineral soil with the intent of suppressing ground driven wildfires.
- Handline (fire line) – A narrow (~2 feet) linear feature for the removal of vegetative ground cover (surface fuels) created by the use of hand tools to expose bare mineral soil with the intent of suppressing ground driven wildfires.
- Burned Area Emergency Response (BAER) – Teams are composed of resource specialists who determine the need for, prescribe, and sometimes implement, emergency treatments. Treatments are done to minimize threats to life or property or to stabilize and prevent further damage to natural and cultural resources. Based on assessments written by team members, treatment recommendations are made to protect life, health and safety, critical cultural and natural resources, and infrastructure.
- Soil Burn Severity – Classification given to post-wildfire soil condition usually based off satellite derived data and later evaluated or verified by resource specialists on-the-ground. Severity indicators include low, moderate and high soil burn severity.
- Stream bulking – Anticipated increased runoff post-wildfire due to excessive erosion and sediment transport due to a loss of canopy and ground cover.

Restoration

These activities are restorative in nature and are often designed to improve habitat, prevent degradation, and reduce long-term erosion and sedimentation. Restoration projects may include watercourse crossing improvement, channel and bank stabilization, stream channel and floodplain habitat enhancement, and meadow restoration. Such projects may result in short-term impacts to water quality for a long-term gain.

Examples of Common Restoration Activities

- Forest Restoration – Conversion of an even aged homogenous stand of timber to a more heterogeneous forest of varied tree age and species.
- May include invasive plant treatments (see vegetation management).
- Watershed/Wetland Restoration – Restore channel and meadow functions, enhance hydrology and habitat, reduce sources of sediment from bank erosion.
- Wildlife and/or Aquatic Species Habitat Restoration – The removal or addition of woody debris in watercourse to enhance habitat or adding rock or other roughage to create riffles to promote aggradation of material transported by watercourses.
- Aquatic Organism Passage – Instream work done by the removal or replacement of culverts, dams, fords, or other instream structures that will allow the unrestricted passage of aquatic organisms.
- Road Restoration – The rehabilitation, reconstruction, reshaping, decommissioning, or complete obliteration of the road prism, may include upgrading or removing watercourse crossings (see transportation management).

Common Terms Used in Restoration Activities

- Vehicle Access Barriers.
- Materials may include logs, boulders, or earthen materials, or a combination thereof.
- Leave Islands – Retention of a group of trees to provide wildlife habitat.
- Recontouring – Restoring a slope to its natural grade.
- Riparian Zone/Area – The interface between land and surface waters often associated with wetland soils, or “riparian vegetation” that consists of hydrophilic plant species.
- TE&S species – Threatened, Endangered or Sensitive plant or wildlife species.

2.5.2 Activity Categorization by Relative Threat to Water Quality

Within the covered activity classes listed in Section 2.5.1, the proposed Federal NPS Permit would establish and provide coverage for two categories (A and B) of project operations based on the relative threat to water quality, as follows:

- ***Category A (low threat of impact).*** Activities that present a low threat of causing impacts to water quality that would affect beneficial uses would be eligible for Category A. Category A Projects require minimal category-specific conditions.

- ***Category B (increased threat of impact).*** Activities that pose an increased risk of causing or contributing to exceedances of water quality objectives would be eligible for Category B and as such require additional protection measures.

The factors that increase the potential for water quality impacts for determination of whether an activity would fall under Category A or B include the following:

- Proximity of activity to surface waters;
- Type, size and timing of the disturbance; and
- On-the-ground conditions (e.g., slope, soil type, soil saturation, ground cover, soil burn severity, etc.).

2.5.3 Permit Conditions

As indicated above, the proposed Federal NPS Permit would impose general conditions that apply to both Category A and B activities. Additional conditions and requirements would apply to Category B activities, as these activities pose an increased threat to water quality. The proposed permit conditions are summarized below; for complete information, refer to Appendix A.

General Conditions (Category A and B)

The proposed Federal NPS Permit would require that all activities comply with the federal agencies' BMP manuals to prevent, minimize, and mitigate discharges to waters of the state. The BMP manual for USFS includes the National Core BMP Technical Guide (USFS 2012), as well as state-specific guidance, such as the Water Quality Management Handbook for the USFS Pacific Southwest Region and any future updates. The BMP manual for BLM includes the Best Management Practices for Water Quality Bureau of Land Management California (September 2022). See Appendix B for the relevant BMP manual documents.

Generally, the federal agencies' BMP manuals are written in broad, non-prescriptive language; as such, the Federal NPS Permit would require USFS and BLM to develop and implement site-specific prescriptions to fulfill the broader BMPs. These site-specific prescriptions would be documented in all contracts, agreements, and other instruments used to direct the activities of contractors, USFS and/or BLM personnel, volunteers, or any other persons or entities conducting activities covered under the Federal NPS Permit on behalf of USFS and/or BLM to ensure measures to protect water quality are implemented appropriately. USFS and BLM would be required to take corrective action when a BMP, or a site-specific prescription is found to be ineffective, improperly installed, or not installed and necessary for the protection of water quality. A structured adaptive management approach for the selection and application of BMPs must be employed by each agency.

USFS and BLM would be required to consider the requirements of the Federal NPS Permit in the project planning process for all projects that have a potential to impact water quality. This would include noticing/inclusion of the Central Valley Water Board in all applicable phases of

federal environmental review processes (e.g., NEPA) and ensuring that Federal NPS Permit requirements are met throughout the life of project activities.

Projects covered under the Federal NPS Permit must be conducted in accordance with any associated NEPA document(s) prepared for the project including, but not limited to, general and site-specific BMPs, integrated design features, resource protection measures, management actions, mitigation measures, and monitoring plans. Any proposed change to a land management activity that results in a change in qualification under the proposed Federal NPS Permit from a Category A to Category B must follow all criteria, conditions, monitoring, and reporting under Category B.

Pesticide Application

All activities obtaining coverage would be subject to pesticide application requirements. For projects involving individual hand application[9] of pesticides, USFS and BLM would be required to adhere to all pesticide label application and storage instructions. For projects that include broadcast, aerial, or soil application of pesticides, USFS and BLM must:

- Adhere to all pesticide label application and storage instructions.
- Not apply pesticides within the Watercourse and Lake Protection Zone widths (refer to Table 1 in the draft Federal NPS Permit [Appendix A]).
- Post-Wildfire Management projects only. Application must not occur in areas burned within the previous 3 years on slopes greater than 30 percent unless 50 percent or greater effective ground cover is present to prevent transport to surface waters.
- Follow notification requirements, as described in the Federal NPS Permit.

Additional Conditions for Category B Activities

Additional requirements imposed on activities falling within Category B would include identification, prioritization, and treatment of CSDS; and other requirements, as described below.

Controllable Sediment Discharge Sources

USFS/BLM would be required to actively address CSDS or pre-existing threats to water quality through identification, prioritization, and treatment of such sites within Category B Projects and/or through the implementation of the Controllable Sediment Source Reduction Program (CSSRP) (refer to Section 2.5.4 for information on the contents of the CSSRP). A CSDS is a feature caused or affected by anthropogenic activity that has caused or threatens to cause discharge of sediment to receiving waters in a manner that negatively impacts water quality or its beneficial uses, and is under Permittee ownership or control. A CSDS may be treated through planned project activities, routine maintenance, storm-proofing, emergency work, or as a stand-alone

[9] Including, but not limited to, foliar and basal spot spraying, stem injection (hack-and-squirt), cut-stump/cut-stem treatment (borax/paint-on-stem), crack-and-crevice treatment (for use inside and around buildings).

project. CSDS information would be gathered for Category B projects, and USFS/BLM would be required to track CSDS information over time.

Other Requirements

Other requirements for Category B Projects include the following:

- Soils disturbed by project activities within designated riparian zones must be stabilized prior to the beginning of the winter period and either prior to sunset if the National Weather Service forecasts a "chance" (30 percent or more) of rain within the next 24 hours or at the conclusion of operations, whichever is sooner.

- Watercourse crossings must be designed to accommodate 100-year flood flows, including sediment and debris, and to allow for aquatic organism passage during all stages of life.

- Roadside berms, or other sidecast material generated from transportation management activities (e.g., road grading) must be deliberately breeched or completely removed to allow for adequate road drainage and to reduce the potential for hydrologic connectivity of road surface runoff.

- Waste generated from transportation management activities such as spoil piles from the removal of sediment, debris, or other materials from the road surface or drainage features must be removed off site or stabilized so that there is no potential for that material to discharge or threaten to discharge to surface waters.

2.5.4 Controllable Sediment Source Reduction Program

The proposed Federal NPS Permit would put into place and include requirements for a CSSRP and associated Watershed Treatment Plans (WTP) in order to treat existing sediment sources at a specific geographic scale in a progressive manner across the ownership.

Each WTP would include a compliance schedule to complete CSDS treatment within 10 years. The CSSRP would include an assessment of readily available information regarding water quality condition as well as a prioritization system to focus WTP activities on treatment of erosion and sediment sources, including those CSDS that are identified but not treated during implementation of Category B Project activities. CSDS identified through development of a specific Category B Project that are not able to be treated during implementation of that specific project will result in a backlog of untreated CSDS across the landscape. The record of untreated CSDS will continue to build as federal staff evaluate new areas during project development and NEPA planning. Additionally, CSDS may be identified on access roads, through the BAER process, or through discharge incident reporting.

Refer to Appendix A for details regarding the CSSRP assessment and prioritization process, WTP contents and format, CSDS treatment prioritization considerations, reporting timelines, etc.

2.5.5 Monitoring

Similar to the permit conditions, monitoring requirements would be applied based on the relative threat to water quality (i.e., Category A or B). All projects would require monitoring and reporting of discharge incidents, while Category B projects would be subject to additional monitoring requirements.

Monitoring for All Projects (Category A and B)

Federal Agency Monitoring

All projects and activities covered under the proposed Federal NPS Permit may be subject to USFS and BLM agency monitoring as required by NEPA, individual Forest Plans (USFS), Resource Management Plans (BLM), or other federal directives. The USFS is currently under federal direction to conduct regular National BMP Monitoring across a large variety of projects, and the BLM California state office having recently established standardized BMPs are expected to follow a similar path.

Discharge Incident Monitoring

All projects and activities covered under the proposed Federal NPS Permit would be subject to discharge incident monitoring. A Discharge Incident means waste that is currently discharging or threatens to discharge to surface or ground waters in quantities and/or concentrations that exceed Water Quality Objective or result in significant individual or cumulative adverse impacts to the beneficial uses of waters of the state.

Additional Monitoring for Category B Projects

Best Management Practices Monitoring

Category B Projects are subject to implementation and effectiveness monitoring requirements, as well as potential photo-point monitoring. Please refer to the MRP (Appendix A, Attachment B) for detailed information regarding the Category B monitoring requirements.

2.5.6 Notice of Planned Operations

Under the Central Valley Water Board's programmatic permitting approach for the proposed Federal NPS Permit, USFS and BLM would not be required to enroll projects individually. Permit requirements will automatically apply to certain land management activities that meet criteria and conditions set forth in the Federal NPS Permit, and the USFS and BLM would submit a notice of planned operations (NPO) annually for covered projects. An NPO for Category A projects is not required; however, USFS and BLM would be required to retain records of activities covered under Category A (including any environmental analysis conducted prior to, during, or after the project, as well as any information pertinent to monitoring and reporting). Such records would be made available to Central Valley Water Board staff upon request.

The NPO would be required for all Category B projects expected to be active during the next 12-month period. Refer to Appendix A, Attachment B for information required to be included in the NPO prior to the commencement of operations.

2.5.7 Reporting

USFS and BLM would be required to report discharge incidents any time that they have been identified. Moreover, USFS/BLM would be required to notify the Central Valley Water Board regarding any violations (threatened or actual) of applicable water quality objectives (e.g., turbidity, sediment, temperature, dissolved oxygen, pesticides, etc.). Violations of water quality objectives may be caused by failed management measures, failure to implement appropriate management measures, natural sediment sources (e.g., landslide/unstable areas), or legacy land management land disturbances (as assessed during monitoring).

A written report regarding discharge incidents would need to be submitted to the Central Valley Water Board following the detection. Among other information, the written report would include an implementation schedule for additional corrective actions. See Appendix A, Attachment B for details.

The proposed Federal NPS Permit would require an annual summary report for covered projects, emergency response activities, and annual interim reporting and completion reporting for each WTP.

2.5.8 Auditing

Audits would be conducted by Central Valley Water Board staff to assess permit compliance and identify areas that may require additional attention. Audits would be conducted at the Forest (USFS) or Field Office (BLM) level and require participation from both federal and Water Board staff. During an audit, Central Valley Water Board staff may request project-related documents and conduct field visits to assess the overall effectiveness of on-the-ground water quality protection measures within covered project activity areas.

2.5.9 Training and Certification

The Central Valley Water Board has documented a need for additional and continuous training of federal staff in identification of water quality issues/concerns, and associated BMP design, selection and implementation. While Central Valley Water Board staff would conduct permit focused roll-out training for the federal agencies after adoption of the proposed Federal NPS Permit, a formal training and certification program will be provided upon or just after Board adoption of the permit. Certification would be required to ensure that federal staff responsible for implementing or complying with permit conditions are appropriately trained.

2.6 Activities that Could Occur Under the Federal Nonpoint Source Permit and Scope of the Environmental Analysis

While the proposed Federal NPS Permit would provide permit coverage for the five categories of activities described in Section 2.5.1, the proposed permit would not cause these activities to occur or expand the frequency or extent of the activities (although some covered activities may increase in frequency or extent for reasons separate from the proposed Federal NPS Permit; see discussion in Section 2.6.2). The covered activities (i.e., vegetation management, transportation

management, recreation facilities management, post-emergency recovery, and restoration activities) are on-going by USFS/BLM and undergo environmental review as part of the NEPA process. The focus of the Federal NPS Permit is on preventing NPS pollution and water quality degradation that may result from the activities, as well as correcting existing sources of NPS pollutants on the federal lands. Additionally, the entire purpose of the Proposed Project is to improve water quality conditions, including through implementation of management measures for water quality protection to reduce NPS discharges.

As such, the scope of the environmental analysis in this DEIR concerns the potential impacts from implementing management measures, which may be required by the proposed Federal NPS Permit. While the proposed Federal NPS Permit would not require implementation of specific management measures, it would likely result in a number of reasonably foreseeable management measures to meet the requirements of the permit and fulfill the goals/objectives in individual federal agency BMP manuals. Beyond the measures already being implemented by USFS/BLM, it is also reasonable to assume that, with the increased monitoring and reporting of activities, the proposed Federal NPS Permit would result in increased management measure implementation compared to existing conditions. Additionally, the identification and prioritization of CSDS will lead to additional CSDS treatment activities relative to the baseline. The treatment of CSDS, although dependent on the specific nature of individual sites, would utilize the same management measures used to implement BMPs relative to the covered activities.

Thus, the environmental analysis in this DEIR focuses on the potential effects from constructing/implementing reasonably foreseeable management measures (especially those measures involving ground disturbance), as well as the potential effects from monitoring activities (e.g., emissions from traveling to monitoring sites, etc.).

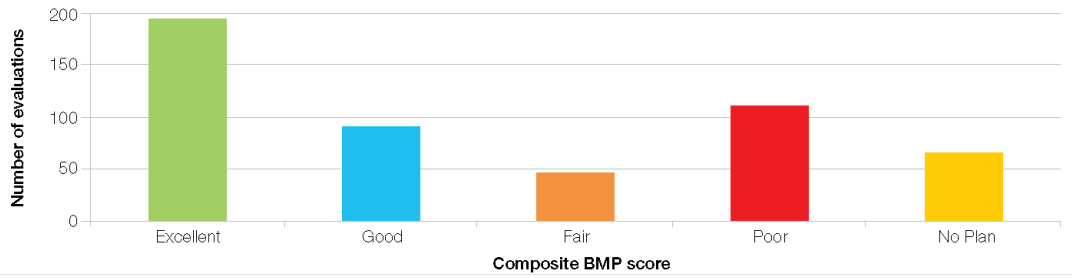
2.6.1 Implementation and Effectiveness of Best Management Practices Currently Being Implemented by the Federal Agencies

As described in Section 2.2.1, USFS/BLM are currently required to curb NPS pollution from activities on federal lands through implementation of BMPs per the agreements with the SWRCB. USFS, in particular, has developed a National BMP Program and is required to implement applicable National BMPs for all activities located within the Central Valley Water Board's jurisdiction. Generally, evaluations of BMP implementation and effectiveness on USFS and BLM managed lands have shown that BMPs are often not implemented effectively under existing conditions.

United States Forest Service National Best Management Practices Implementation and Effectiveness Evaluations

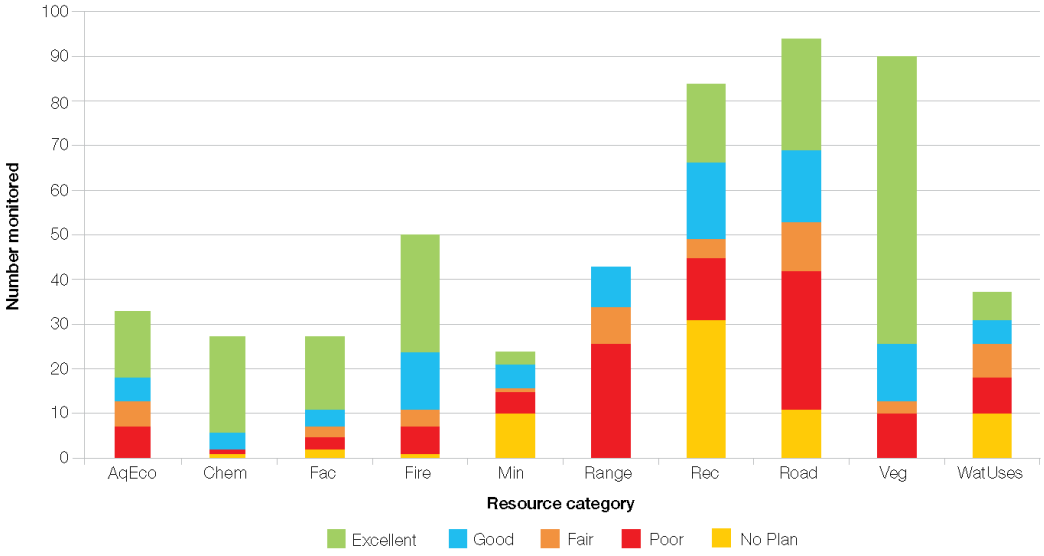
In 2013-2014, USFS completed a nation-wide evaluation of BMPs using its monitoring protocols. This included rating BMPs under the categories in the National Core BMP Technical Guide in terms of both implementation and effectiveness. **Figure 2-2** and **Figure 2-3** below show the composite BMP evaluation ratings from the USFS's 2013-2014 National Best Management Practices Monitoring Summary Report (USFS 2015).

Figure 2-2. Composite BMP Evaluation Ratings across All BMP Monitoring Protocols for Evaluations Completed in Fiscal Year 2014



Notes: BMP = best management practice; FY = fiscal year.
A composite rating of "No Plan" indicates that BMPs were not considered in the planning process.
Source: USFS 2015

Figure 2-3. Composite BMP Evaluation Ratings, by Resource Category, for Evaluations Completed in Fiscal Year 2014



Notes: AqEco = Aquatic Ecosystems Management Activities; BMP = best management practice; Chem = Chemical Use Management Activities; Fac = Facilities and Nonrecreation Special Uses Management Activities; Fire = Wildland Fire Management Activities; FY = fiscal year; Min = Minerals Management Activities; Range = Rangeland Management Activities; Rec = Recreation Management Activities; Road = Road Management Activities; Veg = Mechanical Vegetation Management Activities; WatUses = Water Uses Management Activities.

Source: USFS 2015

As shown in Figure 2-2 and Figure 2-3, USFS identified many deficiencies in its implementation of BMPs, in particular (as related to the Proposed Project) for the Recreation Management Activities (Rec) and Road Management Activities (Road) resource categories. Although the USFS evaluation was nation-wide, the results are indicative of the challenges in implementing effective BMPs on National Forest lands in general, including in California.

Water Boards Evaluation of Best Management Practice Implementation and Effectiveness on Federal Lands

The Central Valley Water Board, in coordination with the Lahontan Regional Water Quality Control Board (Lahontan Water Board), conducted an evaluation of BMPs on USFS and BLM managed lands within their jurisdictions. This evaluation, conducted in 2018 and 2019, identified similar issues with implementing effective BMPs on federal lands.

United States Forest Service

As shown in **Table 2-4** below, Water Boards staff visited a select number of USFS project sites as part of National BMP monitoring and evaluation. At many of these sites (10 of 15), Water Boards staff identified a need for corrective action or adaptive management.

Table 2-3. National BMP Monitoring Evaluations for USFS Projects Attended by Water Boards Staff

National BMP Evaluation Type[1]	National Forest	Field Visit Date	Project Name and Type	Identified Need for Corrective Action or Adaptive Management
Road Construction and Maintenance				
Road C – Road Maintenance Type	Tahoe	6/14/2018	American Project/Timber Harvest	Yes
Road B – Road Reconstruction	El Dorado	6/25/2018	Piliken/Forest Health-Timber Harvest	Yes
Road B – Road Reconstruction	Sequoia	7/25/2018	Bull Run and Spear Creek/Timber Harvest	No
Road B – Road Reconstruction	El Dorado	8/28/2018	Tresel Project/Timber Harvest	Yes
Motorized and Non-motorized Recreation				
Rec A – Developed Recreation Sites	San Bernardino	8/1/2018	South Fork Campground Improvements/ Recreation	Yes
Rec E – Motorized Use Areas	San Bernardino	8/2/2018	Miller Canyon OHV Staging Area/Recreation	Yes
Rec C – Construction/Trail Re-Route	Tahoe	8/29/2018	Towle Mill Loop Trail/Burlington Motorcycle Trail Project	Yes
Rec D – Non-Motorized Trail	El Dorado	9/10/2018	Shadow Lake Trail	Yes
Timber Harvest and Vegetation Management				
Veg A – Ground Based Skidding and Harvesting	Tahoe	6/13/2018	Deer Creek/Timber Harvest	No
Veg A – Ground Based Skidding and Harvesting	Tahoe	6/13/2018	Balsam/Timber Harvest	No
Veg A – Ground Based Skidding and Harvesting	Shasta Trinity	6/28/2018	Black Fox/Timber Harvest	No
Veg A – Ground Based Skidding and Harvesting	Stanislaus	7/23/2018	Recharge Hazard Tree Removal/Timber Harvest	Yes
WatUses C – Drafting Site	Tahoe	6/13/2018	Snowtent/Timber Harvest	Yes
WatUses C – Drafting Site	El Dorado	6/26/2018	Callecat/Timber Harvest	Yes
Chem A – Chemical Use Near Waterbodies	Stanislaus	6/11/2018	Rim Reforestation Project/Timber Harvest	No

Notes:

BMP = Best Management Practice; Chem = Chemical Use Management Activities; OHV = Off-Highway Vehicle; Rec = Recreation Management Activities; Road = Road Management Activities; Veg = Mechanical Vegetation Management Activities; WatUses = Water Uses Management Activities.

1. Also referred to as monitoring protocol. USFS has different monitoring protocols within resource categories to be used for evaluation of BMPs depending on the specific nature of the activities.

Examples of the issues requiring corrective actions and/or adaptive management noted by Water Boards staff during the USFS BMP evaluations include:

Road Construction and Maintenance

- At two of the Road B sites, the design plans lacked enough specificity and direction to properly implement the BMPs called for in the plans, resulting in the BMPs being ineffective at disconnecting road runoff from the watercourse.

- The Road C site had only been identified for pre-hauling maintenance, and staff observed the need for watercourse crossing improvements to disconnect road drainage from the watercourse; however, such improvements were not identified during the NEPA planning process.

- In general, throughout the road-related inspections, Water Boards staff observed that best management practices were not consistently being utilized. Examples of staff observations included:

    - Overly long lead-out ditches that concentrated and conveyed road drainage directly to the watercourse;

    - Through-cut areas that captured and conveyed road drainage to the watercourse;

    - Road approaches connecting cut bank, road surface, and unvegetated lead-out ditches to the watercourse;

    - Riprap not keyed in and not preventing sediment delivery;

    - Unstable spoils pile left within the floodplain where storm events could cause erosion and subsequent discharge to the watercourse;

    - Lack of critical dip or other measures to prevent diversion at watercourse crossings; and

    - Rill erosion of road surfaces.

Timber Harvest and Vegetation Management

- At one Veg A evaluation site, BMPs were implemented but were not effective where a temporary road was eroding and discharging into a perennial watercourse as a result of failure to account for highly erodible soils when decommissioning the road. At one of the two WatUses C sites, BMPs were not identified during planning, and discharge of gravels from the drafting pad to the stream occurred. This was not identified as an issue during project implementation.

- The other WatUses C site had been altered by local county road maintenance activities and suffered from both county alterations and a lack of BMPs.

Motorized and Non-motorized Recreation

- Two sites, Rec A and Rec E, did not have facility specific operation and maintenance plans.
- The Rec A evaluation identified off-season accumulation of trash and waste at an existing campground facility as an on-going management problem and adaptive management need.
- The Rec E evaluation identified that an old OHV staging area had not yet been decommissioned and was still being utilized and negatively impacting the riparian area through continued compaction of the floodplain, bank trampling, and vehicle access through the riparian area. Additionally, an OHV road evaluated as part of this assessment had rutting, rill and gully erosion, and hydrologic connectivity at watercourse crossings, necessitating additional actions to prevent erosion and sediment discharge. Several spur roads off of this road leading to nearby utility lines conveyed road runoff onto the main OHV road and lacked water control features such as rolling dips and functioning ditch relief culverts.
- An evaluation of a non-motorized trail improvement project under the Rec D protocol identified a need for decreased spacing between water control features (such as water bars/rolling dips) and too steep of a grade on the trail that lead to increased erosion rates.

Bureau of Land Management

As part of the 2018-2019 BMP evaluation, the Water Boards also visited BLM activity sites and assessed BMP implementation and effectiveness. **Table 2-5** shows field visits conducted by Water Boards staff on BLM lands in 2018 and 2019.

Table 2-4. Field Visits Conducted by Water Boards Staff on Bureau of Land Management Lands

Mgmt. Unit Field Office	Date	Land Management Activity Assessment				
		Roads	Timber (Incl. Veg. Mgmt.)	Fire	Restoration	Recreation
Applegate	9/27/18	Field	--	--	Field	--
Eagle Lake	10/3/18	Field	--	Field	Discuss	Field: non-motorized
Eagle Lake	10/4/18	Field	--	--	--	Field: motorized
Central Coast	10/11/18	Field	--	--	--	Field
Redding	11/14/18	Field	Field	Field	Discuss	Field: motorized

Mgmt. Unit Field Office	Date	Land Management Activity Assessment				
		Roads	Timber (Incl. Veg. Mgmt.)	Fire	Restoration	Recreation
Mother Lode	12/12/18	Field	Discuss	Discuss	Discuss	Field: Non-motorized
Redding	4/3/19	Field	--	--	--	Field
Ridgecrest	5/6/19	Field	--	--	--	Field
Barstow	5/7/19	Field	--	--	Field	Field
Bakersfield	5/8/19	Field	--	Discuss	--	Field
Ukiah	5/29/19	Field	Field	Field	Field	Field

Similar to the USFS evaluations, the Water Boards' assessments of BLM BMPs identified various issues, as described below. Note, however, that the BLM did not have formal BMPs at the time of the evaluation; thus, the evaluation took a more generalized approach.

Timber Harvesting and Vegetation Management

- Except for road condition, BMPs related to removal of vegetation were adequately implemented and effective in protecting water quality.

Road Construction and Maintenance

- Water Boards staff generally did not observe best management practices consistently being utilized based on the following examples:
    - Nearly all road segments were in-sloped and utilized inboard ditches to concentrate and convey water to culverts that were located either at an established watercourse or a natural topographic drainage feature. In either case, sediment from road and upslope surface runoff had potential to deliver to a watercourse due to this hydrologic connectivity.
    - Rolling dips were not consistently used effectively to drain water off the road surface, discourage concentration, and prevent erosion. In cases where it was not used effectively it was frequently due to absence or lack of maintenance of older rolling dips.
    - Spoils piles from recent maintenance of culverts were stored near to watercourses and were at risk of being remobilized and discharged during high flows or stormwater runoff events.
    - Drainage structures recently installed for a large staging area were plugged and overtopping due to inadequate design. Given the highly mobile soil particles at this location a larger culvert or modified inlet could have been used to pass water and sediment.

- Additionally, observations of the larger road network condition both inside and outside of project areas identified issues, such as:
    - Road segments actively rilling and gullying due to inadequate drainage design and maintenance in areas with high public use.
    - Runoff from poorly drained trails contributing to erosion of road surface.
    - Difficulty maintaining road drainage facilities due to challenging road locations, such as through-cuts or being directly adjacent to a watercourse, and public use.
    - A primitive road running parallel to a watercourse being used frequently during wet weather conditions. Water was pooling on the road and overflowing into the small vegetated strip between the road and watercourse. Road had deep rutting, and recent hand-dug drainage outlets showed signs of sediment delivery to the watercourse. BLM staff knew about the use of this road and were concerned with the condition but were unsure who was responsible for repairing the road due to existing use agreements.
    - Systematic use of in-sloped roads with inboard ditches not being cross drained but instead concentrating flow for direct delivery into watercourse or natural drainage feature with connectivity.

Motorized and Non-motorized Recreation

- Non-motorized recreation sites visited by Water Boards staff employed typical erosion prevention measures (e.g., slash packing, straw wattles, rolling dips), which were all observed to be appropriate and effective in protecting water quality.
- Many of the motorized recreation sites (open OHV areas, designated track OHV trails [single and double], roads used by OHV as well as by highway vehicles, and staging areas) visited had minor issues on trails with surface erosion and rilling. BLM staff were largely aware of and had attempted to repair those areas that were most problematic.
- One OHV staging area had been redesigned within the past year and had plugged and overtopped culverts. Given the highly mobile desert soils, this crossing could have been designed with a larger culvert, modified inlet, or an alternative to a piped crossing that could better accommodate flow of water and sediment.

Fire Suppression and Repair

- BMPs (e.g., slash treatment and water bar enhancement) implemented at suppression damage repair sites were effective in protecting resources.
- At several road crossings within fire suppression and repair sites, both BLM and Water Boards staff were disappointed with the inadequate erosion control measures implemented by the road maintenance crew, particularly with the location of spoils from culvert cleanouts being left perched at the crossing inlet.

- There were several observations by Water Boards staff where road construction issues contributed to the erosion process and mitigation measures were reducing impacts, but the larger cause was not being addressed.

2.6.2 Frequency and Extent of Covered Activities under Existing Conditions and in the Future

Although the analysis in this DEIR does not focus on the effects of the covered activities themselves, the activities relate to the implementation of management measures (which are the focus of the DEIR analysis). In other words, the frequency and extent of the covered activities generally determines the frequency and extent of management measure implementation, although some activities within the categories covered by the proposed Federal NPS Permit may not require implementation of management measures (e.g., if they do not occur in proximity to waterbodies or otherwise have no potential to result in NPS discharges). The frequency and extent of the covered activities also would relate to the level of effort and actions related to monitoring and reporting under the proposed Federal NPS Permit.

Data on Existing and Planned Federal Agency Activities

The data available regarding USFS and BLM activities is not always uniform and, in many cases, is not easily narrowed down to a specific geographic area. The data may be provided for USFS's Pacific Southwest Region or for California as a whole and is not easily separated out into activities occurring specifically within the Central Valley Water Board's jurisdictional area. The information provided in **Table 2-6** through **Table 2-9** is intended to give the readers of this DEIR a sense of the scale and frequency of USFS and BLM activities under existing conditions (e.g., over the last 5 to 6 years) and in the future, to the extent that data is available.

Table 2-5. United States Forest Service Road Work Accomplished – Pacific Southwest Region – Fiscal Years 2015 to 2020

Metric (All Units Miles)	Fiscal Year						
	2015	2016	2017	2018	2019	2020	Avg.[1]
Miles of Roads Decommissioned	18.00	59.13	39.48	41.6	26.1	2.4[2]	31.12
High Clearance Road New Construction	0.00	N/A	N/A	N/A	0.2	0.9	0.367
Miles of High Clearance Road Improvement	99.44	91.20	100.24	280.4	132.0	119.8	137.18
High Clearance Roads Receiving Maintenance	2,523.77	1,865.49	1,465.4	1,321.0	1,095.5	889.6	1,526.79
Passenger Car Road New Construction	0.25	0.044	N/A	N/A	N/A	N/A	0.147
Miles of Passenger Car Road Improvement	84.51	50.05	91.77	76.5	71.0	77.0	63.64
Passenger Car Roads Receiving Maintenance	2,664.77	2,403.37	2,174.2	1,530.3	1,284.7	1,160.4	1,869.62

Notes:

1. Data was not available for certain years for certain categories in the USFS reports. Where data was not available for a year, this did not count towards the annual average.
2. For 2020, this data is for *system* roads decommissioned.

Source: USFS 2021a

Table 2-6. United States Forest Service Timber Harvest Activities – Central Valley Region – Completed, Fiscal Years 2015 to 2021

	Treatment Area by Fiscal Year (All Units Acres)							
	2015	2016	2017	2018	2019	2020	2021	Total
Activity Name[1]								
Administrative Changes			81		4			85
Commercial Thinning	8,686	13,375	13,497	16,600	15,162	6,672	2,770	76,760
Coppice Cut (w/leave trees) (EA/RH/FH)				26				26
Group Selection Cut (UA/RH/FH)	104	222	146	512	100	79	47	1,210
Harvest Without Restocking	44		70				32	147
Improvement Cut		66	55	172	395	416	24	1,128
Natural Changes (excludes fire)	1,793	3,665			8			5,466

	Treatment Area by Fiscal Year (All Units Acres)							
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**Total**
Patch Clearcut (EA/RH/FH)		23						23
Patch Clearcut (w/leave trees) (EA/RH/FH)	40	60						101
Permanent Land Clearing	9		69	7	7	5	1	98
Salvage Cut (intermediate treatment, not regeneration)	5,072	4,463	10,869	5,703	1,453	2,407	1,870	31,838
Sanitation Cut	315	938	32	211	255	361		2,113
Seed-Tree Final Cut (EA/NRH/FH)				25				25
Shelterwood Removal Cut (EA/NRH/FH)			6					6
Single Tree Selection Cut (UA/RH/FH)	388	65		415		59		928
Special Products Removal	2	11						13
Stand Clearcut (EA/RH/FH)	1,023	3,466	1,454	2,781				8,724
Stand Clearcut (w/ leave trees) (EA/RH/FH)	217	46	2,207	333	150	760		3,712
Grand Total	17,693	26,399	28,486	26,785	17,535	10,759	4,745	132,402
Equipment Type[1]								
Chain Saw	973	870	1,185	383	142	201	53	3,807
Dozer			46		5			51
Excavator			445		581	767	754	2,547
Feller Buncher	4,028	8,174	11,302	13,108	7,683	5,156	1,135	50,585
Grapple Piler			1,238					1,238
Ground Base Skidder	56	545	17	13				632
Hand Work			15			2		18
Helicopter Logging		452						452
Loader Logging		283						283
Manual Logging	137	98	848	310				1,393

	Treatment Area by Fiscal Year (All Units Acres)							
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**Total**
Masticator					225			225
Mechanized Systems (felling/bucking/delimbing)	384	139	24					546
Mobile Ground	86		1,968					2,054
NA	7,255	8,344	2,427	5,927	3,994	2,457	523	30,926
Power Hand	248							248
Rubber Tired Skidder Logging	3,341	4,938	6,845	5,211	2,668	167	1,394	24,564
Single Span Skyline	102	97	366	35		81		679
Skid-Steer-Type Vehicle	268	293					149	710
Tractor Logging	817	2,166	1,761	1,796	2,236	1,929	737	11,443
Tree Shear		3						3
Grand Total	17,693	26,399	28,486	26,785	17,535	10,759	4,745	132,402
National Forests								
Eldorado National Forest	362	1,388	1,999	6,000	3,762	2,028	41	15,579
Inyo National Forest			24					24
Lassen National Forest	2,784	4,450	4,365	4,801	1,405	36	1,414	19,356
Mendocino National Forest		56				702		758
Modoc National Forest	1,999	2,343	568	174	4,285	927		10,296
Plumas National Forest	722	5,695	3,465	3,195	1,550	3,003	2,117	19,747
Sequoia National Forest	44	142			581	114	754	1,636
Shasta Trinity National Forest	6,049	3,961	3,509	3,815	4,314	1,923		23,571
Sierra National Forest	2,029	3,937	1,315	458				7,739
Stanislaus National Forest	2,086	4,158	10,485	4,716	255	361	419	22,479
Tahoe National Forest	1,618	168	2,756	3,626	1,383	1,665		11,217
Grand Total	17,693	26,399	28,486	26,785	17,535	10,759	4,744	132,402

Notes:
EA = even age; RH = regeneration harvest; FH = final harvest; NRH = not regeneration harvest; UA = uneven age
1. See definitions for relevant terms used in forestry in Section 2.5.1.

Source: USFS 2021b

Table 2-7. Bureau of Land Management Activities and Capital Improvements – California – Fiscal Years 2015 to 2020

	Fiscal Year						Avg.
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	
Capital Improvements							
Miles of Roads	4,547	4,553	4,556	4,542	4,410	4,426	4,505.7
Number of Bridges	213	206	209	210	210	209	209.5
No. of Recreation Sites	395	394	396	398	402	407	398.7
Miles of Trails	2,209	2,209	2,209	1,398[1]	2,198[1]	2,301	2,087.3
Emergency Fire Stabilization and Rehabilitation Projects							
Number	21	12	10	15	16	11	14.2
Acres Treated	291,450	33,338	15,591	10,666	1,043	82,052	72,356.7
Acres of Fuels Management Completed[2]							
Wildland Urban Interface							
Mechanical	N/A	N/A	N/A	9,198	7,490	9,091	8,593.0
Prescribed Fire	N/A	N/A	N/A	345	1,800	2,120	1,421.7
Other	N/A	N/A	N/A	615	5,810	7,023	4,482.7
Non-Wildland Urban Interface							
Mechanical	N/A	N/A	N/A	5,203	5,118	5,171	5,164.0
Prescribed Fire	N/A	N/A	N/A	4,392	163	784	1,779.7
Other	N/A	N/A	N/A	4,829	5,279	1,118	3,742.0
Total	N/A	N/A	N/A	24,582	25,660	25,307	25,183.0
Soil Stabilization and Improvement							
Brush control (Acres)	417	271	286	173	470	268	314.2

	Fiscal Year						Avg.
	2015	2016	2017	2018	2019	2020	
Seeding/planting (Acres)	0	6,362	0	450	0	0	1,135.3
Soil stabilization (Acres)	0	7,022	0	0	0	0	1,170.3
Herbaceous weed control (Acres)	522	769	1,217	418	995	7,589	1,918.3
Reforestation							
Planting (Acres)	0	120	40	0	284	372	136.0
Site Preparation (Acres)	0	0	0	0	0	122	20.3
Protection (Acres)	0	0	0	0	0	0	0.0

Notes:

1. The change in trail miles (increase or decrease) from the previous year is due to an update to existing trails in the Facility Asset Management System.
2. This data was provided starting with the 2018 Public Land Statistics Report. Thus, it is not available for years prior to 2018.

Source: BLM 2016, 2017, 2018, 2019, 2020, 2021c

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Table 2-8. Bureau of Land Management Projects[1] in California Related to Covered Activities – 2015 to 2021

Year						
2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Road Repair						
N/A	N/A	• Helena Fire Emergency Stabilization • Eightmile Valley Meadow Rehabilitation Project	• Fort Ord National Monument and Route Realignment	• San Vicente Bridge Replacement Project	N/A	• Good Gulch Culvert Repair
Vegetation Management – Prescribed Fire						
N/A	• Mount Dome Juniper Removal (96 ac.) • Little Cleghorn Stewardship Project (558 ac.)	• Silva Flat Juniper Removal and Pit Reservoir • Magalia Forest Health and Restoration	• Butte Forest Thin Prescribed Fire	• Bloody Point and Bryant Mountain Pile Burning Project • Cow Mountain FMU Hazardous Fuels Reduction Project • King Range Forest Restoration and Fuel Break Enhancement (1,680 ac.) • Westside Fuelbreak, San Ardo Grade Fuelbreak and Lockwood Grade Fuelbreak (1,352 ac.) • Wagner Ridge Fuelbreak Watershed Protection Project (38 ac.)	• North Red Mountain Forest Health and Fuels Reduction (997 ac.) • Bend ACEC Prescribed Fire • CPNM Prescribed Burn (175 ac.) • Chili Bar to Georgetown Phase 1 • Lewiston Community Protection Fuels Reduction (237 ac.) • Iowa Hill Fuel Break-Good Neighbor Authority	• Case Mountain Grove – Roads Hand Lines and Prescribed Fire • Tumey Hills Fuelbreak and Prescribed Fire • Point Arena-Stornetta Hazard Removal and Vegetation Management (50 ac.) • Sierra de Salinas Fuelbreaks and Prescribed Fire (1,500 ac.)
Vegetation Management - Mechanical						
N/A	• 2016 VYA Fuels DNA (6,423 ac.) • Phase I DNA (9,111 ac.)	• PG&E Bummerville Hazard Tree Removal Project • South Fork Mokelumne Restoration Project (300 ac.) • Alpine County Forest Restoration Treatments • SR 120 Hazardous Fuel Reduction Project	• Phase 1 Black Mountain Juniper Removal (10,534 ac.) • Dry Cow and Thomas Creek Sage-Steppe Restoration • Reading-Indian Creek Woodland Restoration (500 ac.)	• AGFO Juniper and Fuel Break Maintenance Project • Widow Mountain Hazard Tree Removal • Cahto Peak Communications Site Brush Control • Mid-Mattole Fuel Break and Instream Wood Placement • Placer County Tree Mortality Removal Project (across 6,350 ac.) • Round Mountain Roadside Hazards Removal • Yankee John Fuel Break • Black Forest Shaded Fuel Break • China Gulch Fuels Reduction (530 ac.) • Palo Ranches Fuel Break	• FY 20 Sage-Steppe Restoration Projects • Alpine Fuels Management Project (1,154 ac.) • CCC (GNA) Hazard Tree (Contour Felling) Treatment Project (384 ac.) • Keyes Mine Shaded Fuel Break (3 ac.) • Yreka Community Protection Fuels Reduction (173 ac.) • Sherwood Forest Community Protection Project (5 ac.) • Ponderosa West Grass Valley Defense Zone Extension Project (446 ac.) • National Disaster Resilience Competition (NDRC) Fuel Breaks Project (162 ac.)	• Case Mountain Vegetation and Forest Health Plan • Shinn Ranch Juniper Removal (2,860 ac.) • Little Browns Creek Fuels Reduction • Clearlake Fuel Break Project (14.5 ac.) • Montezuma West Firewise Community Roadside Fuels Reduction • Westside Trails Fuel Break Project (69.5 ac.) • Tiger Creek Fuels Reduction and Watershed Protection (Tiger Creek Project) (1,202 ac.)
Emergency Fire Stabilization						
Dodge Fire Emergency Stabilization and Burned Area Rehabilitation	• Brown's Fire Bulk Firewood	• Temporary Vehicle Closure of the Bright Star Corridor Route (SC431) • R4 Parsnip Fire ES&BAR • Long Valley Fire	• Helena Fire Salvage and Reforestation • Georges Fire Emergency Stabilization and Burned Area Rehabilitation Treatments	• Hot Creek Fire Emergency Stabilization and Burned Area Rehabilitation Treatments • Camp Fire Salvage • West Redding Fuels Reduction	• Emergency Stabilization and Rehabilitation (ESR) Response LNU Lightning Complex (4,200 ac.)	• Slink Fire Emergency Stabilization and Burned Area Rehabilitation Treatments (35 ac.)

Year						
2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
			• Mud Fire ES&BAR	• Indian Fire Soil Stabilization and Vegetation Recovery Project	• Caltrans-Hazard Tree Mortality Removal Project • Emergency Stabilization and Rehabilitation (ESR) Response for the Kincade Fire 2019	• Post Carr Trail and Cultural Site Rehabilitation and Hazard Mitigation (757 ac.)
Restoration						
N/A	N/A	• Southern Santa Rosa Mountains Watershed Restoration Project • Trinity River Channel Rehabilitation Site; Deep Gulch/Sheridan Creek (RM 81.6-82.9) (177 ac.) • Burnt Ridge Reforestation (40 ac.) • Consumnes River Preserve's Cougar Floodplain Restoration Project (154 ac.) • Restoration of Priority Freshwater Wetlands for Endangered Species at the Consumnes River • Lost Coast Headlands Restoration of Allium unifolium	• Lower Mattole River Restoration Projects (salmon habitat) • Vya Greater Sage-Grouse Habitat Restoration Projects 2018 (624 ac.) • Yellow Bank Pond Restoration Project (1.75 ac.) • Lacks Creek West Side Forest Restoration (2,100 ac.) • Bend Wetland Maintenance (repair of water conveyance and recreational infrastructure) • Dutch Creek Trinity River Channel Rehabilitation (155 ac.) • Atwell Island Project Water Well (103 ac.) • Trinity River Channel Rehabilitation Site: Chapman Ranch Phase A	• Fitzhugh Creek Meadow Enhancement (9 ac.) • Lower Clear Creek Restoration Phase 3C (2 ac.) • 'Inimim Forest Restoration Project (1,219 ac.) • Dos Palmas Programmatic Rail Habitat Restoration • FY 19 Sage-Steppe Restoration Projects (4,778 ac.)	• Indian Creek Connectivity and Restoration • Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (66 ac.)	• Lower Clear Creek Floodplain and Stream Channel Restoration Project, Phase 3C Irrigation System (9.9 ac.) • Oregon Gulch Channel Rehabilitation (134 ac.)

Notes:
1. Acreage of activities or impacts for identified projects is provided where available.

The data in Table 2-6 show USFS road work accomplished for the Pacific Southwest Region, which includes 20 million acres of National Forest land in California (roughly 8,106,400 acres of which are located within the Central Valley Region). As can be seen in the table, a very small amount of new high clearance and passenger car roads are constructed each year (0.367 and 0.147 miles per year, respectively). By contrast, a greater amount of high clearance and passenger car roads are improved (137.18 and 63.64 miles per year, respectively). Finally, Table 2-6 shows that, on average over the period 2015-2020, USFS completes maintenance on 1,526.79 miles of high clearance roads and 1,869.62 miles of passenger car roads.

Table 2-7 shows the different types of timber harvest activities completed by the USFS in the Central Valley Region in Fiscal Years 2015 to 2021. As can be seen in the table, various types of tree cutting/logging activities are undertaken for various purposes, and using different types of equipment. In total, USFS completed a total of 132,402 acres of timber harvest activities during that 6-year period, with the majority of this being commercial thinning (76,760 acres), salvage cutting (31,838 acres), and stand clearcut (8,724 acres). Feller buncher and rubber-tire skidder logging were the most common equipment/methods used for conducting timber harvest activities (in addition to equipment/methods under the "NA" category). During the 6-year period, the most timber harvest activities were conducted in Shasta-Trinity National Forest (23,571 acres), Stanislaus National Forest (22,479 acres), and Plumas National Forest (19,747 acres).

The data in Table 2-8 indicates the extent of BLM activities in California related to the proposed Federal NPS Permit. As shown in Table 2-8, the number/extent of capital improvements has not changed substantially over the last five years. The miles of roads and number of bridges on BLM-managed lands in California have both decreased slightly, while the number of recreation sites and miles of trails have increased slightly since 2015. The number of emergency fire stabilization and rehabilitation projects and acres treated on BLM-managed lands in California have varied from year to year, with an average of 14.2 projects and 72,356.7 acres treated per year over the period of 2015 to 2020. The acres of fuel management completed has been more consistent on a yearly basis, averaging 25,183.0 acres annually since this reporting began in 2018. At the WUI and non-WUI, mechanical means/methods were the most employed measure for fuels management activities. Soil stabilization and improvement and reforestation activities generally vary on a yearly basis.

As shown in Table 2-9, the BLM conducts numerous projects related to activities that would be covered by the proposed Federal NPS Permit. As described in Section 2.2.2, these projects are developed through the prism of the BLM's planning framework. Each project goes through the NEPA environmental review process. It is through these processes that on-the-ground prescriptions for water quality protection, or design features, would be developed and incorporated into project plans.

California Wildfire and Forest Resilience Action Plan

Apart from the proposed Federal NPS Permit, the State of California and USFS have pledged to increase vegetation management activities on forest lands to combat the threat of wildfire. Specifically, California's Wildfire and Forest Resilience Action Plan (2021) states "The USFS will double its current forest treatment levels from 250,000 acres to 500,000 acres annually by 2025." Similarly, the plan states that "The USFS will significantly expand its prescribed fire

program to attain its 500,000-acre target for forest treatments by 2025" (State of California 2021). This would further increase USFS's forest treatment/fuels reduction targets from recent years, as its targets were recently increased from 167,000 acres in 2016 to 235,000 acres in 2019 and 2020 (State of California 2021). The plan also states that BLM will increase its pace and scale to meet its goal of treating approximately 10,000 to 15,000 acres per year.

Additionally, the Wildfire and Forest Resilience Action Plan commits the USFS to developing a restoration strategy for wildfire impacted federal lands and partnering with the California Department of Forestry and Fire Prevention (CAL FIRE), California Office of Emergency Services (Cal OES), and other federal, state, and local agencies to develop a coordinated strategy to prioritize and rehabilitate burned areas and affected communities (State of California 2021). Many, if not all of these activities may benefit from the programmatic coverage provided under the proposed Federal NPS Permit as such coverage is significantly more efficient than filing a report of waste discharge to obtain waste discharge requirements or a waiver of waste discharge requirements for each individual project from the Water Board. The plan to ramp up the referenced activities could lead to the need to implement increased management measures relative to existing conditions.

Potential Category A and B Projects

To provide a sense of the frequency and extent of activities conducted by the USFS and BLM that may be covered by the proposed Federal NPS Permit, Central Valley Water Board staff conducted research of potentially covered projects based on publicly available data. This data is shown in **Table 2-10**.

Table 2-9. Potential Category A and B Projects

	United States Forest Service		**Bureau of Land Management**	
	Category A	**Category B**	**Category A**	**Category B**
2019	N/A	N/A	17	19
2020	10	28	12	13
2021	13	52	11	9
2022	4	20	0	1
Average[1]	12	40	13	14

Notes: USFS data was collected from the USFS's Schedule of Proposed Actions (SOPA) Report and includes all newly listed projects from January 2020 through March 2022. BLM data was collected from the BLM's e-Planning Website and includes all newly listed projects from 2019 through 2022.

1. Excludes 2022 since it is not a complete year.

As shown in Table 2-10, the number of projects that may be covered by the proposed Federal NPS Permit would vary from year to year. On average, over the last several years for which data was available, there were 12 potential Category A projects and 40 potential Category B projects per year planned by the USFS, and 13 potential Category A projects and 14 potential Category B projects planned by the BLM.

2.6.3 Existing Controllable Sediment Discharge Sources on Federal Lands Requiring Treatment

As indicated in Section 2.5, CSDS on the USFS and BLM managed lands would need to be tracked and treated under the proposed Federal NPS Permit. Many CSDS are existing on the USFS and BLM managed lands, as has been documented by Central Valley Water Board staff during site visits. Additional CSDS may develop during the life of the permit. To provide the reader with an understanding of the types of CSDS that exist, and may arise, on the USFS and BLM managed lands, potentially requiring treatment pursuant to the proposed Federal NPS Permit, example photographs are provided in **Figure 2-4**.

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Photo 1. Roadfill erosion discharging sediment below an intermittent watercourse crossing. Edge of culvert outlet circled in red.



Photo 2. Road surface runoff resulting in gully erosion and subsequent sediment delivery to a perennial watercourse downslope.



Photo 3. Road fill failure due to a plugged culvert inlet and overtopping. Perennial watercourse crossing outlet circled in red.



Photo 4. Another road fill failure due to a plugged culvert inlet and overtopping. Perennial watercourse crossing outlet circled in red.



Photo 5. Road surface runoff resulting in erosion and sediment delivery to a drainage ditch which discharges to a perennial watercourse downslope.



Photo 6. Ephemeral watercourse crossing outlet with a 'shot-gunned' culvert causing road fill scour.

Figure 2-4.
Example Photographs of Controllable Sediment Discharge Sources

Sheet 1

Source: Brockman, pers. comm., 2022

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Photo 7. Partially plugged (undersized) ephemeral watercourse crossing inlet.



Photo 8. Evident scour above perennial watercourse crossing 'double-barreled' inlets.



Photo 9. Plugged overside drain and subsequent sediment delivery to a perennial watercourse at the bottom of this slope.



Photo 10. Partially plugged ephemeral watercourse crossing outlet with fill slope erosion above.



Photo 11. Fill slope erosion and sediment delivery above an intermittent watercourse crossing. Culvert inlet is circled in red.



Photo 12. Road surface runoff resulting in erosion and sediment delivery to an ephemeral watercourse downslope. Yellow notebook for size reference.

Figure 2-4.
Example Photographs of Controllable Sediment Discharge Sources

Sheet 2

Source: Brockman, pers. comm., 2022

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Photo 13. Road fill erosion resulting from a lack of armoring below a drainage ditch relief culvert outlet.



Photo 14. Road surface ponding due to a buried drainage culvert (red arrow) with subsequent discharge over the fill slope (blue arrow) into an intermittent watercourse downslope.



Photo 15. Road surface run off resulting in erosion and sediment delivery to an ephemeral watercourse.



Photo 16. Undersized ephemeral watercourse crossing inlet; unarmored fill slope above the crossing.



Photo 17. Undersized and partially crushed ephemeral watercourse crossing inlet; unarmored fill slope above the crossing.



Photo 18. An intermittent watercourse intercepts and diverts into a roadside drainage ditch. Notice the erosion on the hillslope adjacent to the intermittent channel; may be caused from road interaction upslope.

Figure 2-4.
Example Photographs of Controllable Sediment Discharge Sources

Sheet 3

Source: Brockman, pers. comm., 2022

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2.6.4 Non-Applicable Best Management Practices under the Proposed Federal Nonpoint Source Permit

Because the proposed Federal NPS Permit would limit coverage to the five classes of activities described in Section 2.5.1, the BMPs in federal agency manuals related to other types of activities would not be required under the proposed Federal NPS Permit. These include primarily the BMPs related to mineral resources development/management and rangeland management. **Table 2-11** lists the non-applicable BMPs under the proposed Federal NPS Permit. Apart from the BMPs listed in Table 2-11, all of the other BMPs in the federal agency manuals (see Appendix B and C) would potentially apply to activities covered by the proposed Federal NPS Permit.

Table 2-10. Non-Applicable Best Management Practices

Manual Document	Non-Applicable BMPs	
	Minerals Management Activities	**Rangeland Management Activities**
United States Forest Service		
National Core BMP Technical Guide, Volume 1 (2012)	• Min-1. Minerals Planning • Min-2. Minerals Exploration • Min-3. Minerals Production • Min-4. Placer Mining • Min-5. Mineral Materials Resource Sites • Min-6. Ore Stockpiles, Mine Waste Storage and Disposal, Reserve Pits, and Settling Ponds • Min-7. Produced Water • Min-8. Minerals Site Reclamation	• Range-1. Rangeland Management Planning • Range-2. Rangeland Permit Administration • Range-3. Rangeland Improvements
R5 FSH 2509.22 – Soil and Water Conservation Handbook Chapter 10 – Water Quality Management Handbook (2011)	• 3.1 Water Resource Protection on Locatable Mineral Operations • 3.2 Administering Terms of Bureau of Land Management-Issued Permits of Leases for Mineral Exploration and Extraction on NFS Lands • 3.3 Administering Common Variety Mineral-Removal Permits	• 8.1 Range Analysis and Planning • 8.2 Grazing Permit Administration • 8.3 Rangeland Improvements
Bureau of Land Management		
Best Management Practices for Water Quality	• Table 2. Best management practices for minerals	• Table 1. Best management practices for livestock grazing,

Manual Document	Non-Applicable BMPs	
	Minerals Management Activities	Rangeland Management Activities
Bureau of Land Management California November 11, 2020	○ BMPs M 01, M 02, M 03, M 04, M 05, M 06, M 07, M 08, M 09, and M 10	and Wild Horses and Burro management ○ BMPs G 01, G 02, G 03, G 04, G 05, G 06, G 07, G 08, and G 09

2.6.5 Common or Reasonably Foreseeable Management Measures by Activity Type and Potential Environmental Impacts

This section provides additional information on the most common management measures for water quality protection associated with the different activity types covered by the proposed Federal NPS Permit. For each of the five categories listed below, there is a suite of federal BMPs that may be applicable given certain site-specific conditions. It would be impossible to narrow the scope to what is considered typical or standard due to the variability in site conditions such as slope, soil type, proximity to surface waters, local weather patterns, season of use, vegetation cover, etc.

Therefore, the comprehensive list, or suite of BMPs listed in each respective federal agency's BMP guidance documents will serve as the standard of what is typically implemented. Federal agency BMPs are often intended to be broad and generalized enough so that operators on the ground have the flexibility and sufficient guidance to implement the most appropriate water quality protection measures that make sense for the site-specific conditions they encounter. As such, all the BMPs referenced in the federal agencies' guidance documents may be utilized at one time or another, either separately or in tandem with one another.

However, there are management measures that are frequently implemented that are put in place specifically for the protection of water quality. These site-specific, or frequently implemented on-the-ground prescriptions are in addition to BMPs and are frequently referred to in NEPA planning documents as Integrated Design Features, or Resource Protection Measures. Commonly used prescriptive measures will be listed for each activity category found below. These prescriptive measures are not all inclusive and not always implemented during every project activity but should serve to give a general scope of some of the more common water quality protective measures that can be put in place. **Figure 2-5** shows example photographs of some of the common management measures used for activities covered by the proposed Federal NPS Permit.

The general types of environmental impacts associated with the common management measures are described below. These impacts are evaluated in further detail throughout Chapter 3 of the DEIR.

Vegetation Management

Common Management Measures

- Slash packing a skid trail no longer in use (piling of limbs and left-over material from processing trees)
- Installing water bars on skid trails or landings
- Seeding disturbed bare soil
- Tilling compacted soil surface
- Adding straw mulch for ground cover
- Maintaining watercourse protection buffers and following application requirements for herbicide/pesticide use
- Adding woody material to disturbed soil or existing areas of erosion
- Creating vehicle access barriers (rocks, logs, earthen berms) at skid trails to prevent motorized public use
- Water Drafting
    - Rock armoring the drafting pad where water trucks park to fill up
    - Placing vehicle barriers (rock, logs, berms, straw bales, etc.) near the edge of the water source to prevent vehicle encroachment on the banks
    - Having an emergency spill kit on site (primarily for petroleum products)

Potential Environmental Impacts

For many of these activities, there would be potential impacts (e.g., emissions of GHGs and criteria pollutants) associated with transporting materials and equipment to the applicable site(s). In some cases, the measures may utilize material that is the waste product of covered activities (e.g., slash packing a skid trail, which may use limbs and leftover material from processing of trees), as well as equipment that would have already been in use in conducting the covered activities – in these cases, there would be reduced impacts. In other cases, materials specifically used for water quality protection (e.g., straw mulch, rock for armoring or barrier construction, straw bales, etc.) may be transported to the site(s). The level of emissions associated with these activities would depend on the location of specific site(s) and the source location of the materials and equipment, as well as the type of trucks used. This would vary on a case-by-case basis.

Operation of the equipment during installation/implementation of the prescriptions would also generate emissions. Again, the extent of these effects would depend on the specific situation and the size of the area being treated. For measures or prescriptions that involve ground-disturbance, there would be potential for encountering buried archaeological or paleontological resources – without proper precautions, impacts could occur to these resources. Ground-disturbance would also have potential to impact biological resources, such as special-status plant species in the disturbance area or special-status animals that could be crushed by mechanical equipment. Placement of materials for erosion protection (e.g., woody material,

straw mulch, rock armoring, etc.) could also impact special-status species that may be present in the area if the proper care is not taken.

Some of the common prescriptions for water quality protection listed above would have limited potential to result in environmental impacts, as they would not involve transportation of equipment and materials, equipment operation, or placement of materials that could crush special-status species. For example, maintaining watercourse protection buffers and following application requirements for herbicide/pesticide use would have limited potential for impacts.

Transportation Management

Common Management Measures

- Hydrologic Disconnection – disconnecting road surface runoff from entering directly into watercourses or other surface waters. May be accomplished in a variety of ways but most often is achieved by the installation of adequate road drainage features (i.e., rolling dips, water bars, outsloping, cross drains, etc.)
- Rock armoring the road fill below a road drainage feature (ditch relief culvert, rolling dip, water bar, over-side drains, etc.) to prevent erosion
- Adding rock below a culvert outlet to dissipate concentrated flows to protect against scour
- Adding armor/creating a hardened surface to the inlet or outlet of a culverted watercourse crossing to prevent erosion
- Adding road surface material such as rock to native surface roads to protect against erosion and sediment transport
- Adding straw, or other organic materials within or at the head cut of gullies and rills to minimize further migration and scour
- Removal of outside berms on road surfaces created by side cast materials resulting from grading operations.
    - Complete removal would require placing the spoils in a location where the material will not mobilize and enter surface waters
    - Partial removal, or deliberately breeching small portions of berms to direct surface water runoff may be done if the concentrated runoff and associated sediment transport does not pose a risk of entering surface waters
- Installing road drainage features
    - Rolling dips – used to allow surface water runoff to escape the road prism in a purposefully placed location
    - Ditches – typically used on the inside of a road prism to collect cut bank and road surface runoff to be drained at strategic locations (i.e., rolling dips, ditch relief culvert)
    - Leadoff ditches – used where surface water runoff is restricted to the road prism (through-cut road) where a ditch and/or cross drains are impracticable

and where vegetation will provide a filtering effect on runoff. This is to allow road drainage to occur and dissipate before entering surface waters.

Potential Environmental Impacts

The potential environmental impacts would be similar to those discussed above for vegetation management. Hydrologic disconnection of road surface runoff from watercourses, whether done by one of several methods, would involve construction activities that would have potential for several adverse effects if proper precautions were not taken. Construction of rolling dips, waterbars, outsloping, etc. would involve grading and other ground-disturbing activities that could result in erosion and sedimentation (over the short-term, even while the goal of these facilities is to reduce erosion over the long-term). As discussed above, operation of heavy equipment would result in emissions and could also crush special-status plant or animal species, if present in the disturbance area. Generally, however, it would be assumed that these types of facilities would be installed within existing roads, and disturbance of new areas outside the roadbed would be relatively limited. Adding rock armoring to areas or features with potential for erosion could crush sensitive species and also would require extraction of suitable rock from quarries and transport to the site (e.g., resulting in air emissions).

Recreation Facilities Management

Common Management Measures

- Developing campsites away from surface waters or riparian areas
- Adding hardened surface to parking areas, watercraft launch sites, and staging areas to prevent erosion
- Having designated fueling locations for OHV use to prevent petroleum contamination of surface and ground water
- Having regularly maintained and contained waste management facilities (garbage bins/outhouse/pit-toilets/etc.) to prevent contamination of surface and ground water
- Placing vehicle access barriers in areas not authorized for motorized vehicle use
- Providing signage for authorized parking and camping areas
- Adding erosion control measures where warranted (i.e., ground cover such as mulch, straw, wood chips, bark, slash, rock, etc.)
- Adding sediment control measures where warranted (i.e., straw wattles, water bars, rock, etc.)

Potential Environmental Impacts

Several of the common management measures listed above for recreation facilities management activities are planning considerations that would have limited potential for environmental impacts. For example, developing campsites away from surface waters or riparian areas, having designated fueling locations for OHV use, having regularly maintained and contained waste management facilities (garbage bins/outhouse/pit-toilets/etc.), and providing signage for authorized parking and camping areas, are measures that would likely be implemented as part of project development and would generally serve to minimize impacts to

water quality. To the extent existing sites/facilities could be retrofitted as a result of the proposed Federal NPS Permit to reflect those considerations, there would be potential for impacts to occur. Decommissioning of existing campsites could result in discharge of sediments and pollutants (e.g., from demolition activities and use of mechanical equipment), while development of designated fueling locations could result in similar demolition/construction-related effects.

Adding erosion- and sediment-control measures in the context of recreation facilities' management could result in similar impacts to those described above for vegetation and transportation management. This would include emissions from transport of materials to the site(s) and operation of equipment, as well as potential impacts to biological and cultural resources should they be present within the disturbance area.

Post-Emergency Recovery

Common Management Measures

- During active wildfire suppression activities, the following measures may be implemented:
    - BMPs to protect soil, water quality, and riparian resources exist for wildfire suppression activities, but must not compromise public or firefighter safety. The most common strategy used for resource protection during wildland fire suppression is the implementation of minimal impact suppression techniques (MIST). MIST is the minimum amount of forces necessary to effectively achieve wildfire suppression objectives. Examples include using water as a fire line instead of handline or dozer line construction, or the use of rubber wheeled vehicles instead of tracked equipment or letting the fire burn to natural fire breaks. MIST implies a greater sensitivity to the impacts of suppression tactics and their long-term effects.
- For suppression repair and wildland fire recovery:
    - Rehabilitating wildfire and suppression damage may include:
        - installing water bars on fire lines
        - slash packing fire lines
        - adding ground cover on exposed soils such as straw mulch, slash, woody material, or revegetating
        - repairing or replacing damaged or at-risk infrastructure such as culverts, watercourse crossings
        - repairing roads
        - clearing inboard ditches and culvert inlets
        - Blocking dozer lines, temporary roads, trails, or other access points from public motorized use

Potential Environmental Impacts

As described above, using MIST during wildfire suppression activities would generally reduce environmental impacts relative to more standard techniques. Several of the management measures or on-the-ground prescriptions used for post-emergency recovery activities would be similar to those for vegetation management and transportation management. Installing water bars on fire lines; repairing or replacing damaged infrastructure such as culverts, watercourse crossings; and repairing roads – these measures would all involve ground-disturbance and thus could result in impacts to cultural and biological resources, as well as result in emissions of GHGs and other air pollutants. Such measures could also result in impacts to water quality over the short-term, if care is not taken during their installation/performance.

Other measures involving placement of materials for erosion control (slash, straw mulch, woody material, etc.) could result in similar impacts to those described above for vegetation and transportation management. Measures/practices such as blocking dozer lines, temporary roads, trails, and other access points from public motorized use would have relatively limited potential for impacts given that the disturbance area for installation of barriers at access points would likely be small.

Restoration

Common Management Measures

- Pulling back altered stream banks to a natural grade and providing ground cover on exposed or disturbed soils
- Retention of bank stabilizing vegetation
- Removal and stabilization of spoil piles
- Revegetating with native seed
- Other resource protection measures are similar or the same in nature as previously listed in the other activity areas

Potential Environmental Impacts

The management measures and on-the-ground prescriptions commonly used in restoration activities would have similar potential for environmental impacts. Truck-trips during transport of material and equipment and/or off-haul of spoils would generate emissions, while operation of equipment near streams would have potential for causing erosion and discharge of sediments to receiving waters.



Photo 1. A rolling dip constructed on a rock surfaced rural road.



Photo 2. A waterbar on an unsurfaced road.



Photo 3. Rock armor placed around a culvert outlet to dissipate erosive forces.



Photo 4. Mulch spread over a burned slope for erosion protection.

Figure 2-5.
Example Photographs of Common Management Measures

Sheet 1

Source: Weaver et al. 2015, USFS 2004



Photo 5. Transport of straw wattles.



Photo 6. A vehicle access barrier.



Photo 7. Signage to prevent unauthorized use of recreational areas.



Photo 8. Streamside restoration planting using native species.

Figure 2-5.
Example Photographs of Common Management Measures

Sheet 2

Sources: USFS 2006a, 2006b, 2021c, 2021d

2.6.6 Equipment Potentially Used in the Implementation of Management Measures

A variety of equipment may be used in constructing/installing the common and reasonably foreseeable management measures associated with the Proposed Project listed in Section 2.6.4. **Table 2-12** lists the pieces of equipment that are most commonly used to implement the management measures; however, this is not an all-inclusive list of every piece of equipment that may be potentially used.

Table 2-11. Equipment List

Tracked and Wheeled Equipment	
Backhoe/Backhoe Loader	Bulldozer
Cement Truck/Mixer	Chipper
Crusher/Rock (aggregate) Crusher	Drum Roller
Dump Truck	Excavator
Feller/Feller-buncher	Grader
Loader/Bucket Loader	Masticator
Paver	Ripper
Scraper	Skidder
Tractor-Trailer (Semi-Truck and Trailer)	Water Drafting Truck/Water Tender
Gas Powered Hand Tools and Small Equipment	
Chain Saw	Portable Water Pump

2.6.7 Monitoring and Reporting Activities and Potential Environmental Impacts

Currently, the USFS has both formal and informal monitoring programs that vary in scope and intensity. USFS conducts monitoring through its National Core BMP Monitoring Program, which is a resource-intensive exercise that typically focuses only on a small area within a project, and not every project is subject to monitoring. The BLM recently adopted a formal monitoring program that would address effectiveness of BMPs and other practices to address water quality issues. To the extent that the Proposed Project increases monitoring efforts by the USFS and BLM, this would involve, likely, increased miles traveled by USFS and BLM field staff to monitoring sites. Reporting would generally be a desk exercise and would have no potential to result in emissions or other environmental impacts.

2.7 Intended Uses of this EIR

The Central Valley Water Board will use this EIR to inform its decision as to whether to adopt and implement the Proposed Project. 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

the proposed Federal NPS Permit compliance. Agencies that may use this EIR include, but are not limited to, the following:

- Cities and counties throughout the Central Valley Region
- California Air Resources Board
- 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
- State Water Resources Control Board
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- National Marine Fisheries Service

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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 Valley Region's (Central Valley Water Board) proposed Waste Discharge Requirements (WDRs) for Nonpoint Source (NPS) Discharges Related to Certain Activities Conducted by the United States Forest Service (USFS) and the Bureau of Land Management (BLM) on Federal Lands (Proposed Project or Federal NPS Permit). It describes the overall approach to the impact analyses, including key terminology and a description of how the significance of environmental impacts is evaluated. 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

This chapter includes 17 topical sections that describe the environmental resources and potential environmental impacts of the Proposed Project. Each section (Sections 3.1 through 3.17) 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 the Central Valley Water Board 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). For the purposes of this Draft Environmental Impact Report (DEIR), significance

criteria are generally drawn from the State CEQA Guidelines, Appendix G: Environmental Checklist Form.

Under CEQA, the impacts of a proposed project are assessed relative to the environmental baseline, which is generally 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 15125[a][1]); see Section 3.0.3 for further discussion of the baseline. 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).

3.0.3 Environmental Baseline of Analysis

As described in Chapter 2, *Project Description,* the activities proposed to be covered by the Federal NPS Permit (vegetation management, transportation management, recreation facilities management, post-emergency recovery activities, and restoration activities) are on-going and thus are considered part of the existing conditions. Additionally, the USFS and BLM are currently required to implement best management practices (BMPs) or other similar measures to reduce adverse water quality effects of their activities, per the agreements between these agencies and the State of California pursuant to Section 208 of the federal Clean Water Act (CWA). However, BMP implementation is lacking in the desired level of effectiveness, as described in Chapter 2, *Project Description*.

The impact analysis in this DEIR focuses on the increment of change that would result from implementation of the proposed Federal NPS Permit, considering both ongoing and new compliance activities (e.g., implementation of management measures, additional monitoring activities, watershed scale erosion and sediment treatment). For example, the extent to which the increased oversight of the federal activities by the Central Valley Water Board, and the monitoring and reporting requirements in the Federal NPS Permit, may result in additional and better management measure implementation, the potential for this increased management measure implementation to result in impacts of its own is evaluated in the DEIR. Any ongoing environmental effects associated with compliance activities per the agreements between the federal agencies and the State of California, and/or from USFS's ongoing implementation of its National BMP Program, 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 of the DEIR. The NOP was issued in March 2021, and the baseline for this DEIR analysis is the physical environmental conditions that existed at the time the NOP was published. In some cases, more or less recent data or information is used in this DEIR, 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 DEIR 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 the Central Valley Water Board would require the federal agencies 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 the Central Valley Water Board 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 DEIR (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).

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3.1 Aesthetics

3.1.1 Introduction

This section describes the potential impacts on aesthetic and visual resources resulting from implementation of the Proposed Project. The Proposed Project's area of potential effect and the existing regulatory and visual setting provides the basis for evaluation of the potential changes to visual resources as a result of Proposed Project implementation.

3.1.2 Terminology Overview

Aesthetics refers to visual resources and the quality of what can be seen or perceived in the environment, including such characteristics as building scale and mass, design character, and landscaping. Key terms used in this section to describe aesthetics are defined below.

Visual character is the unique set of landscape features that combine to make a view, including native landforms, water, and vegetation patterns as well as built features such as buildings, roads, and other structures. In urban settings, the visual character is primarily influenced by the land use type and density, urban landscaping and design, topography, and background setting.

Visual quality is the intrinsic appeal of a landscape or scene due to the combination of natural and built features in the landscape. Natural and built features combine to form unique perspectives with varying degrees of visual quality, which is rated in this analysis as high, moderate, or low. A high visual quality rating is defined as visual resources that are unique or exemplary of the region's natural or cultural scenic amenities. A moderate visual quality rating is defined as visual resources typical or characteristic of the region's natural and/or cultural visual amenities. A low visual quality rating refers to areas generally lacking in natural or cultural visual resource amenities typical of the region.

Viewer concern addresses the general public's level of interest or concern of viewers regarding an area's visual resources and is closely aligned with viewers' expectations for the area. Viewer concern reflects the importance placed on a given landscape based on the human perceptions of the intrinsic beauty of the existing landforms, rockforms, water features, vegetation patterns and cultural features. Viewer concern is generally rated as high, moderate, or low; where high viewer concern is represented by views that are appreciated frequently, for longer durations, and/or by receptors located within a short distance. In contrast, low viewer concern is characterized by views that are not regarded for intrinsic beauty and/or are not seen by many sensitive receptors, or are only seen for short durations and from long distances where views are obstructed. Viewer concern ratings take into consideration viewer activity, view duration, viewing distance, adjacent land use, and special management or planning designation.

Viewer exposure describes the degree to which viewers are exposed to views of the landscape. Viewer exposure considers landscape visibility, distance from which the landscape can be seen by viewers, number of viewers, and the duration of view.

Visual sensitivity reflects the level of interest or concern that viewers and responsible land management agencies have for a particular visual resource, taking into account visual quality, viewer concern, and viewer exposure. Visual sensitivity is a measure of how noticeable proposed changes might be in a particular setting and is determined based on the distance from a viewer, the contrast of the proposed changes, and the duration that a particular view would be available to viewers. For example, areas such as scenic vistas, parks, trails, and scenic roadways typically have a high visual quality and visual sensitivity because these locales are publicly protected, appear natural, view durations are typically long, and close-up views are more commonly available.

3.1.3 Regulatory Setting

Federal Laws, Regulations, Policies, or Programs

National Trails System Act

The National Trails System Act of 1968 established national recreation, scenic, and historic trails. National scenic trails are designated as such "to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass. National scenic trails may be located so as to represent desert, marsh, grassland, mountain, canyon, river, forest, and other areas, as well as landforms which exhibit significant characteristics of the physiographic regions of the Nation" (16 U.S. Code [USC] Section 1242) (National Park Service 2021).

National Scenic Byways Program

The Intermodal Surface Transportation Efficiency Act of 1991 established the National Scenic Byways Program, implemented by Federal Highway Administration (FHWA). Under the National Scenic Byways Program, (23 USC Section 162) a roadway can be designated as a State Scenic Byway, a National Scenic Byway, or an All-American Road based upon intrinsic scenic, historic, recreational, cultural, archeological, or natural qualities. A road must exemplify the criteria for at least one of these six intrinsic qualities to be designated a National Scenic Byway. For the All-American Roads designation, criteria must be met for a minimum of two intrinsic qualities. The jurisdiction of the municipal, county, State, tribal, or Federal Governments that govern the designated highway and the lands adjacent to it remains unchanged. The byway's intrinsic qualities are typically protected by those jurisdictions.

The following designated Scenic Byways are located in the Central Valley Region: Ebbetts Pass Scenic Byway, Tioga Road/Big Oak Flat Road, and Volcanic Legacy Scenic Byway (FHWA 2015; FHWA 2016). These federal Scenic Byways are shown on **Figure 3.1-1**.

Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act of 1968 was enacted to protect "certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations" Sec. 1b [16 USC

Section 1273] (FHWA, 2015). Protected rivers are designated as wild, scenic, or recreational rivers and segments of a given river may be designated with one or all of these classifications. California has approximately 189,454 miles of river, of which 1,999.6 miles are designated as wild & scenic—1 percent of the State's river miles. (National Wild and Scenic Rivers System 2021) Wild and Scenic Rivers within the Project boundary include the Feather River, American River (North Fork), American River (Lower), Tuolumne River, Merced River, Kings River, and the Kern River.

State Laws, Regulations, Policies, or Programs

California Scenic Highway Program

In 1963, the California State Legislature established the California Scenic Highway Program, a provision of the Streets and Highways Code, to preserve and enhance the natural beauty of California (California Department of Transportation [Caltrans] 2021a). The state highway system includes designated scenic highways and those that are eligible for designation as scenic highways. According to the California Scenic Highway Mapping System and shown in Figure 3.1-1, there are multiple officially designated scenic highways in the Central Valley Region and near or within federal lands, including (Caltrans 2021b):

- Route 151 in Shasta County
- Route 49 in Sierra County
- Route 20 in Nevada County
- Route 50 in El Dorado County
- Route 88 in Amador County
- Route 4 in Calaveras County
- Route 140 in Mariposa County
- Route 180 in Fresno/Tulare County

Local Laws, Plans, Policies, and Regulations

The Proposed Project would occur on lands managed by USFS and BLM. Therefore, these lands are under federal jurisdiction and are not subject to local land use laws or regulations. Nevertheless, numerous local jurisdictions are located within the Central Valley Region. Most, if not all, of these jurisdictions have adopted general plans, or long-range comprehensive plans, that were developed to govern growth and development. General plans include goals and policies that address a range of issues, including those related to aesthetics.

3.1.4 Environmental Setting

General Overview

Proposed Project activities would occur on USFS and BLM managed lands within the Central Valley Water Board jurisdictional area (refer to Chapter 2, *Project Description*). Collectively, 29 percent of the land in the Central Valley Region is managed by these two federal agencies. Surrounding aesthetic characteristics may vary widely and would depend upon the existing visual character of a given location and proximity to publicly available views, viewsheds, sensitive receptors and related viewer sensitivities. The Central Valley Region includes a wide diversity of landscapes, climatic conditions, and land use types.

An overview of the most common site locations where activities would occur under the Federal NPS Permit is provided below. Because of the wide variety of activities and locales these descriptions are not intended to be all-encompassing of site-specific environmental settings. Rather, typical descriptions provided to the reader present the most representative locations for Federal NPS Permit activities. Typical descriptions below, and photographs, provided in **Figure 3.1-2***,* are primarily based on information gathered from web searches.

National Forests managed by the USFS are located throughout the Central Valley Region. Refer to Table 2-1 in Chapter 2, *Project Description* for information on the National Forests included in the Central Valley Region and the relative acreages. The forest and woodland land cover/habitat type in the Central Valley is mainly comprised of mixed evergreen and coniferous forests and oak woodlands. Categories of trees within these areas include deciduous (hardwood), evergreen (conifer), and mixed (deciduous and evergreen). Deciduous trees such as California black oak (*Quercus kelloggii*) and big leaf maple (*Acer macrophyllum*), and coniferous trees such as ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertinana*) and incense cedar (*Calocedrus decurrens*), can be found in the forests throughout the Central Valley Region.

National Forest land uses include open space and recreational uses involving those open spaces. Recreationists with views of the National Forests would primarily include users of multiple-use trails, or picnic areas. In addition, USFS employees, and residents of nearby areas would have views within the Project areas. On-water recreationists including boaters and anglers would also be afforded views of the Proposed Project areas. This viewer group would have a heightened sensitivity to the surrounding viewshed because they have longer duration of views. Motorists traveling through the Central Valley Region would have varying degrees of views of National Forest lands. In general, motorists' views would be temporary and would last for shorter durations. As a result, most motorists in the Central Valley Region would have reduced sensitivity to the surrounding viewshed.

BLM Managed Lands

As with the USFS National Forests, BLM managed land is located throughout the Central Valley Region. Refer to Table 2-2 in Chapter 2, *Project Description,* for information on the total land managed by each BLM Field Office within the region and acreage under Central Valley Water Board jurisdiction. The predominant use on BLM lands is open space, and these open space lands are typically dominated by the shrub land cover/habitat type. Shrub species are generally less than 20 feet tall and can consist of both evergreen and deciduous species of shrubs, young

trees, and trees or shrubs that are small or stunted because of environmental conditions (United States Department of Agriculture [USDA] 2015). Some agricultural production takes place on BLM land, including: field row crops and closely sown crops; sod farms, hay, and silage crops; orchards (tree fruits and nuts, Christmas trees, nurseries of trees and shrubs), small fruits and berries; vegetables and melons; unharvested crops; and idle cropland (USDA 2016).

Lands managed by the BLM in the Central Valley Region are visible to residents in the surrounding towns and cities. In general, as a viewer group, residents have a heightened sensitivity to the surrounding viewshed because they have high frequency and longer duration of views, as well as a heightened appreciation for the aesthetic environment (e.g., landforms, rockforms, water features, and vegetation patterns) surrounding their residences. Typically, visual sensitivities of residents increase with higher visibility and higher exposure. Motorists traveling within or through the Central Valley Region would have varying degrees of views of BLM lands. In general, motorists' views would be temporary and would last for shorter durations. As a result, most motorists in the Central Valley Region would have reduced sensitivity to the surrounding viewshed.

Scenic Highways

As described above under Section 3.1.2, "Regulatory Setting," there are three officially-designated federal Scenic Byways within the Central Valley Region. The State also designates scenic highways, as identified in Section 263 of the Streets and Highways Code. Figure 3.1-1 shows designated federal and state scenic highways in the Central Valley Region in relation to the USFS and BLM managed lands.

State Scenic Vistas

Vista points are informal pullouts where motorists can safely view scenery or park and relax. Typically, they include facilities such as walkways, interpretive displays, railings, benches, interpretive information, trash receptacles, monuments and other pedestrian facilities that are accessible to the public. Scenic vistas within the Central Valley Region are included in Figure 3.1-1. As shown in Figure 3.1-1, there are numerous scenic vistas within or near USFS and BLM managed lands in the Central Valley Region.

Light and Glare

Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments. Light that falls beyond the intended area of illumination is referred to as "light trespass." The most common cause of light trespass is spillover light, which occurs when a lighting source illuminates surfaces beyond the intended area, such as when building security lighting or parking lot lights shine onto neighboring properties. Spillover light can adversely affect light-sensitive uses, such as residences, at nighttime. Both light intensity and fixtures can affect the amount of any light spillover. Modern, energy-efficient fixtures that face downward, such as shielded light fixtures, are typically less obtrusive than older, upward-facing light fixtures. Glare is caused by light reflections from pavement, vehicles, and building materials such as reflective glass, polished surfaces, or metallic architectural features. During daylight hours, the amount of glare depends on the intensity and direction of sunlight.

Throughout the Proposed Project area, the primary sources of nighttime lighting and glare are associated with USFS and BLM facilities and roadways. Nighttime is less pronounced within USFS managed lands due to the nature of open space within the National Forest systems. BLM managed lands abut and are in some cases surrounded by rural development, which can lead to more nighttime lighting.

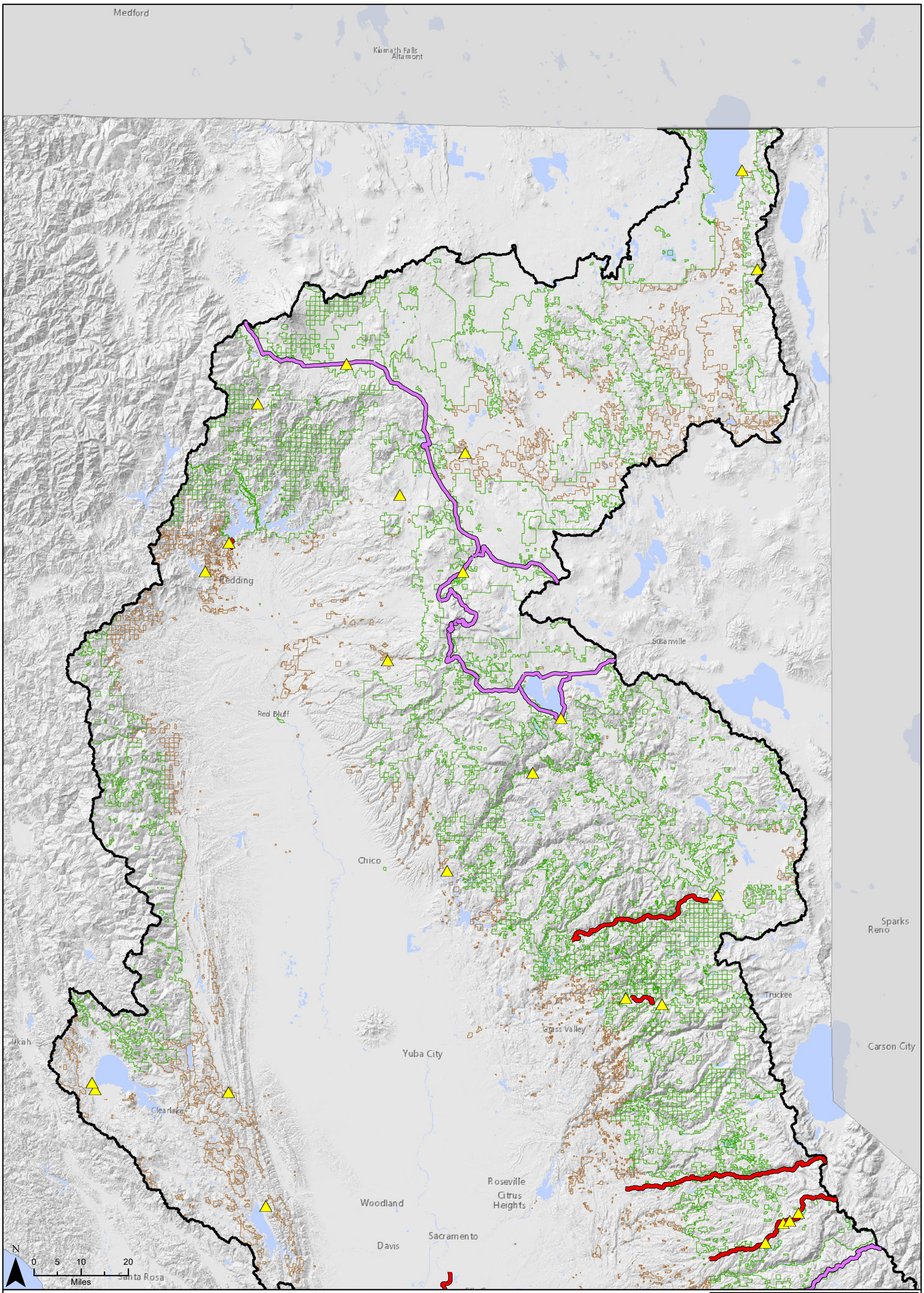


Figure 3.1-1
State Scenic Highways, Federal Scenic Byways, and Scenic Vistas

Sheet 1 of 3

Horizon WATER and ENVIRONMENT

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Source: ESRI 2018; Caltrans 2014 and 2021

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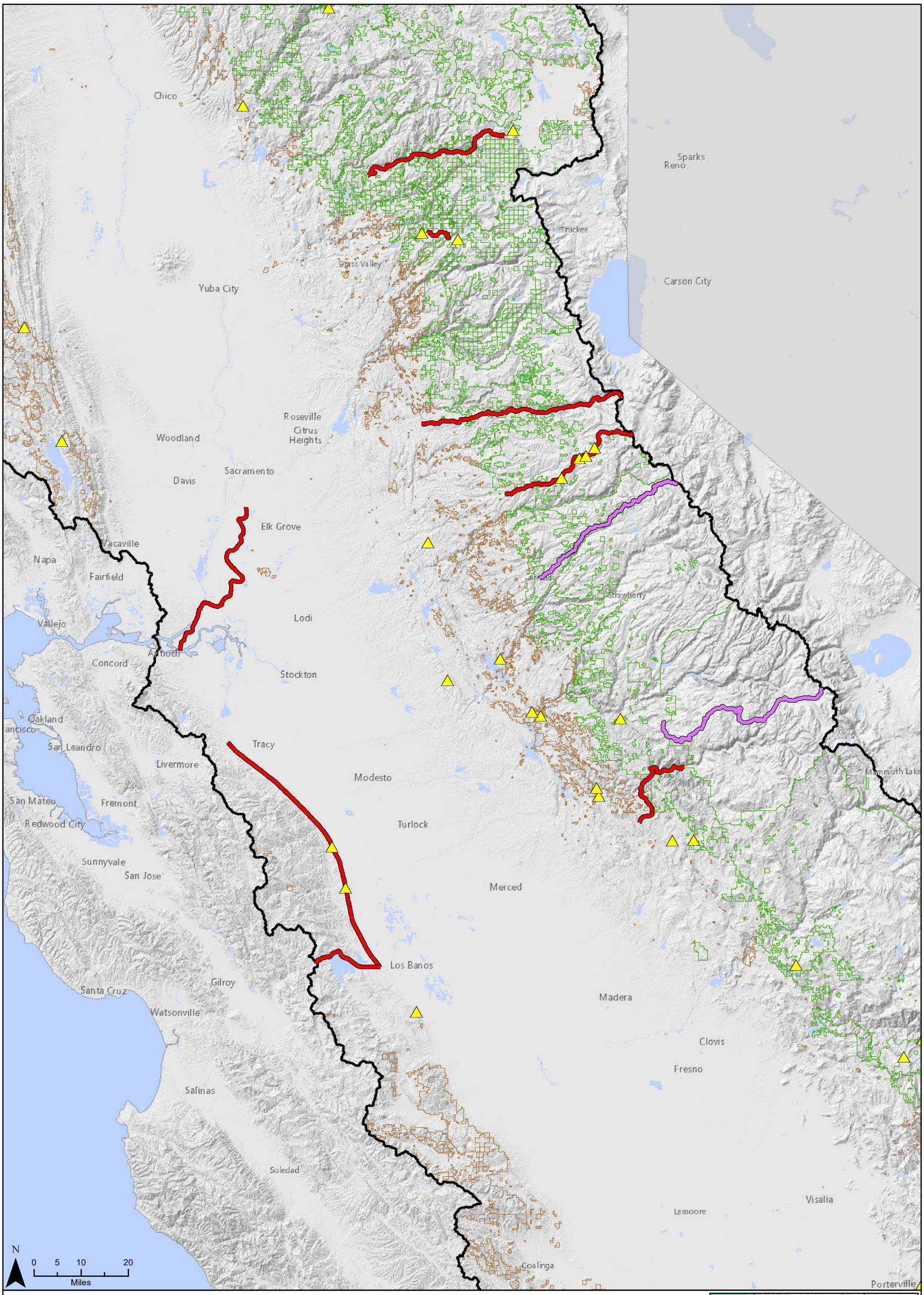
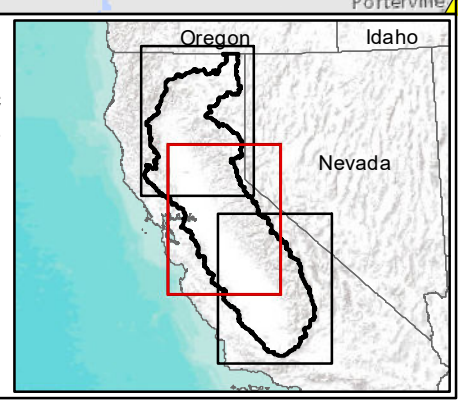


Figure 3.1-1
State Scenic Highways, Federal Scenic Byways, and Scenic Vistas

Sheet 2 of 3



- Central Valley RWQCB Boundary
- Bureau of Land Management
- U.S. Forest Service
- Vista
- Designated State Scenic Highway
- Federal Scenic Byway

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018; Caltrans 2014 and 2021

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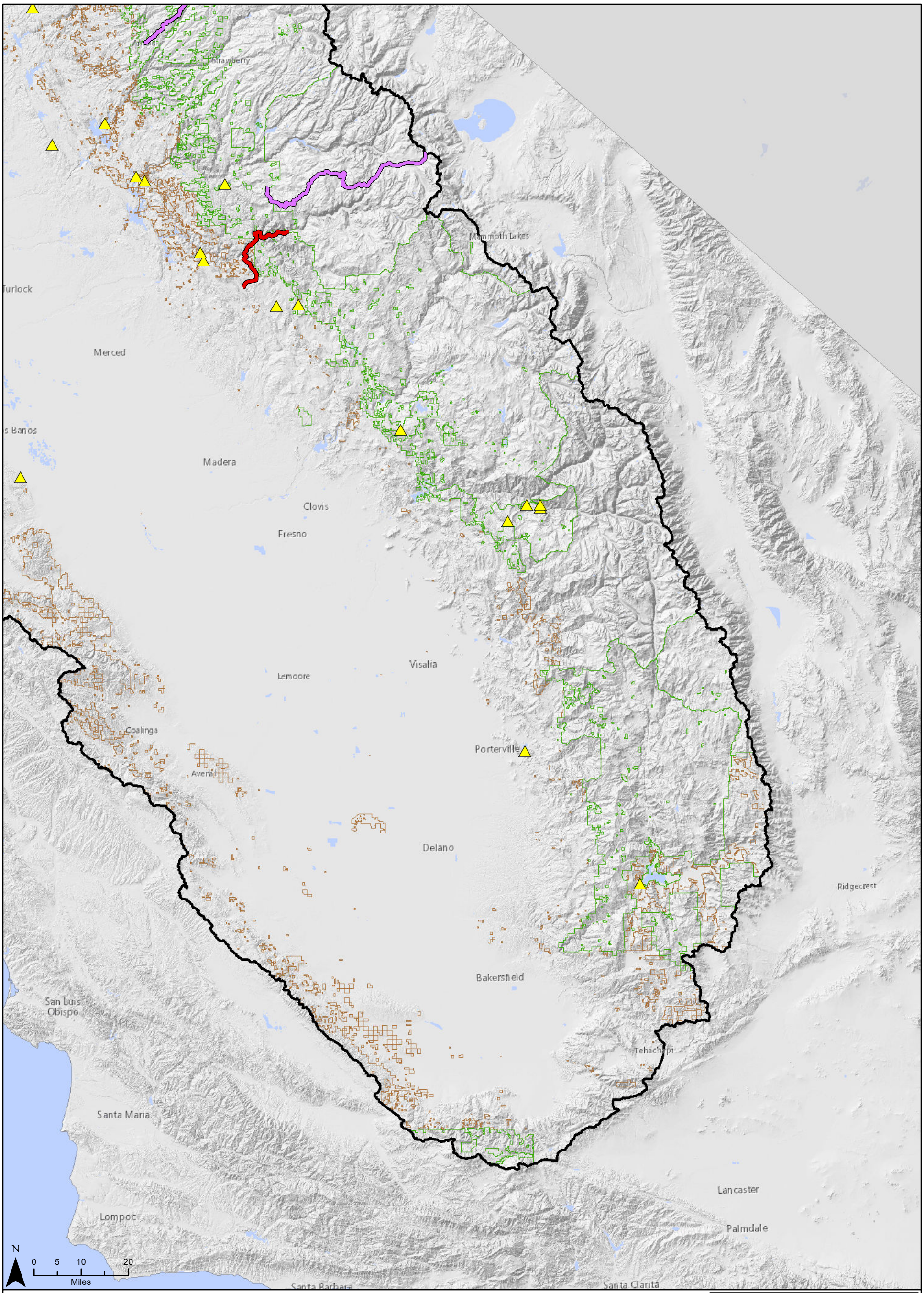


Figure 3.1-1
State Scenic Highways, Federal Scenic Byways, and Scenic Vistas

Sheet 3 of 3

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Source: ESRI 2018; Caltrans 2014 and 2021

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Photo 1. Lassen National Forest: Heart Lake with Broke-off Mountain in the background viewed from the National Scenic Heart Lake Trail.



Photo 2. Shasta-Trinity National Forest: Shasta Unit (*managed by the SHF)* of the Whiskeytown–Shasta–Trinity National Recreation Area with Shasta Dam, Shasta Lake, and Mount Shasta in view.



Photo 3. Modoc National Forest: Ash Creek Meadow near Ash Creek Campground.



Photo 4. Plumas National Forest: Golden Trout Campground looking at the South Fork Feather River.



Photo 5. Tahoe National Forest: Along the Sand Pond Trail with a glimpse of the Sierra Buttes in the background.



Photo 6. Eldorado National Forest: Photograph from the Caples Ecological Restoration Project.

Figure 3.1-2.
Representative Photographs

Sheet 1

Source: Brockman, pers. comm., 2022



Photo 7. Stanislaus National Forest: Spicer Reservoir Campground.



Photo 8. Sierra National Forest: Angel Falls.



Photo 9. Sierra National Forest: Chiquito Lake.



Photo 10. Sierra National Forest: Granite Creek.



Photo 11. Sierra National Forest: Jackass Meadow.



Photo 12. Sierra National Forest: Wet meadow – tributary to Beasore Creek.

Figure 3.1-2.
Representative Photographs

Sheet 2

Sources: Brockman, pers. comm., 2022

Federal Nonpoint Source Permit



Photo 13. Sierra National Forest: Chiquito Lake.



Photo 14. Eagle Lake BLM Field Office.



Photo 15. Ukiah BLM Field Office.



Photo 16. Central Coast BLM Field Office.



Photo 17. Mother Lode BLM Field Office: Cable Rock Day Use Site along the Merced River.



Photo 18. Bakersfield BLM Field Office: San Joaquin River Gorge Special Recreation Management Area.

Figure 3.1-2.
Representative Photographs

Sheet 3

Sources: Brockman, pers. comm., 2022

Federal Nonpoint Source Permit

3.1.5 Impact Analysis

This section analyzes the impacts on aesthetics that could result from implementation of the Proposed Project, following the methodology and using the significance criteria described below.

Methodology

The impact analysis evaluates the direct and indirect effects on aesthetic and visual resources from implementing management actions to be included in the Proposed Project. As discussed in Chapter 2, the proposed WDRs would apply to NPS discharges related to vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities. The scope of the environmental analysis in this DEIR does not include the effects of the activities themselves. Rather, the focus is on the potential impacts from implementing BMPs and reasonably foreseeable management measures, which may be required by the proposed Federal NPS Permit. With regards to this section, the environmental impacts analysis below focuses on whether the implementation of the management measures and monitoring activities would result in a substantial change in aesthetic and visual resources from baseline conditions.

Significance Criteria

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on aesthetics if it would:

A. Have a substantial adverse effect on a scenic vista.

B. Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.

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

D. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

Environmental Impacts of the Proposed Project

Impact AES-1: Have a substantial adverse effect on a scenic vista. *(Less than Significant)*

As described in Section 3.1.3, scenic vistas are informal pullouts where motorists can safely view scenery or park and relax. Typically, they include facilities such as walkways, interpretive displays, railings, benches, interpretive information, trash receptacles, monuments and other pedestrian facilities that are accessible to the public. Scenic vistas within the Central Valley Region are included in Figure 3.1-1. As shown in Figure 3.1-1, there are numerous scenic vistas

within USFS and BLM managed lands in the Central Valley Region. In general, construction and operation of the Proposed Project would not affect these scenic vistas.

Common management measures for water quality protection (see Section 2.6.4 in Chapter 2, *Project Description*) would have limited potential to result in impacts to disrupt scenic vistas. For example, construction activities associated with certain management measures could potentially hinder scenic vista accessibility temporarily during the construction period. Depending on the site-specific location, the presence of construction work areas or staging areas could prevent the usage of a scenic vista in the immediate area. However, these effects would be short-lived; once constructed/installed, the management measures would not be anticipated to permanently hinder scenic vista usage. Many of the measures would be modifications to existing facilities (e.g., roadways, recreation facilities), while other measures would be temporary in nature and/or would not create permeant alterations to scenic vistas (e.g., erosion control treatments, mulching, etc.). Many of the modifications to existing facilities (e.g., roadways, recreation facilities) would improve access to scenic vistas, as they would involve the repair of roadways and recreation facilities that have deteriorated.

Many of the common management measures that would be implemented for the activities covered under the Federal NPS Permit (vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities) would have long-term beneficial impacts on visual resources as they would help speed the return to natural conditions. Any ongoing operational impacts, such as monitoring activities, would be temporary in nature and not create any permanent visual resource impacts. As a result, this impact would be **less than significant**.

Impact AES-2: Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway. *(Less than Significant)*

As described in Section 3.1.3 and shown in Figure 3.1-1, there are several state scenic highways and federal scenic byways within the Proposed Project area. Because management practices could reasonably be implemented on any portion of USFS/BLM managed land, activities under the Proposed Project could occur near or on a state scenic highways or federal scenic byway.

Construction activities associated with the reasonably foreseeable management measures and CSDS treatment activities would result in temporary adverse effects to the views discussed above within and adjacent to the scenic highways and byways, such as from the presence of construction equipment and establishment of staging and work areas. Upon completion of construction the visual character of each site would be largely the same as existing conditions. These impacts are considered less than significant as they would be temporary in nature.

Common management measures for water quality protection would have very limited potential to damage scenic resources, including, but not limited to trees, rock outcroppings. Certain measures, such as maintaining watercourse protection buffers and following application requirements for pesticide use, would have no potential for impacts, as they would not involve ground disturbance or equipment operation. For those management measures that do involve ground disturbing activities, these activities would be relatively minor in terms of the depth and scale of ground disturbance, as well as in duration. Some grading and excavation would be

required for construction/installation of certain measures (e.g., water bars, rolling dips, rock armor placement on slopes or at culvert inlets/outlets, etc.); however, the level and depth of disturbance would be relatively minor, particularly in relation to that involved with other types of projects that occur in the Central Valley Region. These measures would not substantially impair views from scenic highways or byways or screen landscape features as they would not create permanent structures that would create view blockages. Upon completion of construction the visual character of each site would be largely the same as existing conditions. Any ongoing operational impacts, such as monitoring activities, would be temporary in nature and not create any permanent visual resource impacts.

The management measures would have the potential to impact historical buildings. However, all actions undertaken by the BLM and USFS under the Proposed Project must comply with Section 106 of the National Historic Preservation Act (NHPA), unless those actions are determined to be exempt; that is, there is no potential for the undertaking to adversely affect historic properties. Such exempt undertakings are largely ministerial. All other actions must be considered under Section 106, and the implementing regulations under 36 Code of Federal Regulations (CFR) 800 must be applied.

Given the level of Section 106 review the Proposed Project actions will undergo under the BLM and USFS policies for addressing cultural resources, it can be assumed that historical resources will be adequately identified, the potential impacts to historical resources will be assessed, and appropriate treatments to historical resources that would be affected by the Proposed Project will be implemented. Similarly, compliance with Section 106 review also provides assurance that unanticipated archaeological discoveries will be treated appropriately. As a result, impacts to historical resources by the Proposed Project would be less than significant.

For the reasons described above, the Proposed Project would not substantially damage scenic resources or views from state-designated scenic highways. As a result, this impact would be **less than significant**.

Impact AES-3: In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? *(Less than Significant)*

As described above, visual character is the unique set of landscape features that combine to make a view, including native landforms, water, and vegetation patterns as well as built features such as buildings, roads, and other structures. Changes to visual character can be defined as the perceived contrast between the existing visual landscape features of an area and how the area will look after a project is implemented. This comparison measures how compatible the Proposed Project, once implemented, will be with the existing unique visual features that make up the Project areas. The Proposed Project would take place in limited urban areas. USFS and BLM managed lands are for the most part located in rural locations. USFS and BLM managed lands are under federal jurisdiction and are not subject to local land use laws or regulations. Therefore, the Proposed Project could not conflict with applicable zoning and other regulations governing scenic quality.

As mentioned above, implementation of the Proposed Project would result in temporary, small-scale visual impacts during construction. During the construction of management measures under the Proposed Project, construction activities (e.g., vegetation removal and staging of construction materials, equipment, vehicles, temporary structures, and workers) would be visible to motorists and tourists. This could temporarily disrupt views at individual activity sites. However, as previously stated, these disruptions would be both temporary in nature and limited to the area of construction only; thus, construction activities would not result in a substantial degradation to the existing visual character or quality of the Proposed Project area and surroundings.

Upon completion of construction the visual character of each site would be largely the same as existing conditions. Any ongoing operational impacts, such as monitoring activities, would be temporary in nature and not create any permanent visual resource impacts. Therefore, the Proposed Project would have a **less than significant** impact on the visual character or quality of the Proposed Project area and surroundings.

Impact AES-4: Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area. *(Less than Significant)*

It is anticipated that Proposed Project activities would be conducted during daylight hours only; thus, no nighttime lighting would be required during the majority of circumstances. In the rare instance when nighttime work may be required for construction/installation of management measures or for other Proposed Project activities (e.g., monitoring), temporary lighting may be utilized in the immediate work area. No new substantial, permanent sources of nighttime lighting would be established as a result of the Proposed Project.

Likewise, the Proposed Project would not be anticipated to involve the construction of new facilities or modifications to existing facilities that would result in new reflective surfaces or installation of lighting. In the rare cases where reflective surfaces or lighting may be installed as a result of the Proposed Project, such features would not be of a scale to result in substantial glare or light. Additionally, such features, to the extent that they occur as a result of the Proposed Project, would be installed in the context of the vast National Forests and BLM managed lands – although effects may vary depending on the specific location, in many cases, the sources of glare or light may occur in areas rarely frequented by members of the public or by groups that would be considered sensitive (e.g., recreationists) for aesthetic effects. Thus, implementation of the Proposed Project would not substantially adversely affect daytime or nighttime views in the area. As such, this impact would be **less than significant**.

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3.2 Agriculture and Forestry Resources

3.2.1 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 under 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.

3.2.2 Regulatory Setting

Federal Laws, Regulations, Policies, or Programs

Farmland Protection and Policy Act

The purpose of the Farmland Protection Policy Act (7 USC Section 4201 et seq, implementing regulations 7 CFR Part 658, of the Agriculture and Food Act of 1981, as amended) is to minimize the effect of federal programs on the unnecessary and irreversible conversion of farmland to non-agricultural uses. The Act does not apply to projects already in or committed to urban development or those that could otherwise not convert farmland to non-agricultural uses. However, land that meets the definition of prime or unique farmlands or is determined to be of statewide or local significance (with concurrence by the U.S. Secretary of Agriculture) is subject to the Act.

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 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 participating local governments 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.

Participating counties and cities are required to establish their own rules and regulations regarding implementation of the Williamson Act within their jurisdiction. These rules include but are not limited to enrollment guidelines, acreage minimums, enforcement procedures, allowable uses, and compatible uses.

Local Laws, Plans, Policies, and Regulations

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans.

3.2.3 Environmental Setting

Agricultural Production

The unique combination of a mild Mediterranean climate and fertile soil allows year-round agricultural production in California. Over 400 different commodities are produced, ranging from fruits, vegetables, nuts, dairy products, and nursery commodities. The approximately 69,900 working farms and ranches in California produce nearly half of all United States (U.S.)-grown fruits, nuts, and vegetables (California Department of Food and Agriculture [CDFA] 2020). More than 24.3 million acres of land in California are devoted to farming and ranching. The average farm size was 348 acres in 2019, down slightly from the 2018 average farm size and below the national average of 444 acres (CDFA 2020). Nearly half of California's 24.3-million-acre farmlands are enrolled in the Williamson Act. These 12.7 million acres represent nearly one-third of the privately owned land in the state.

Important Farmland

The Central Valley Region contains approximately 7.7 million acres of Farmland (i.e., areas designated by CDOC as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland). However, only a small portion of these lands overlap with USFS and BLM jurisdiction. As shown in **Table 3.2-1**, there are approximately 3,542 acres of Farmland within BLM and USFS managed land in the Central Valley Region. These acres, along with other FMMP land categories (e.g., Grazing Land), are also shown in **Figure 3.2-1**.

Table 3.2-1. Important Farmland Acreages in the Central Valley Region

County	Important Farmland[1] Acreage *(BLM and USFS land Only)*				
	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Total within County	Percentage of Farmland in County
Alameda	–	–	–	–	–
Alpine	–	–	–	–	–
Amador	–	–	–	–	–
Butte	199.8	–	8.5	208.3	0.09%
Colusa	–	–	–	–	–
Contra Costa	–	–	–	–	–
El Dorado	114.5	6.0	192.1	312.6	6.87%
Fresno	3.7	0.1	–	3.9	0.0003%
Glenn	–	–	0.009	–	0.000004%
Kern	17.2	6.8	6.7	30.6	0.003%
Kings	0.2	46.9	–	47.0	0.01%
Lake	16.9	10.2	0.2	27.2	0.12%
Lassen	–	–	–	–	–

County	Important Farmland[1] Acreage *(BLM and USFS land Only)*				
	Prime Farmland	**Farmland of Statewide Importance**	**Unique Farmland**	**Total within County**	**Percentage of Farmland in County**
Madera	0.2	–	0.7	0.9	0.0002%
Mariposa	–	–	–	–	–
Mendocino	–	–	–	–	–
Merced	–	–	–	–	–
Modoc	33.9	15.8	13.4	63.1	0.05%
Monterey	–	–	–	–	–
Napa	0.02	–	–	0.02	0.00003%
Nevada	–	0.1	–	0.1	0.01%
Placer	–	–	–	–	–
Plumas	–	–	–	–	–
Sacramento	185.1	453.4	272.7	911.1	0.61%
San Benito	–	–	–	–	–
San Joaquin	–	–	–	–	–
San Luis Obispo	–	–	–	–	–
Shasta	170.6	6.4	22.1	199.1	1.46%
Sierra Valley	187.7	0.7	–	188.4	1.44%
Siskiyou	–	–	–	–	–
Solano	–	–	–	–	–
Sonoma	–	–	–	–	–
Stanislaus	–	–	–	–	–
Sutter	–	–	–	–	–
Tehama	9.8	5.4	52.0	67.2	0.06%
Tulare	10.0	1471.0	0.5	1481.6	0.21%
Tuolumne	–	–	–	–	–
Ventura	–	–	–	–	–
Yolo	–	–	–	–	–
Yuba	–	–	–	–	–
All Counties	**950**	**2,023**	**569**	**3542**	**0.05%**

Notes:

1. Farmland of Local Importance was not included in the analysis because this designation is not considered an "agricultural land" per CEQA Statue Section 21060.1(a).

Source: CDOC 2020

Williamson Act Lands

By definition, lands managed by USFS and BLM are under federal jurisdiction and cannot be placed under a Williamson Act contract due to them not being subject to local jurisdiction. There are no Williamson Act contract lands within the Proposed Project area.

Forestry Resources

The Proposed Project would be implemented throughout USFS and BLM managed lands within the Central Valley Water Board's jurisdictional area. Timber resources may be located on both BLM and USFS managed lands within California. Timberland is defined as forest land that is producing, or capable of producing, more than 20 cubic feet of wood per acre per year at culmination of mean annual increment and excludes reserved lands, such as national parks and wilderness areas (Helms 1998).

Within California, National Forests contain 8.8 million acres (54 percent of the total in the State) of timberland; private landowners hold approximately 7.2 million acres (44 percent of the total in the State), and other public landowners, including BLM and state and local governments, hold the remaining 2 percent (less than 1 million acres) (USDA 2016). Six multicounty geographic resource areas are used to describe major wood-producing regions in California: North Coast, Northern Interior, Sacramento, San Joaquin, Central Coast, and Southern California. **Table 3.2-2** provides an overview of timber harvest acreages at the county level for the Central Valley Region.

Table 3.2-2. Timber Harvest in the Central Valley Region

County	Timber Harvest Acreage			
	2012 Volume (million board feet)	2012 Percent of Total[1]	2016 Volume (million board feet)	2016 Percent of Total[1]
Alameda	–	–	–	–
Alpine	–	–	–	–
Amador	13.5	0.9	3.4	0.2
Butte	52.5	3.7	49.3	3.1
Colusa	–	–	–	–
Contra Costa	–	–	–	–
El Dorado	50.1	3.5	71.1	4.5
Fresno	6.8	0.5	29.3	1.7
Glenn	3.6	0.2	–	–
Kern	2.8	0.2	1.7	0.1
Kings	–	–	–	–
Lake	–	–	50.6	3.2
Lassen	83.8	4.5	74.0	4.7

County	Timber Harvest Acreage			
	2012 Volume (million board feet)	2012 Percent of Total[1]	2016 Volume (million board feet)	2016 Percent of Total[1]
Madera	16.2	1.1	5.3	0.3
Mariposa	4.5	0.3	14.8	0.9
Mendocino	108.8	7.6	106.6	6.8
Merced	–	–	–	–
Modoc	46.2	3.2	26.9	1.7
Monterey	–	–	–	–
Napa	–	–	–	–
Nevada	9.0	1.3	9.5	0.6
Placer	21.4	1.5	45.3	2.9
Plumas	82.3	5.8	96.0	6.1
Sacramento	–	–	–	–
San Benito	–	–	–	–
San Joaquin	–	–	–	–
San Luis Obispo	–	–	–	–
Shasta	229.1	16.1	208.0	13.3
Sierra	30.5	2.1	56.1	3.6
Siskiyou	147.9	10.4	170.8	10.9
Solano	–	–	–	–
Sonoma	8.2	0.6	10.4	0.7
Stanislaus	–	–	0.9	0.1
Sutter	–	–	–	–
Tehama	62.6	4.4	58.9	3.8
Tulare	5.0	0.3	5.0	0.3
Tuolumne	45.2	3.2	79.1	5.0
Ventura	–	–	–	–
Yolo	–	–	–	–
Yuba	20.9	1.5	22.8	1.04

Notes:

1. Percentage of total timber harvest in California.

Source: USDA 2016

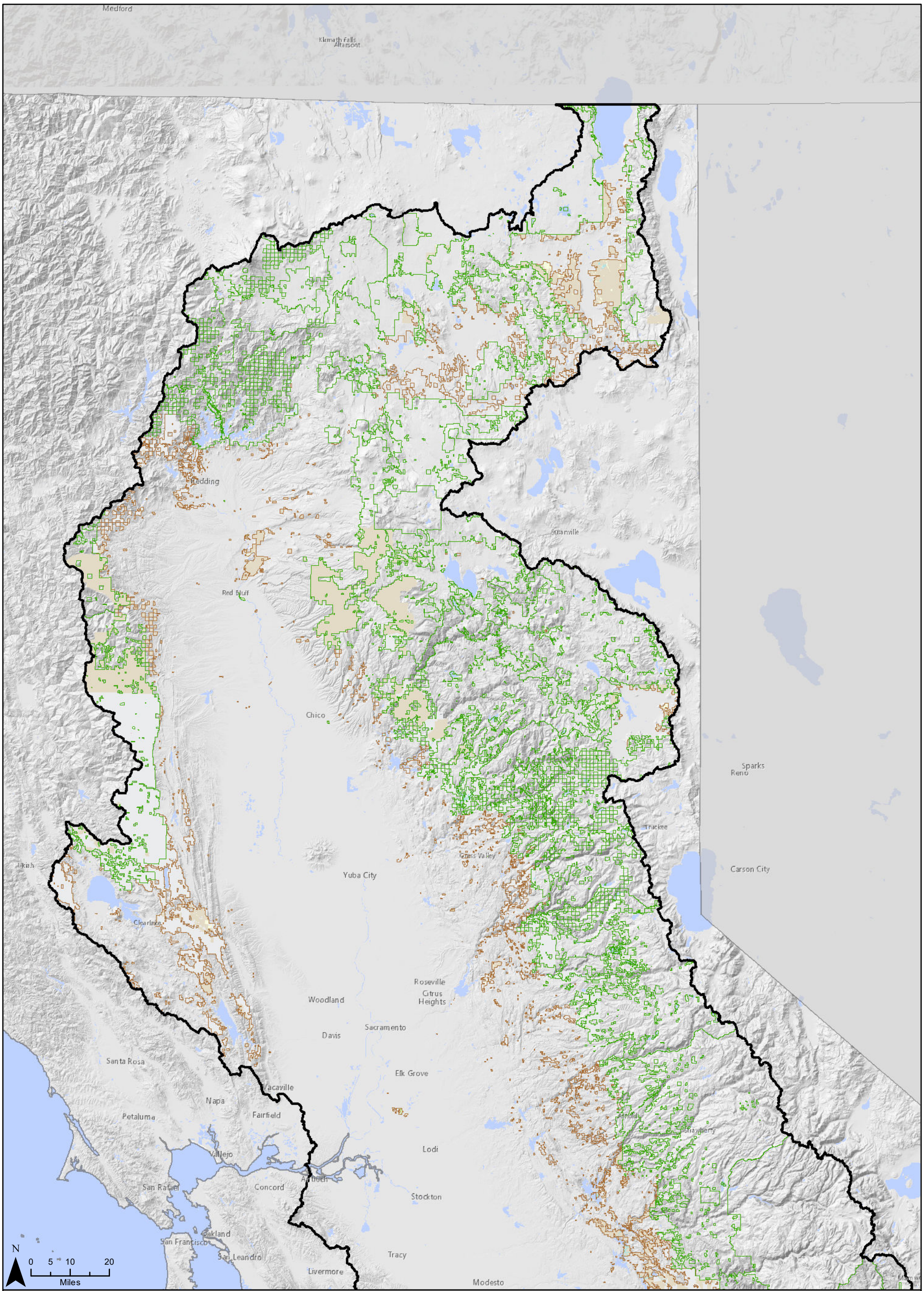


Figure 3.2-1
Important Farmland

Sheet 1 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018; DOC 2018

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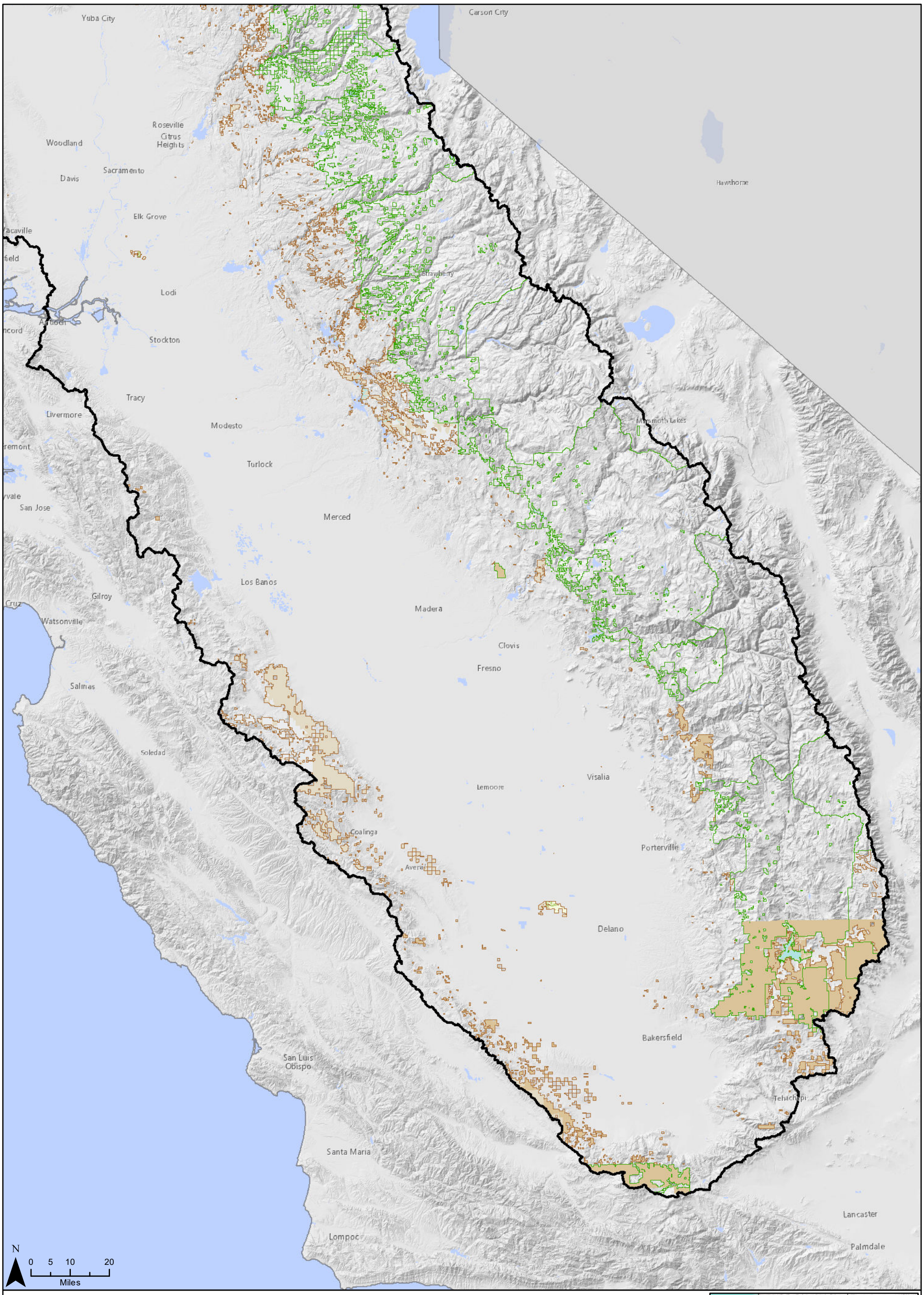


Figure 3.2-1
Important Farmland

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018; DOC 2018

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3.2.4 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 related to agriculture and forestry resources.

Methodology

The analysis in this section evaluates the potential impacts on agriculture and forestry resources of implementing management measures and monitoring actions for activities covered under the proposed Federal NPS Permit (vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities). The analysis is qualitative in nature and makes reasonable assumptions regarding the potential for impacts.

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)*

As described in Section 3.2.3, some of the federal agency-managed land area within the Central Valley Region provides for agricultural enterprise. USFS and BLM managed lands contain Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (see Figure 3.2-1). Approximately 0.05% of the lands within the Proposed Project area contain Farmland (see Table 3.2-1).

Common management measures for water quality protection (see Section 2.6.4 in Chapter 2, *Project Description*) would have limited potential to result in adverse impacts to Farmland. Rather, many of the long-term effects of the Proposed Project on Farmland would be beneficial. For example, the mechanisms included in the Proposed Project would lead to more effective management measure implementation. In addition, measures such as maintaining watercourse protection buffers and following application requirements for pesticide use would provide net-positive impacts to the quality of Farmland. Watercourse protection buffers would reduce soil erosion and loss of topsoil, relative to the baseline. While proper application of pesticides would ensure that farmland is not overtaxed by chemical treatments.

Construction activities associated with certain management measures and CSDS treatment activities could temporarily prevent usage of Farmland during the construction period. Depending on the site-specific location, the presence of construction work areas or staging areas could prevent the usage of Farmland in the immediate area. However, these effects would be short-lived; once constructed/installed, the management measures would not be anticipated to result in the permanent conversion of Farmland. Many of the measures would be modifications to existing facilities (e.g., roadways, recreation facilities), while other measures would be temporary in nature and/or would not inhibit agricultural use or development (e.g., erosion control treatments, mulching, etc.). Further, given the limited area of Farmland within the Proposed Project area, it is unlikely management measures would directly be located on Farmland.

Monitoring and reporting activities pursuant to the Proposed Project would likely involve additional vehicle trips to monitoring locations by USFS and BLM field staff relative to existing conditions, but this would have no potential to adversely affect Farmland availability. Given the temporary nature of the impacts described above, these impacts would not be significant and would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance land. The Proposed Project would not include any new developments or land uses that could permanently limit the access to or availability of Farmland. Therefore, this impact would be **less than significant.**

Impact AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract. *(No Impact)*

As discussed in Section 3.2.2, by definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans. Similarly, federal lands cannot be placed under Williamson Act contracts. Therefore, there would be **no impact** related to conflicts with existing zoning for agricultural use, or a Williamson Act contract.

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

As discussed above under Impact AG-2, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Therefore, the Proposed

Project would not be subject to existing zoning laws or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. **No impact** would occur.

Impact AG-4: Result in the loss of forest land or conversion of forest land to non-forest use. *(Less than Significant)*

Many of the common management measures that would be implemented for the activities covered under the Federal NPS Permit (vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities) would have long-term beneficial impacts on forest lands and would offer protection to sensitive natural communities. For example, the seeding of disturbed soil and other management measures, such as tilling compacted soil surfaces, placing vehicle access barriers in areas not authorized for motorized vehicle use, and providing signage for authorized parking and camping areas, would help in the restoration of habitats and prevention of disturbance to forest land.

However, although many of the Proposed Project's management measures are expected to benefit forest land in the long-term once they are installed, some could have adverse effects in the short-term during construction. If forest land were to occur within areas where construction of certain management measures (i.e., those involving ground disturbance) were to take place, this could result in small direct impacts. For example, activities such as tilling of compacted soil surfaces, installing ditches, or placement of rock or armor near culvert inlets and outlets could potentially cause mortality or injury to species and trees within forest lands. These impacts would not be significant due to the small extent of the potential impacts. The potential loss of trees at a site associated with a given management measure would not constitute forest land conversion and the effects would be impermanent in the sense that trees could grow back. The Proposed Project would not involve new developments or land uses that could permanently convert substantial areas of forest land to non-forest uses. Therefore, this impact would be **less than significant.**

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 could potentially result in some indirect effects on agriculture and/or forestry resources. For example, depending on how and where USFS and/or BLM would obtain water supplies to implement management measures, the Proposed Project could reduce the water supply available to farmers for growing crops on agricultural lands that rely on the same water source. In general, however, the reasonably foreseeable management measures for the Proposed Project may require limited applications of water for certain site-specific conditions (e.g., for dust control, conditioning of surface and subsurface materials [water bar or rolling dip construction], etc.). In relation to the covered activities themselves, implementation of the Proposed Project would involve limited water use.

Additionally, for surface water diversions, the State Water Board through its water rights process would require that diversions do not unreasonably affect other legal users of water. This would prevent such an impact from arising due to the direct use of surface water. For USFS and BLM potentially obtaining surface water supplies from other water purveyors (e.g., municipal water systems, water trucks), the purveyors would be required to comply with the same requirements, avoiding the potential for a significant impact. The issue is potentially of more

concern with respect to groundwater, which is not subject to the same water rights process. Overuse of groundwater resources could lead to impacts such as basin overdraft or well interference. However, no information has been found during the preparation of this EIR to suggest that use of groundwater for USFS and BLM activities has resulted in such an impact on the water supply of other farmers. Given the small amount of water likely to be needed for implementation of management measures, the Proposed Project would not result in substantial adverse effects on groundwater resources, such as to indirectly affect agriculture or forestry resources.

For these reasons, the Proposed Project would not involve other changes in the existing environment that, because of their location or nature, could result in conversion of farmland to nonagricultural use or conversion of forest land to non-forest use. This impact would be **less than significant.**

3.3 Air Quality

3.3.1 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 3.8, *Greenhouse Gas Emissions.*

3.3.2 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_3); particulate matter (PM), specifically PM10 (PM with aerodynamic radius of 10 micrometers or less) and PM2.5 (PM with aerodynamic radius of 2.5 micrometers or less); carbon monoxide (CO); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); 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_2S), 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 3.3-1**.

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 3.3-1. Federal and State Ambient Air Quality Standards

Contaminant	Averaging Time	Federal Primary Standards	State Standards
Ozone (O_3)	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_2)	1-hour	0.100 ppm	0.18 ppm
	Annual arithmetic mean	0.053 ppm	0.030 ppm
Sulfur Dioxide (SO_2)	1-hour	0.075 ppm	0.25 ppm
	24-hour	0.14 ppm	0.04 ppm
	Annual arithmetic mean	0.030 ppm	—
Particulate Matter (PM10)	24-hour	150 µg/m^3	50 µg/m^3
	Annual arithmetic mean	—	20 µg/m^3
Fine Particulate Matter (PM2.5)	24-hour	35 µg/m^3	—
	Annual arithmetic mean	12 µg/m^3	12 µg/m^3
Sulfates	24-hour	—	25 µg/m^3
Lead	30-day average	—	1.5 µg/m^3
	Rolling 3-month average	0.15 µg/m^3	—
Hydrogen Sulfide (H_2S)	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^3 = micrograms per cubic meter

Sources: California Air Resources Board (CARB) 2016, USEPA 2021a

General Conformity Rule

The General Conformity Rule ensures that federal actions comply with the NAAQS. In order to meet this CAA requirement, a federal agency must demonstrate that every action that it undertakes, approves, permits or supports will conform to the air quality plans established in the applicable SIP.

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 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.

Regional Haze Rule – Class 1 Areas

In 1999, the USEPA finalized the Regional Haze Rule, which calls for state, tribal and federal agencies to work together to improve visibility in 156 national parks and wilderness areas. The CAA mandates requirements to protect visibility, especially in these Class I areas. The Federal Land Management agencies, in cooperation with other federal and state/local agencies, have monitored visibility in Class I areas since 1988.

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_X) 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.

Forest Service Rules and Regulations

2012 Planning Rule and Final Directives

In 2012, the USDA adopted a National Forest System Land Management Planning Rule (2012 Planning Rule) to guide the development, amendment, and revision of land management plans for all units of the National Forest System. In 2015, the USDA released Final Directives to guide the implementation of the 2012 Planning Rule and help the USFS achieve the goal of protecting and restoring National Forests and Grasslands for the benefit of communities, natural resources, and the environment. The 2012 Planning Rule requires new plans to include standards or guidelines to maintain or restore air quality (USDA 2012). The Final Directives contain the following air quality-related requirements (USDA 2015: Forest Service Handbook [FSH] 1909.12, Chapter 20, pages 71-72):

> To address air quality issues when developing, amending, or revising a plan, the Interdisciplinary Team[1] should consider:

[1] The Interdisciplinary Team is the team responsible for carry out the planning process: "The Responsible Official shall establish an Interdisciplinary Team to carry out the planning process (36 CFR 219.5[b]) and provide the Team direction regarding the scope and nature of the new plan or plan revision." (USDA 2015: FSH 1909.12, Chapter 20, page 5).

1. ***Visibility.*** As appropriate, consider developing plan components for visibility in Class I areas commensurate with goals from relevant State, Federal, and Tribal implementation plans.

2. ***Emissions.*** As appropriate, develop plan components for emissions from management activities such as permitted mining or oil and gas operations.

3. ***Air Pollution Deposition and Exposure of Biophysical Resources.*** Where critical loads of air pollution to water, soils, flora, or fauna have been exceeded (see assessment, FSH 1909.12, ch. 10, sec. 12.21), develop plan components to help protect or restore key ecosystem characteristics of relevant resources within the plan area. The key characteristics may include aquatic chemistry, soil chemistry, soil productivity, and biogeochemical cycling. The plan components may include desired conditions and objectives for target loads of air pollution deposition and target levels of air pollution exposure.

4. ***Smoke Management.*** If objectives for prescribed fire are set forth in the plan, consider developing plan components for smoke management. Consider relevant State, Federal, or Tribal smoke management program requirements when developing plan components for smoke management.

Critical Loads

The USFS is incorporating critical loads, which are the thresholds of air pollution deposition below which harmful effects to sensitive resources in an ecosystem do not occur, into the air quality assessments performed for Forest Plan revision. Critical loads have been developed for acidity and nutrient nitrogen which involve thresholds for sulfur and nitrogen deposition.

Naturally Occurring Asbestos

The USFS recognizes the presence of naturally occurring asbestos (NOA) on its lands and the potential health impacts resulting from exposure to NOA (USFS 2024a, 2024b). As discussed further below in Section 3.3.3, asbestos is the name given to a group of fibrous minerals that occur naturally in the environment. NOA is the term applied to the natural geologic occurrence of various types of asbestos, commonly found in ultramafic rock formations, including serpentine (USFS 2024a). NOA may be a health risk if disturbed and asbestos fibers are released into the air (USFS 2024b).

The USFS has prepared maps identifiying the locations of ultramafic and serpentine rock formations on national forest lands, which show the potential for NOA risks to be present (USFS 2024a). In this DEIR, the potential presence of NOA in the Proposed Project area is shown in Figure 3.3-2. The USFS recommends using the following BMPs in areas with potential NOA (USFS 2024c):

- Be aware of windy conditions and avoid dusty conditions to reduce exposure;

- Limit dust generating activities, such as riding off-road vehicles, riding bicycles, running or hiking, riding horses or moving livestock, etc.;

- Avoid handling or disturbing loose asbestos-containing rock types;
- Drive slowly over unpaved roads, with windows and vents closed, to minimize dust generation (California Air Resources Board recommends that vehicle speeds not exceed 15 miles per hour on unpaved roads where asbestos is present);
- Avoid or minimize the tracking of dust into vehicles; and
- Do no use compressed air for cleaning your vehicles after your visit – use a wet rag to clean the interior.

Bureau of Land Management Air Resources Management Program

In 2015, the BLM Air Resource Management Program developed goals outlined in a 5-year strategy to meet challenges posed by the increasing demand for resource development and recreational opportunities on public lands.

The goals of this program include:

- Reducing or limiting emissions of harmful pollutants to improve air quality. This involves strengthening the BLM's ability to address emerging issues, such as more strict regulatory standards for ozone and updated policy direction to reduce greenhouse gas (GHG) emissions.
- Improving the effectiveness and efficiency of air quality analyses by enhancing already high standards of air quality expertise.
- Improving the availability of and access to air quality monitoring data.
- Building collaborative relationships with communities to reduce conflict and promote efforts to achieve and maintain good air quality.

The Air Resources Management Program is directed through BLM's Manual 7300 (BLM 2009), which includes specific policy guidance and lays out the program structure and function, as well as responsibility of different BLM divisions and personnel. Of relevance to the Proposed Project, the Manual directs BLM to evaluate the effects of its activities with respect to air quality, as follows: "BLM will consider the potential effects of BLM projects, programs, activities, and BLM-authorized activities on air quality at both the planning and the project level. This includes NEPA documents associated with RMPs, and evaluating the potential impacts, if appropriate, or proposed actions and activities…" (BLM 2009). The Manual also confirms that the BLM will coordinate with State and local agencies responsible for or affected by air resource management (BLM 2009).

State Laws, Regulations, and Standards

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to State or local land use laws or regulations; therefore, the laws, regulations, policies, and standards below are provided for informational purposes. It should be noted that CARB and some air districts have existing Memorandum of Understandings (MOUs) with federal agencies on topics such as oilfields and prescribed burns (Sierra Forest Legacy 2021).

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_2S, vinyl chloride, and visibility-reducing particles. These standards are listed in **Table 3.3-1**.

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_2, and NO_2. Some air basins are classified as NAAs for the NAAQS and CAAQS for O_3, PM10, and PM2.5.

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_3 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_X idling emission standard (CARB 2021a).

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_X 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 2011a).

Truck and Bus Regulation

CARB's Truck and Bus Regulation requires heavy-duty diesel vehicles that operate in California to reduce toxic air contaminants (TACs) emissions from their exhaust. By January 1, 2023, nearly all trucks and buses will be required to have 2010 or newer model year engines to reduce PM and NO_x emissions.

Fleet Rule for Public Agencies and Utilities

The Rule for On-Road Heavy-Duty Diesel-Fueled Public and Utility Fleets was approved in 2005 to reduce diesel PM emissions from fleets operated by public agencies and utilities. The rule mandates affected owners to equip their affected vehicles with the Best Available Control Technology by December 31, 2012.

Advanced Clean Fleets

CARB is developing a medium and heavy-duty zero-emission fleet regulation with the goal of achieving a zero-emission truck and bus fleet by 2045 everywhere feasible and significantly earlier for certain market segments such as last mile delivery and drayage applications. The goal of this effort is to accelerate the number of medium and heavy-duty zero-emission vehicle purchases to achieve a full transition to zero-emission vehicles in California as soon as possible.

Large Spark-Ignition Engine Fleet Requirements Regulation

CARB adopted a regulation to reduce hydrocarbon and NO_X emissions from large spark-ignition equipment in California. The regulation requires operators of in-use fleets to specific emission standards that become more stringent over time.

Additional Airborne Toxic Control Measures

CARB has promulgated ATCMs for multiple sources. The Portable Engine ATCM is designed to reduce the PM emissions from portable diesel-fueled engines rated at 50 brake horsepower or

larger. Two ACTMs address health concerns associated with the release of naturally-occurring asbestos (NOA) from grading and surfacing activities.

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 still may 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 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 and maintenance activities. Many air districts also regulate the use of architectural coatings and controlled burns, and limit emissions of odor-causing substances and particulate matter that adversely affects visibility. Activities conducted by federal agencies on federal lands may be exempt from air district rules and regulations, however federal agencies do coordinate with local and state agencies on air pollution and these rules and regulations are useful for the purposes of analyzing impacts as part of this environmental document.

General Plans

Many city and county general plans contain goals, policies, and strategies related to air quality and air pollutant emissions. However, these plans would not be applicable to activities conducted by federal agencies on federal lands, therefore, no discussion of local general plans is included here.

3.3.3 Environmental Setting

Criteria Air Pollutants

Ozone

O_3 is formed by photochemical reactions between NO_X and reactive organic gases (ROGs) in the presence of sunlight rather than being directly emitted. O_3 is a pungent, colorless gas that is a component of smog. Elevated O_3 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_3 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_X contribute to other pollution problems, including a high concentration of fine PM, poor visibility, and acid deposition. NO_2, 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_X. NO_X is a primary component of the photochemical smog reaction. NO_2 can decrease lung function and may reduce resistance to infection.

Sulfur Dioxide

SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels in California. SO_2 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 PM10. Fine particulate matter is a subgroup known as PM2.5 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_X 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.

Toxic Air Contaminants

TACs are compounds that are known or suspected to cause adverse long-term (cancer and chronic) and/or short-term (acute) health effects. The California Health and Safety Code defines a TAC as an air pollutant which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another's. There are almost 200 compounds designated in California regulations as TACs (17 California Code of Regulations Sections 93000-93001). The list of TACs also includes the substances defined in federal statute as HAPs pursuant to Section 112(b) of the federal CAA (42 USC Section 7412[b]). Some of the TACs are groups of compounds which contain many individual substances (e.g., copper compounds, polycyclic aromatic compounds). TACs are emitted from mobile sources, including diesel engines; industrial processes and stationary sources, such as dry cleaners, gasoline stations, paint and solvent operations, and stationary fossil fuel-burning combustion. TACs that may be relevant to the Proposed Project include asbestos, acrylamide, and compounds found in pesticides and herbicides, gasoline, and emissions from diesel-fueled engines.

Ambient TAC concentrations tend to be highest in urbanized and industrial areas near major TAC emission sources or near major mobile TAC emission sources, such as heavily traveled highways or major airports/seaports. Unlike for criteria pollutants, regular monitoring and reporting of all ambient TAC concentrations, such as diesel particulate matter (DPM) concentrations, is not performed throughout the Proposed Project area. Generally, TACs do not have ambient air quality standards. The three TACs that do have State ambient air quality standards (lead, vinyl chloride, and hydrogen sulfide) are in attainment throughout the Proposed Project area or have no attainment information available and are not relevant to the

air pollutant emission sources for this Project. The City of Sutter Creek, which is in nonattainment for hydrogen sulfide is located in the Central Valley Water Board's jurisdiction, but no USFS or BLM managed lands are in or immediately adjacent to this NAA.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in may parts of California (CARB 2024). The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, is abundant in the Sierra foothills, the Klamath Mountains, and the Coast Ranges (CARB 2024). Asbestos is released from ultramafic and serpentine rock when it is broken or crushed, which can happen when vehicles drive over unpaved roads (which are surfaced with these rocks), when land is graded for building or construction purposes, or at quarrying operations (CARB 2024). It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods (CARB 2024).

All types of asbestos are hazardous and may cause lung disease and cancer (CARB 2024). Health risks to people are dependent upon their exposure to asbestos. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. Asbestos-related disease, such as lung cancer, may not occur for decades after breathing asbestos fibers (CARB 2024). Known locations of NOA on USFS and BLM managed lands in the Central Valley Region are shown in **Figure 3.3-2**.

Air Basins and Air District Jurisdictions

Multiple air basins overlap the Central Valley Region, including, foremost, the San Joaquin Valley, Sacramento Valley, and Mountain Counties air basins (most of the extents of these basins occur within the Central Valley Region), along with portions of the Northeast Plateau, North Coast, Lake County, San Francisco Bay, North Central Coast, South Central Coast, South Coast, Mojave Desert, and Great Basin Valleys air basins. **Figure 3.3-1** shows where federal lands within the Central Valley Region would occur in relation to the air basins.

Likewise, numerous air districts have jurisdiction within the Central Valley Region, as listed in **Table 3.3-2** and shown in Figure 3.3-1. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has the largest coverage (roughly 40 percent) over the Central Valley Region.

Table 3.3-2. Air Districts in the Central Valley Region

Air District	Area of CVWB Jurisdiction Covered (square miles)	Air Basin
San Joaquin Valley Unified APCD	23,613	San Joaquin Valley
Northern Sierra AQMD	4,158	Mountain Counties
Shasta County AQMD	3,846	Sacramento Valley
Tehama County APCD	2,961	Sacramento Valley

Air District	Area of CVWB Jurisdiction Covered (square miles)	Air Basin
Modoc County APCD	2,360	Northeast Plateau
Tuolumne County APCD	2,277	Mountain Counties
Butte AQMD	1,677	Sacramento Valley
El Dorado County AQMD	1,571	Mountain Counties
Lassen County APCD	1,507	Northeast Plateau
Yolo-Solano AQMD	1,487	Sacramento Valley
Mariposa County APCD	1,461	Mountain Counties
Feather River AQMD	1,252	Sacramento Valley
Glenn County APCD	1,242	Sacramento Valley
Eastern Kern APCD	1,209	Mojave Desert
Colusa County APCD	1,156	Sacramento Valley
Siskiyou County APCD	1,148	Northeast Plateau
Calaveras County APCD	1,036	Mountain Counties
Lake County AQMD	1,029	Lake County
Sacramento Metro AQMD	981	Sacramento Valley
Placer APCD	817/433	Mountain Counties/Sacramento Valley
Bay Area AQMD	764	San Francisco Bay
Amador APCD	605	Mountain Counties
Monterey Bay Air Resources District	327	North Central Coast
Great Basin Unified APCD	284	Great Basin Valleys
San Luis Obispo	87	South Central Coast
Ventura County APCD	23	South Central Coast
South Coast AQMD	4	South Coast
Mendocino County AQMD	3	North Coast
North Coast Unified AQMD	2	North Coast

CVWB = Central Valley Water Board; AQMD = Air Quality Management District; APCD = Air Pollution Control District

Meteorology and Climate

The Proposed Project would occur in a large and geographically diverse portion of the state, over which climate and meteorology vary greatly. Four air basins, which combined cover 94% of the Central Valley Region, are described in detail below.

San Joaquin Valley Air Basin

The San Joaquin Valley (SJV) occupies the southern two-thirds of California's Central Valley and comprises nearly 23,500 square miles. With very few exceptions, the SJV is flat, with most of the area lying below 400 feet elevation. The long flat valley area is bordered by the Coast Range to the west, the Sierra Nevada to the east, the Transverse Range to the south, and the Sacramento Valley to the north. In general, SJV experiences a climate with cool wet winters and hot dry summers. The northern Valley experiences a more temperate climate than the rest of the SJV because it is located closer to the Pacific Ocean, and the marine influence extends into the area through gaps in the Coast Range Mountains. This keeps temperatures cooler and favors better air flow. Moving further down the Valley, maximum daily temperatures increase, and rainfall totals decrease. From north to south, average maximum July temperatures increase from about 94 degrees Fahrenheit (°F) at Stockton to nearly 99 °F at Fresno and Bakersfield.

In contrast, annual average rainfall decreases from north to south, averaging 14 inches at Stockton, 11 inches at Fresno, and 6 inches at Bakersfield. The amount of stagnation and the complexity of local circulation patterns also increase from north to south. As a result, prevailing conditions in the central and southern portions of the SJV are more likely to trap pollutants and prevent their dispersal (CARB 2011b).

Sacramento Valley Air Basin

The Sacramento Valley Air Basin (SVAB) is approximately 216 miles from north to south and 95 miles east to west at the widest part. It is bounded on the north and west by the Coast Range Mountains and on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada Mountains. Within the SVAB the elevations reach heights of approximately 3,500 feet in the southwest, 8,500 feet in the northwest, 1,700 feet in the southeast and 10,500 feet in the northeast. In contrast, the elevation in Sacramento County near the San Francisco Bay delta is barely above sea level. The mountain ranges provide a significant physical barrier to trap locally created pollution as well as pollution transported into the SVAB from elsewhere.

The Sacramento Valley's usual summer daytime wind flow pattern is characterized by onshore flow from the Bay Area to Sacramento (known as the delta breeze). A portion of the wind flow turns south, blowing into the San Joaquin Valley, a portion continues eastward, across the southern Sacramento Valley, and a portion turns north, blowing into the upper Sacramento Valley. At night, the delta breeze weakens, and the wind direction in the Sacramento Valley changes. Typical downslope flow, known as nocturnal drainage, brings air from the Coast Range, Cascade Range, and Sierra Nevada Mountains into the Sacramento Valley (CARB 2011b).

Mountain Counties Air Basin

The Mountain Counties Air Basin (MCAB) lies along the northern Sierra Nevada Mountain Range, close to or contiguous with the Nevada border, and covers an area of roughly 11,000 square miles. Elevations range from over 10,000 feet at the Sierra crest down to several hundred feet above sea level at the Sacramento County boundary. Throughout the basin, the topography is highly variable, and includes rugged mountain peaks and valleys with extreme slopes and differences in elevation in the Sierras, as well as rolling foothills to the west. The general climate

of the MCAB varies considerably with elevation and proximity to the Sierra ridge. The terrain features of the basin make it possible for various climates to exist in relatively close proximity.

The Sierra Nevada receives large amounts of precipitation in the winter, with lighter amounts in the summer. Precipitation levels are high in the highest mountain elevations but decline rapidly toward the western portion of the basin. Winter temperatures in the mountains can be below freezing for weeks at a time, and substantial depths of snow can accumulate, but in the western foothills, winter temperatures usually dip below freezing only at night and precipitation is mixed as rain or light snow. In the summer, temperatures in the mountains are mild, with daytime peaks in the 70s to low 80s, but the western end of the basin can routinely exceed 100 °F (CARB 2011b).

Northeast Plateau Air Basin

The climate of the Northeast Plateau Air Basin is dry, cool, and windy. The area is separated from the rest of the State by the Cascade Mountains to a degree that permits very little air movement to or from other regions in the State (CARB 2011b).

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. While these types of facilities are located throughout the Central Valley Region and may be located in close proximity to federal lands, there are no medical facilities, schools, daycare facilities, or nursing homes within USFS or BLM managed lands in the Proposed Project area. Recreational users, campgrounds, staff quarters, concessionaire quarters, and private residences can be found on USFS and BLM managed lands in the Central Valley Region.

Existing Air Quality

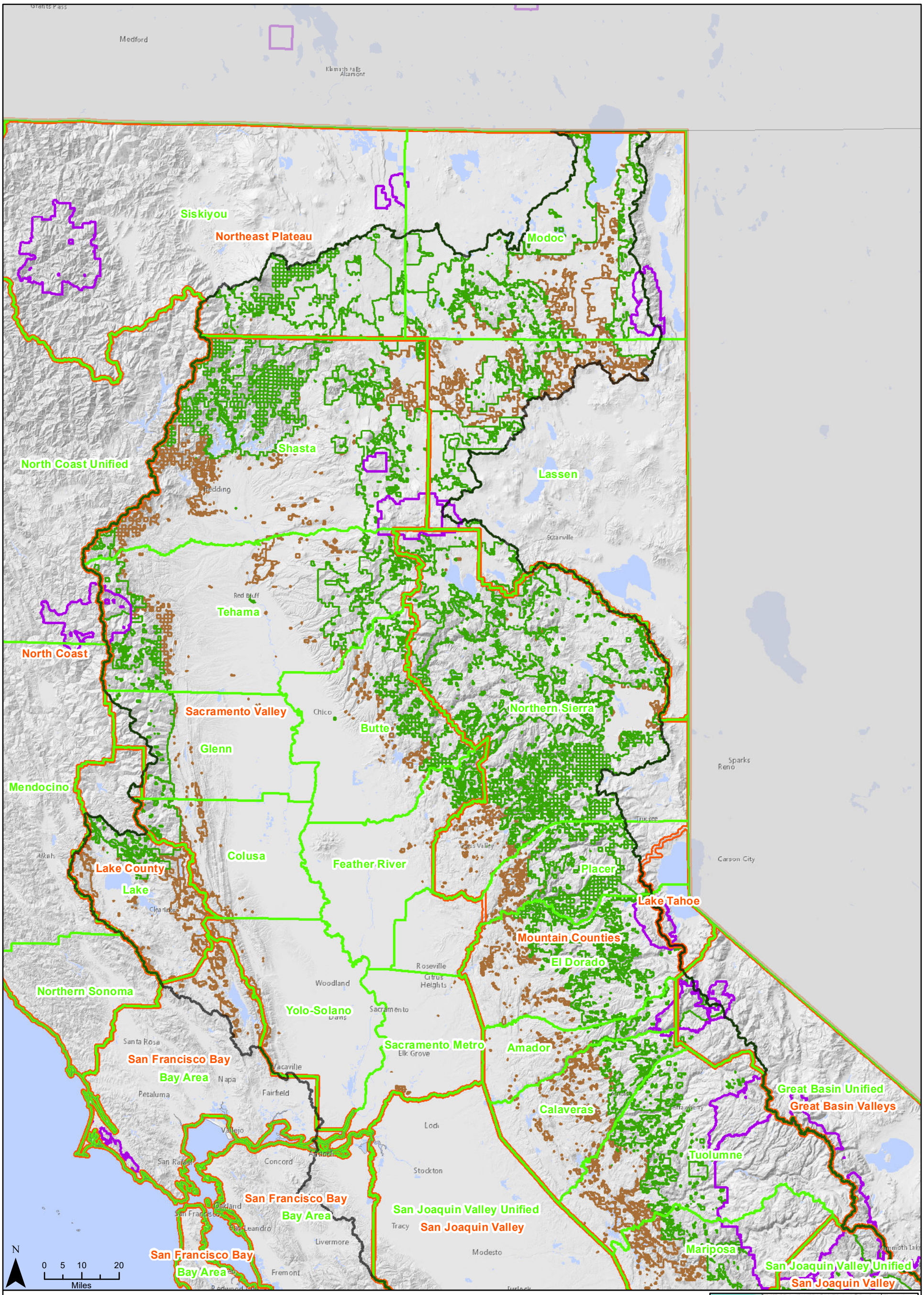
Existing air quality in portions of the Central Valley Region is impaired for certain constituents, as much of the region is currently in nonattainment for state ozone and PM10 and PM2.5 standards. Similarly, portions of the region are also in nonattainment for federal ozone and PM2.5 standards. The City of Sutter Creek, which is in nonattainment for hydrogen sulfide is in the Central Valley Region, but no USFS or BLM managed lands are in or immediately adjacent to this nonattainment area. Los Angeles County is in nonattainment for the federal lead standard, however, the source of this violation has been determined to be large lead-acid battery recycling facilities located outside of the Central Valley Region. **Table 3.3-3** shows attainment status for criteria pollutants for counties within the Central Valley Region.

Exceedances of multiple critical loads exist on multiple USFS managed lands in the Central Valley Region. Nitrogen critical load exceedances are common over much of the Sierras for lichen, mycorrhizal fungi, herbaceous plants and shrubs, forests, and nitrate leaching. Some of the greatest nitrogen deposition-related exceedances occur in the Plumas, Tahoe, and Sequoia National Forests. Surface water exceedances for acidity also occur in locations in the Plumas, Tahoe, and Sequoia National Forests. **Tables 3.3-4** and **3.3-5** show ambient air quality

monitoring data for air basins and for select monitoring stations in Class 1 areas in the Central Valley Region.

Existing sources of air pollution and odor in the Central Valley Region include heavy duty trucks, passenger vehicles, trains, off-road equipment, farm equipment, industrial facilities, refineries, airports, wildfires, campfires, windblown dust, power plants, residential burning, and agricultural operations (SJVAPCD 2018, 2022; CARB 2011b).

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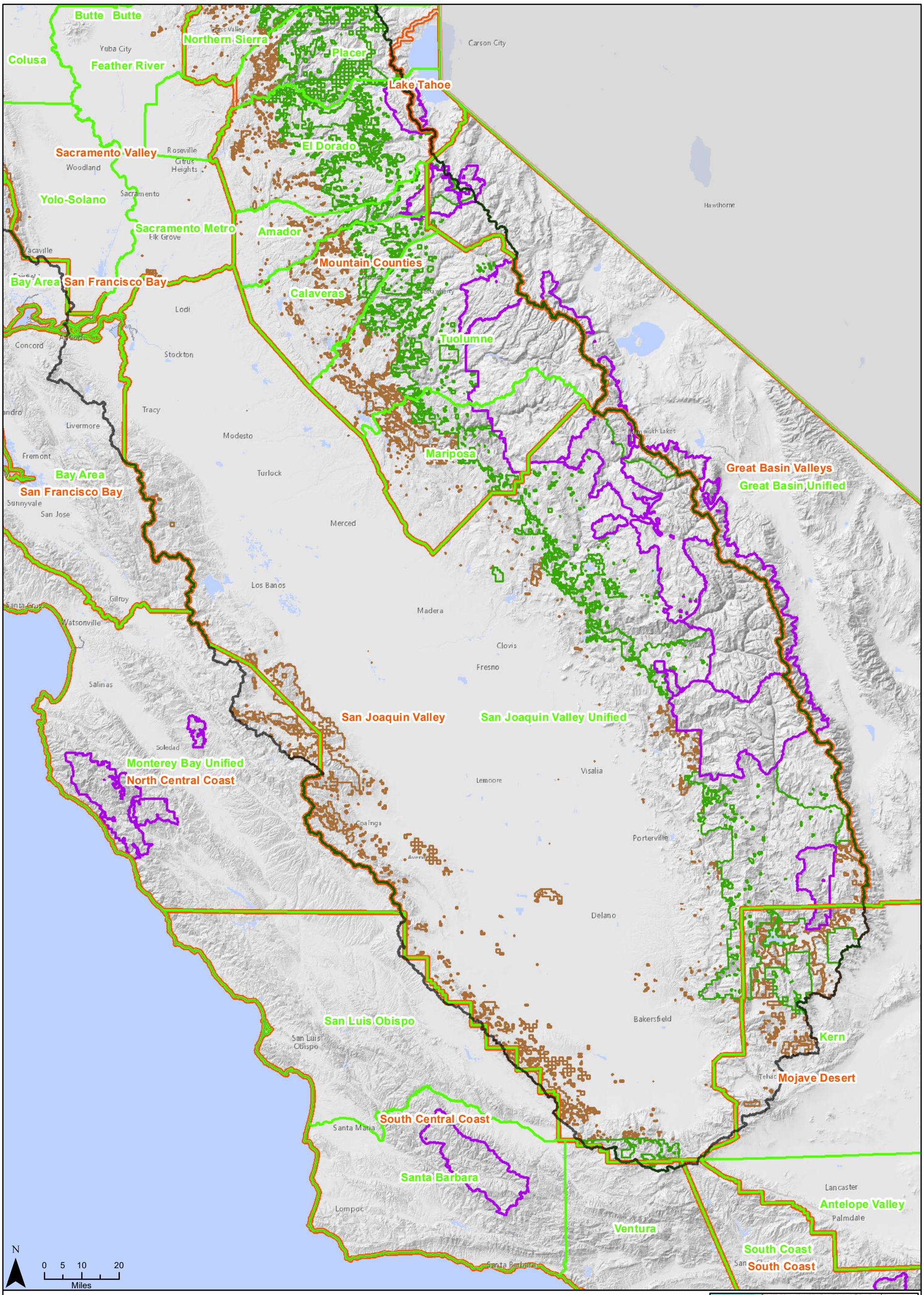
Central Valley RWQCB Boundary
Bureau of Land Management Lands
U.S. Forest Service Lands
CaAirDistrict
CaAirBasin
Mandatory Class 1 Federal Areas

Figure 3.3-1
Air Basin and Air District Boundaries

Sheet 1 of 2

Source: CARB 2021, USEPA 2021

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Central Valley RWQCB Boundary
Bureau of Land Management Lands
U.S. Forest Service Lands
CaAirDistrict
CaAirBasin
Mandatory Class 1 Federal Areas

Figure 3.3-1
Air Basin and Air District Boundaries

Sheet 2 of 2

Source: CARB 2021, USEPA 2021

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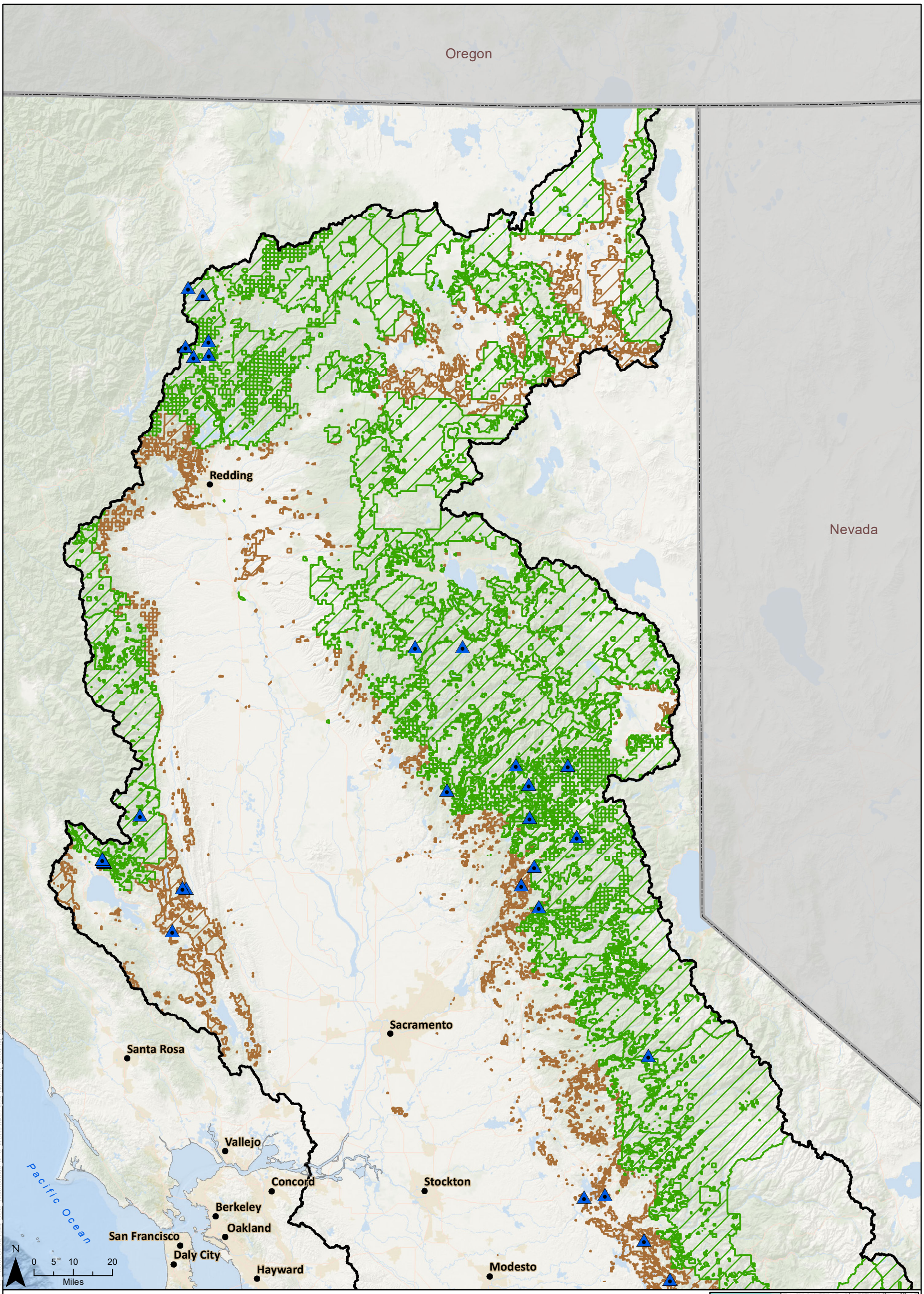


Figure 3.3-2
Naturally Occurring Asbestos

Sheet 1 of 2

Source: Van Gosen, B.S., and Clinkenbeard, J.P., 2011, Reported historic asbestos mines, historic asbestos prospects, and other natural occurrences of asbestos in California: U.S. Geological Survey Open-File Report 2011–1188, 22 p., 1 pl.

Horizon WATER and ENVIRONMENT

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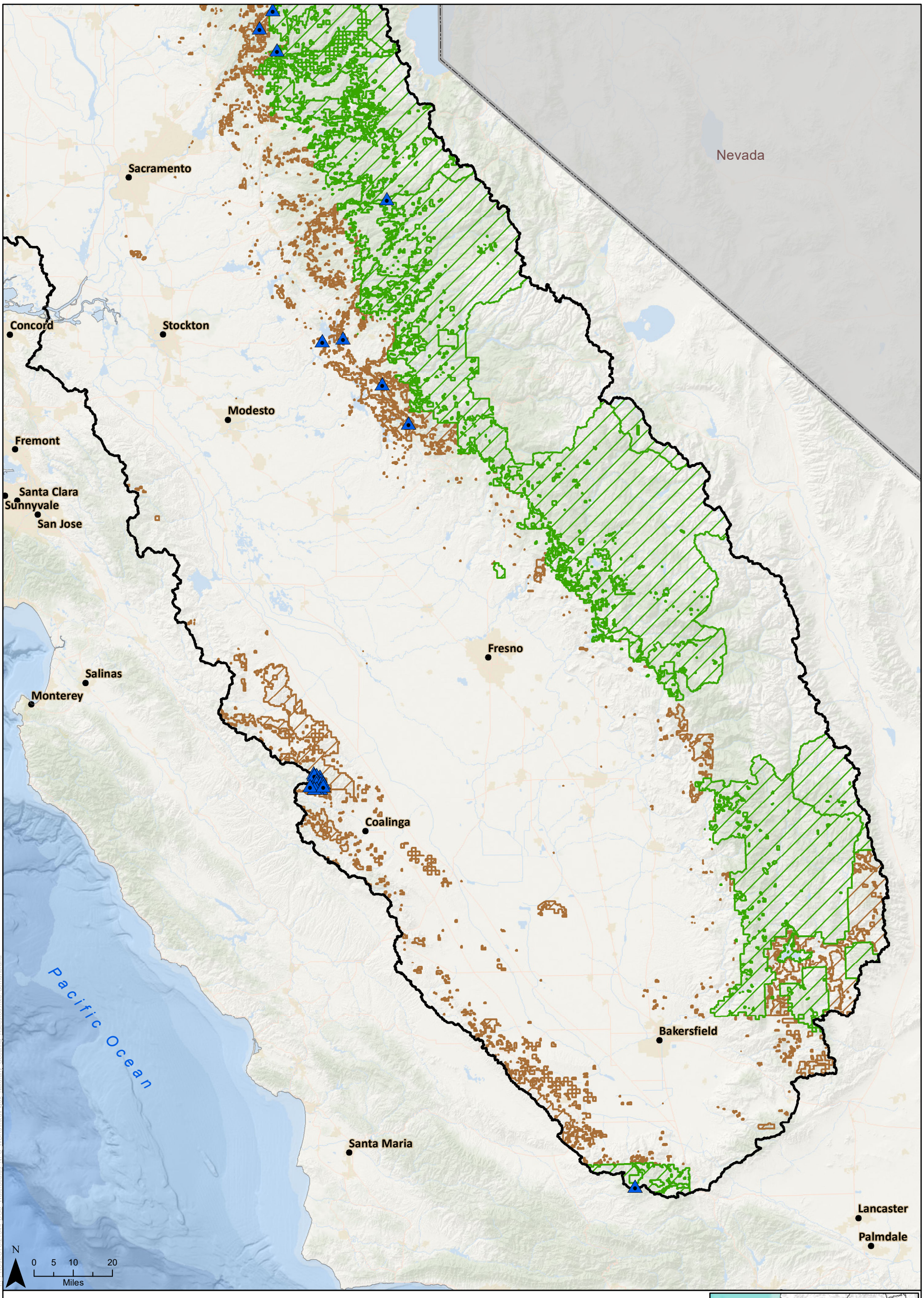


Figure 3.3-2
Naturally Occurring Asbestos

Sheet 2 of 2

Source: Van Gosen, B.S., and Clinkenbeard, J.P., 2011, Reported historic asbestos mines, historic asbestos prospects, and other natural occurrences of asbestos in California: U.S. Geological Survey Open-File Report 2011–1188, 22 p., 1 pl.

Horizon WATER and ENVIRONMENT

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Table 3.3-3. Criteria Pollutant Attainment Status in the Central Valley Region

	Pollutant	County																																
		Alameda	Alpine	Amador	Butte	Calaveras	Colusa	Contra Costa	El Dorado (MCAB)	Glenn	Kings	Lake	Lassen	Los Angeles	Madera	Mariposa	Merced	Modoc	Napa	Nevada	Placer (MCAB/SVAB)	Sacramento	San Benito	San Joaquin	San Luis Obispo	Sierra	Siskiyou	Solano (SFBAB/SVAB)	Stanislaus	Sutter	Tuolumne	Ventura	Yolo	Yuba
Federal	Ozone	N	-	N	N	N	-	N	N	-	N	-	-	N	N	N	N	-	N	N	N	N	-	N	N	-	-	N	N	N	N	N	N	-
	CO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM2.5	N	-	-	-	-	-	N	N	-	N	-	-	N	N	-	N	-	N	-	N	N	-	N	-	-	-	N	N	-	-	-	N	-
	NO_2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lead	-	-	-	-	-	-	-	-	-	-	-	-	N[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
State	Ozone	N	U	N	N	N	A	N	N	A	N	A	A	N	N	N	N	A	N	N	N	N	T	N	N	U	A	N/T	N	A[2]	N	N	T	A
	CO	A	U	U	A	U	U	A	U	U	U	A	U	A	U	U	U	U	A	U	U/A	A	U	A	A	U	U	A	A	A	A	A	A	U
	PM10	N	N	U	N	N	N	N	N	N	N	A	U	N	N	U[3]	N	U	N	N	N	N	N	N	N	N	A	N	N	N	U	N	N	N
	PM2.5	N	A	U	N	U	A	N	U	A	N	A	A	N	N	U	N	A	N	U	U/A	A	A	N	A	U	A	N/U	N	A	U	A	U	A
	NO_2	A	A	A	A	A	A	A	A	A	A	A	A	A[4]	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

Notes:

A = Attainment; U = Unclassified; N = Nonattainment; T = Nonattainment-Transitional; A dash ("-") for Federal attainment status is Unclassified/Attainment

MCAB = Mountain Counties Air Basin; SFBAB = San Francisco Bay Air Basin; SVAB = Sacramento Valley Air Basin

1. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. Lead is addressed in the 2012 Lead State Implementation Plan which focuses on emissions from large lead-acid battery recycling facilities.
2. Sutter Buttes is nonattainment for state ozone.
3. The portion of Mariposa County in Yosemite is nonattainment for PM10.
4. A portion of Los Angeles County near CA-60 is nonattainment for NO_2, however, this area is not in the Project Area.

Sources: CARB 2019, USEPA 2021b

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Table 3.3-4. Ambient Air Quality Monitoring Data for Air Basins in the Central Valley Region

	San Joaquin Valley Air Basin			Sacramento Valley Air Basin			Mountain Counties Air Basin			Northeast Plateau Air Basin		
Pollutant Standards	**2017**	**2018**	**2019**	**2017**	**2018**	**2019**	**2017**	**2018**	**2019**	**2017**	**2018**	**2019**
1-Hour Ozone												
Maximum 1-hour concentration (ppm)	0.143	0.129	0.110	0.121	0.135	0.103	0.113	0.129	0.102	0.053	0.089	0.069
1-hour California designation value	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.07	0.07	0.09
1-hour expected peak day concentration	0.124	0.120	0.111	0.105	0.111	0.109	0.107	0.110	0.108	.070	*	*
Number of days standard exceeded												
CAAQS 1-hour (>0.09 ppm)	48	42	24	8	16	3	18	24	1	0	0	0
8-Hour Ozone												
National maximum 8-hour concentration (ppm)	0.112	0.101	0.093	0.091	0.115	0.082	0.099	0.114	0.077	0.049	0.075	0.059
National second-highest 8-hour concentration (ppm)	0.104	0.101	0.088	0.088	0.107	0.079	0.099	0.108	0.077	0.046	0.075	0.058
8-hour high national designation value	0.092	0.090	0.088	0.084	0.088	0.086	0.086	0.090	0.085	*	*	*
Number of days standard exceeded												
NAAQS 8-hour (>0.070 ppm)	122	111	96	45	49	13	84	53	15	0	4	0
Particulate Matter (PM10)												
National maximum 24-hour concentration (µg/m^3)	298.4	250.2	652.2	237.7	454.0	174.7	141.7	307.5	129.9	*	*	*
National second-highest 24-hour concentration (µg/m^3)	144.7	179.4	116.2	51.7	339.1	90.7	123.6	285.9	125.0	*	*	*
State maximum 24-hour concentration (µg/m^3)	210.0	250.4	664.2	242.0	478.7	179.1	123.9	270.1	118.1	*	*	*
State second-highest 24-hour concentration (µg/m^3)	153.8	116.2	117.4	50.8	361.7	92.9	106.9	249.5	115.9	*	*	*
State high annual average concentration (µg/m^3)	48.4	53.0	55.6	22.0	32.3	29.2	*	*	13.3	*	*	*
National high annual average concentration (µg/m^3)	55.3	54.5	55.6	26.4	32.4	28.2	24.9	33.3	21.3	*	*	*
Number of days standard exceeded												
NAAQS 24-hour (>150 µg/m^3)	7.7	9.6	16.2	6.1	9.0	1.0	0.0	*	0.0	*	*	*
CAAQS 24-hour (>50 µg/m^3)	145.5	164.4	129.7	19.3	59.7	45.3	*	*	0.0	*	*	*
Particulate Matter (PM2.5)												
National maximum 24-hour concentration (µg/m^3)	113.4	189.8	83.7	85.9	411.7	41.4	109.7	142.8	49.0	78.8	143.2	73.9
National second-highest 24-hour concentration (µg/m^3)	101.8	177.7	58.8	69.0	299.9	40.9	108.5	127.3	48.1	53.5	128.5	68.4
State maximum 24-hour concentration (µg/m^3)	113.4	257.5	83.7	85.9	417.0	97.3	111.2	251.0	104.5	78.8	143.2	73.9
State second-highest 24-hour concentration (µg/m^3)	101.8	177.7	58.8	69.0	306.2	60.4	109.8	225.8	103.5	53.5	128.5	68.4
National annual designation value (µg/m^3)	17.3	17.8	16.9	9.6	10.4	10.2	15.1	14.7	14.2	*	10.1	10.4
National annual average concentration (µg/m^3)	18.2	19.4	13.0	9.7	15.9	8.4	15.8	14.6	12.2	11.1	14.4	5.9
State annual designation value (µg/m^3)	18	19	19	14	18	18	18	18	18	11	11	6
State annual average concentration (µg/m^3)	16.8	18.7	13.0	14.0	18.1	10.7	17.5	11.3	9.7	11.1	*	5.9
Number of days standard exceeded												
NAAQS 24-hour (>35 µg/m^3)	33.8	42.3	21.0	12.3	24.0	3.0	15.5	16.2	16.5	26.3	37.4	4.1

ppm = parts per million; µg/m^3 = micrograms per cubic meter; PM10 = particulate matter with aerodynamic radius of 10 micrometers or less; PM2.5 = particulate matter with aerodynamic radius of 2.5 micrometers or less

Source: CARB 2021b

Table 3.3-5. Ambient Air Quality Monitoring Data for Select Class 1 in the Central Valley Region

	Sequoia Kings Canyon National Park (San Joaquin Valley Air Basin)			Lassen National Park (Sacramento Valley Air Basin)			Yosemite National Park[1] (Mountain Counties Air Basin)			Northeast Plateau Air Basin[2]		
Pollutant Standards	**2017**	**2018**	**2019**	**2017**	**2018**	**2019**	**2017**	**2018**	**2019**	**2017**	**2018**	**2019**
1-Hour Ozone												
Maximum 1-hour concentration (ppm)	0.111	0.101	0.103	0.077	0.093	0.066	0.113	0.111	0.080	N/A	N/A	N/A
1-hour California designation value	0.10	0.10	0.10	0.07	0.08	0.08	0.09	0.10	0.10	N/A	N/A	N/A
1-hour expected peak day concentration	0.102	0.103	0.101	0.074	0.084	0.084	0.089	0.102	0.102	N/A	N/A	N/A
Number of days standard exceeded												
CAAQS 1-hour (>0.09 ppm)	13	9	2	0	0	0	3	11	0	N/A	N/A	N/A
8-Hour Ozone												
National maximum 8-hour concentration (ppm)	0.092	0.091	0.085	0.071	0.083	0.061	0.088	0.092	0.073	N/A	N/A	N/A
National second-highest 8-hour concentration (ppm)	0.089	0.090	0.085	0.066	0.081	0.060	0.082	0.089	0.070	N/A	N/A	N/A
8-hour high national designation value	0.089	0.089	0.086	0.064	0.068	0.066	0.075	0.079	0.077	N/A	N/A	N/A
Number of days standard exceeded												
NAAQS 8-hour (>0.070 ppm)	80	68	59	1	13	0	11	25	1	N/A	N/A	N/A
Particulate Matter (PM10)												
National maximum 24-hour concentration (µg/m^3)	*	*	*	*	*	*	141.7	307.5	129.9	N/A	N/A	N/A
National second-highest 24-hour concentration (µg/m^3)	*	*	*	*	*	*	123.6	285.9	125.0	N/A	N/A	N/A
State maximum 24-hour concentration (µg/m^3)	*	*	*	*	*	*	123.9	270.1	118.1	N/A	N/A	N/A
State second-highest 24-hour concentration (µg/m^3)	*	*	*	*	*	*	106.9	249.5	115.9	N/A	N/A	N/A
State high annual average concentration (µg/m^3)	*	*	*	*	*	*	*	*	*	N/A	N/A	N/A
National high annual average concentration (µg/m^3)	*	*	*	*	*	*	24.9	33.3	21.3	N/A	N/A	N/A
Number of days standard exceeded												
NAAQS 24-hour (>150 µg/m^3)	*	*	*	*	*	*	0.0	*	0.0	N/A	N/A	N/A
CAAQS 24-hour (>50 µg/m^3)	*	*	*	*	*	*	*	*	*	N/A	N/A	N/A
Particulate Matter (PM2.5)												
National maximum 24-hour concentration (µg/m^3)	*	*	*	*	*	*	*	*	*	N/A	N/A	N/A
National second-highest 24-hour concentration (µg/m^3)	*	*	*	*	*	*	*	*	*	N/A	N/A	N/A
State maximum 24-hour concentration (µg/m^3)	41.8	43.0	35.7	*	*	*	109.8	251.0	104.5	N/A	N/A	N/A
State second-highest 24-hour concentration (µg/m^3)	40.4	32.5	26.7	*	*	*	94.3	225.8	103.5	N/A	N/A	N/A
National annual designation value (µg/m^3)	*	*	*	*	*	*	*	*	*	N/A	N/A	N/A
National annual average concentration (µg/m^3)	*	*	*	*	*	*	*	*	*	N/A	N/A	N/A
State annual designation value (µg/m^3)	*	*	*	*	*	*	*	*	*	N/A	N/A	N/A
State annual average concentration (µg/m^3)	*	*	*	*	*	*	*	*	*	N/A	N/A	N/A
Number of days standard exceeded												
NAAQS 24-hour (>35 µg/m^3)	*	*	*	*	*	*	*	*	*	N/A	N/A	N/A

Notes:

1. Yosemite National Park values compiled using data from two sites in the park.
2. No representative monitoring stations available within the project boundaries.

ppm = parts per million; µg/m^3 = micrograms per cubic meter; PM10 = particulate matter with aerodynamic radius of 10 micrometers or less; PM2.5 = particulate matter with aerodynamic radius of 2.5 micrometers or less

Source: CARB 2021b.

3.3.4 Impact Analysis

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

Methodology

As the Federal NPS Permit would not specify a manner of compliance, it is impossible to know which management measures would be implemented in which locations pursuant to the Permit. Additionally, the Proposed Project area overlaps multiple air basins and numerous air districts, with different attainment statuses and established thresholds of significance. 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 management measure implementation; the existing air quality conditions throughout the Central Valley Region, and the additional emissions that reasonably could occur due to implementation 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 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.

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

Under the General Conformity rule, federal agencies must work with state, tribal and local governments in a nonattainment or maintenance area to ensure that federal actions conform to the air quality plans established in the applicable state or tribal implementation plan. The USEPA has established *de minimis* emission levels above which a conformity determination must be performed. Many individual air districts in the Project area have established mass emission thresholds based on detailed, basin-specific analyses to determine the level at which an increase in emissions from baseline, when dispersed in the atmosphere, would be likely to cause an increase in concentrations above the applicable ambient air quality standard or exacerbate an existing exceedance if the threshold is exceeded. If the incremental increase in emissions for a project compared to the baseline is below these annual thresholds, the project's impacts would be less than significant. These air districts have determined that projects below the mass emission significance threshold would also not be cumulatively considerable. While these thresholds are useful for many analyses, they do not assist in the qualitative approach used in this EIR, and so have not been used as the basis for determining the significance of criteria pollutant emissions under the Proposed Project.

Some air districts have established quantitative thresholds for acute, chronic non-cancer and cancer exposure to TACs. Because activities influenced by the Proposed Project would occur at different locations and with different intensities, such an analysis would not be applicable.

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 new and additional management measures and monitoring reporting requirements could result in some new jobs (although this is not expected), but this additional employment would not be substantial in any given location given the scale of the Proposed Project area and the distribution of BLM and USFS managed lands in the Central Valley Region. 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 Valley Water Board jurisdiction.

Implementation of management measures as part of the Proposed Project would result in emissions of criteria pollutants, such as exhaust from diesel-powered vehicles and equipment (PM, NO_x, ROG, CO) and the operation of vehicles on unpaved roads and disturbed soils (fugitive dust, PM). Many management measures would serve to reduce emissions of criteria pollutants. For example, treating disturbed soils and bare ground with water, vegetation, mulch, erosion control fabrics, or pavement helps control, or limit the potential for, fugitive dust creation.

In general, the emissions associated with the Proposed Project are not expected to be substantial. In comparison to many other common, ongoing projects in the Central Valley Region, such as housing developments, commercial and industrial construction, transportation projects, etc., the measures implemented due to the Proposed Project would be relatively minor in scale and associated emissions. Additionally, Proposed Project emissions would be spaced out over time across the Central Valley Region which overlaps numerous air basins and air district jurisdictions (see Table 3.3-2), thereby reducing the likelihood of any daily or annual significance thresholds being exceeded.

While most Proposed Project-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 3.3.3, multiple air districts have jurisdiction over parts of the Central Valley Region; as such, specific rules and regulations applicable to individual project sites may differ based on their location. Compliance with local air district rules, including any project-related BMPs or mitigation measures required by the air district, would serve to minimize emissions of various harmful air pollutants during project activities. For example, the SJVAPCD, which has jurisdiction over a large portion of the Central Valley Region, has adopted Regulation VIII which is a group of rules targeting fugitive PM10 emissions (SJVAPCD 2022). As identified in Table 3.3-3, many areas of the Central Valley Region are in non-attainment for a criteria pollutant, particularly for ozone, PM2.5, and PM10.

Operation of construction equipment and vehicle trips for monitoring, inspections, audits, and maintenance activities could add some amount of ozone precursors and PM (e.g., from diesel exhaust). In addition, more intense activity for road construction and debris removal may be required as part of the BMPs which may increase fossil-fueled emissions above baseline conditions. However, as described above, the additional emissions that could result from implementation of the Proposed Project are not expected to be substantial and would comprise a small percentage of the total emissions from USFS and BLM activities (e.g., from the covered activities themselves). Additionally, the USFS and BLM are bound by the General Conformity Rule to ensure that their actions comply with the NAAQS and conform to the air quality plans established in the applicable SIP (see discussion in Section 3.3.2), which would serve to reduce potential impacts. USFS has incorporated air quality considerations via its 2012 Planning Rule, while BLM takes measures to reduce emissions through its Air Resources Management Program.

As a result, the Proposed Project would not 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. Therefore, 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 measures, which would require use of heavy construction equipment that would emit air pollutants (e.g., DPM). Additionally, inspections, monitoring, and auditing activities could involve vehicle trips to individual project sites, which could emit air pollutants. Routine maintenance and/or repair of certain management measures also could involve the use of equipment that emits potentially hazardous pollutants.

Another type of hazardous emission that could potentially occur during ground-disturbing activities under the Proposed Project is NOA. As discussed in Section 3.3.3, NOA can be found in ultramafic rock outcrops and in serpentine soils. There are numerous ultramafic rock outcroppings and former asbestos mines, prospects, and occurrences on and near USFS and BLM managed lands in the Central Valley Region (e.g. Clear Creek Management Area, Plumas National Forest, and Tahoe National Forest). Known locations of NOA within the USFS and BLM managed lands in the Central Valley Region are shown in Figure 3.3-2. As described in Section 3.3.2, the USFS tracks the presence and locations of NOA on its lands and utilizes BMPs in areas with potential NOA to reduce impacts. This includes limiting dust-generating activities, reducing vehicle speeds on unpaved roads, and other measures. The BLM, in turn, reviews potential impacts from NOA on a case-by-case basis, or otherwise may address the impacts through Fugitive Dust Control Plans.

The potential for management measures under the Proposed Project to result in NOA impacts would be relatively minor, particularly in comparison to the on-going activities on federal lands (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities). The on-going activities entail far greater levels of ground-disturbance, with the attendant risks of NOA exposure, which are part of the baseline. Based on this, and in conjunction with the measures that would be implemented by the federal agencies to reduce NOA risks, the impact would be below the level of significance.

As noted in Section 3.3.3, there are not any hospitals/medical facilities, schools, daycare facilities, or nursing home/senior center facilities within USFS/BLM managed land in the Central Valley Region, though sensitive land uses and receptors occur throughout the region and may be located in close proximity to individual project sites in some cases. Recreational users, campgrounds, staff quarters, concessionaire quarters, and private residences can be found on USFS and BLM managed lands in the Central Valley Region. Although it cannot be known precisely where or when additional management measures or other Proposed Project activities will be conducted, 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 that may be used as a result of the Proposed Project are not fundamentally dissimilar from those used currently. Implementation of management measures often involves use of diesel-powered vehicles and equipment, which could result in the same types of emissions that occur during existing federal activities in the Central Valley Region. In most cases it is assumed that Proposed Project activities would occur in rural areas, 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 implemented BMPs and any sensitive receptors in the area.

Compliance with existing rules and regulations governing air emissions (see discussion under Impact AQ-1 above) would serve to further reduce potential impacts. 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 project activities may temporarily generate odors in the immediate area where the equipment is operated. Disturbance of soil or removal of sediment also could potentially release odors in the immediate area.

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 the immediate area. This impact would be **less than significant.**

3.4 Biological Resources

3.4.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to biological resources. The Proposed Project would occur on USFS and BLM managed lands within the Central Valley Region.

3.4.2 Regulatory Setting

Some of the regulatory setting relevant to biological resources is described in Section 3.10, "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 Valley Region.

Federal Laws, Regulations, Standards, and Manuals

Endangered Species Act of 1973

The Endangered Species Act (ESA) (16 USC 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 United States 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 1532). Section 7 of the ESA (16 USC 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 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 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 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."

National Forest Management Act of 1976

The National Forest Management Act (NFMA) establishes standards for how the USFS manages the national forests, requires the development of land management plans for national forests and grasslands, and directs the USFS to develop regular reports on the status and trends of the Nation's renewable resources on all forest rangelands (USDA 2021a).

Forest Service Rules, Regulations, and Policies

National Forest System Land Management Planning Rule

The 2012 National Forest System Land Management Planning Rule (Planning Rule) rule sets forth the process and requirements to guide the development, amendment, and revision of the land management plans as directed under the NFMA (USDA 2012). Managers of individual forests and grasslands must follow the direction of the Planning Rule to develop a land management plan specific to their unit, and the land management plans must follow the

requirements of the NFMA and the Planning Rule (USDA 2021a). The Planning Rule requires that each land management plan include components to restore and maintain ecosystems and habitat types throughout each plan area. The 2012 Planning Rule also requires that plans provide the ecological conditions necessary to contribute to the recovery of threatened and endangered species, and to conserve candidate and proposed species (USDA 2021b).

Forest Service Manual 2600 – Wildlife, Fish, and Sensitive Plant Habitat Management

Chapter 2670 of the Forest Service Manual 2600 (FSM 2600) contains objectives and policies for the protection, management, and recovery of threatened, endangered, and sensitive species on USFS land. FSM 2600 also outlines the responsibilities of various USFS personnel for the wildlife, fish and sensitive habitat management. With respect to evaluation and avoidance of impacts on biological resources from USFS activities, FSM 2600 contains the following policy direction (USFS 2005):

> Avoid all adverse impacts on threatened and endangered species and their habitats, except when it is possible to compensate adverse effects totally through alternatives identified in a biological opinion rendered by the Department of the Interior, Fish and Wildlife Service (FWS) or Department of Commerce, National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries); when an exemption has been granted under the act; or when the FWS or NOAA Fisheries biological opinion recognizes an incidental taking…

FSM 2600 further instructs USFS to initiate consultation or conference with FWS or NOAA Fisheries when it is determined that proposed activities may have an effect on threatened or endangered species. Additionally, per FSM 2600, USFS must identify and prescribe measures to prevent adverse modification or destruction of critical habitat and other habitats essential for the conservation of endangered, threatened, and proposed species (USFS 2005). FSM provides similar policy direction for sensitive species, which are those plant and animal species identified by USFS for which population viability is a concern (USFS 2005).

National Best Management Practices Program

The USFS' National BMP Program was developed to improve management of water quality consistent with the federal CWA and State water quality programs (USFS 2023). As described by USFS, BMPs are specific practices or actions used to reduce or control impacts to water bodies from non-point sources of pollution, most commonly by reducing the loading of pollutants from such sources into storm water and waterways (USFS 2023). The National BMP Program consists of four main components: (1) The National Core BMP Technical Guide; (2) The National Core BMP Monitoring Technical Guide; (3) Revised National Direction, and (4) A national data management and reporting system (USFS 2023). The USFS National BMP Program is described in Chapter 2, *Project Description* of this DEIR, and the National BMP Program documents are included in Appendix B.

The National Core BMP Technical Guide (USFS 2012) includes a wide range of BMPs for various USFS activities which would protect water quality, riparian habitat, and wetlands. The BMPs typically take the form of an overall objective for the BMP; an explanation of the reasoning for the BMP and the potential impacts arising from the activities; and a set of practices and/or policy direction, from which site-specific BMP prescriptions would be developed for individual

projects or activities. Many BMPs include direction to identify and obtain permits (e.g., CWA Section 404) for actions that may affect wetlands or waters (USFS 2012).

Bureau of Land Management Rules, Regulations, and Policies

Manual 6840 – Special Status Species Management

Manual 6840 establishes the policies for management of species listed, or proposed for listing, pursuant to the ESA and BLM sensitive species[1] which are found on BLM-administered lands (BLM 2008). The main objectives of Manual 6840 are to conserve and/or recover ESA-listed species and the ecosystems on which they depend, and to initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the need for listing these species under the ESA (BLM 2008). The Manual includes policy direction for engaging in Section 7 consultation with USFWS or NMFS for discretionary actions that may affect a listed or proposed species or designated or proposed critical habitat, including evaluating adverse effects on such biological resources from BLM activities. With respect to State cooperation, the Manual 6840 provides direction for BLM to cooperate to the "maximum extent practicable" with States, including entering into management agreements and cooperative agreements for the conservation of threatened and endangered species (BLM 2008).

Manual 6500 – Wildlife and Fisheries Management

Manual 6500 establishes policies and objectives, and outlines responsibilities, for management of wildlife and fisheries populations on BLM lands. This manual primarily pertains to management of wildlife and fisheries in terms of harvesting of resources and recreational enjoyment/commercial use of the lands, generally seeking to ensure adequate habitat of sufficient quality is provided to continue the productivity of BLM lands. Issues with respect to threatened and endangered species under the ESA are addressed in Manual 6840 (see above).

H-1794-1 – Mitigation Handbook

The BLM's Handbook H-1794-1 (BLM 2016) describes its mitigation strategy and standard approach for addressing impacts from activities that may adversely affect resources. The BLM employs a 5-prong mitigation hierarchy that generally follows the definition of mitigation, as provided by the Council on Environmental Quality (CEQ) in 40 CFR 1508.20:

- Avoiding the impacts by not taking a certain action or parts of an action,
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation,

[1] BLM special status species are: (1) species listed or proposed for listing under the ESA, and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as BLM sensitive by the State Director(s) (BLM 2008). All Federal candidate species, proposed species, and delisted species in the 5 years following delisting will be conserved as BLM sensitive species (BLM 2008).

- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment,
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and
- Compensating for the impact by replacing or providing substitute resources or environments.

These five components are applied hierarchically, and BLM also follows a landscape-scale approach in considering and implementing mitigation (BLM 2016). As part of a mitigation approach, Handbook H-1794-1 directs BLM to "identify, consider, and, as appropriate, require the use of BMPs to address reasonably foreseeable impacts to resources, rather than routinely relying on past practices" (BLM 2016). BMPs, as defined by BLM, are state-of-the-art, efficient, appropriate, and practicable mitigation measures for avoiding, minimizing, rectifying, and reducing or eliminating impacts over time (BLM 2016).

California Best Management Practices for Water Quality

The BLM has developed a standard set of BMPs for water quality protection in California (California BMP Manual) to enhance agency performance, consistency, and accountability in managing water quality within the State consistent with the CWA and Porter-Cologne Act (BLM 2022). This California BMP Manual arose in part out of the planning processes and negotiations for the Proposed Project, and the document is provided in Appendix B to this DEIR. Similar to the USFS approach with respect to its National BMP Program, the BLM typically develops site-specific prescriptions or BMPs as part of the NEPA process for specific projects, and may utilize or tailor the more general BMPs from the BMP Manual. The BMPs are generally organized by types of activities or operations, and include an objective, explanation, and list of BMPs. The BMP Manual notes that BMPs related to instream activities may be included or utilized to satisfy other permitting requirements, such CWA Section 404 and 401 permits (BLM 2022).

State Agencies, Laws, and Programs

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code [CFGC] 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 CFGC 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' (USACE's) CWA section 404 dredge and fill permitting process and the State Water Board's CWA 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 3.10, "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 Valley Region are discussed further in Section 3.4.3, "Environmental Setting."

Local and Regional Laws, Policies, and Plans

Local Ordinances and General Plans

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans.

3.4.3 Environmental Setting

This section describes existing biological resources in the Central Valley Region, focusing on areas under USFS and BLM jurisdiction. Please refer to Section 3.10, "Hydrology and Water Quality" for a description of the regional topography, climate, hydrology, and watersheds within the Central Valley Region.

Land Cover Types

Generalized land cover/habitat types found within the Proposed Project boundaries are described below[2] and shown in **Figure 3.4-1**. The land cover types shown in Figure 3.4-1 were derived from CAL FIRE's FVEG geographic information system (GIS) data. **Table 3.4-1** lists the land cover types and the area (in acres) that each land cover type covers within USFS and BLM managed lands, respectively. Land cover/habitat type descriptions were developed by conducting a crosswalk of the FVEG classifications, USFS physiognomic unit classifications, Anderson Level 1 classifications and California Wildlife Habitat Relationships System classifications[3].

Table 3.4-1. Generalized Land Cover Types on United States Forest Service and Bureau of Land Management Lands within the Central Valley Region

Land Cover Type	United States Forest Service Area (acres)	Bureau of Land Management Area (acres)
Agriculture	934	9,212
Barren/Other	457,065	9,878
Conifer Forest	5,662,934	130,153
Conifer Woodland	226,660	174,081
Desert Shrub	144	74,863
Desert Woodland	-	229
Hardwood Forest	728,199	121,995
Hardwood Woodland	107,570	138,614
Herbaceous	270,548	248,416
Shrub	1,706,691	694,084
Urban	3,346	2,390
Water	102,472	14,820
Wetland	43,368	2,122
Total	**9,309,931**	**1,620,857**

[2] The conifer forest, conifer woodland, hardwood forest, and hardwood woodland land use cover types are covered under the Forest Land description. The desert woodland land use cover type is covered under desert wash.

[3] Land cover/habitat type descriptions discussed in this document are very generalized and should not be used as stand-alone assessments of what is actually present where Proposed Project activities will occur. Additional assessments (for example, on-the-ground surveys) will need to be conducted to determine a more accurate description of land cover/habitat types in areas where there is potential for the Proposed Project to impact biological resources.

Agricultural

The agricultural land cover/habitat type includes areas that are dominated by vegetation grown for producing crops. Examples of agricultural land include field row crops and closely sown crops; sod farms, hay, and silage crops; orchards (tree fruits and nuts, Christmas trees, nurseries of trees and shrubs), small fruits and berries; vegetables and melons; unharvested crops; and idle cropland (USDA 2015).

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 special-status bats.

Barren/Other

Barren land is of limited ability to support special-status species as this type of land cover/habitat supports little to no vegetation or other cover. If vegetation is present, it is widespread and scrubby. Typically, barren land consists of an area of thin soil, sand or rocks. Categories of barren land are dry salt flats, beaches, sandy areas, bare exposed rock, strip mines, quarries, gravel pits, transitional areas, and mixed barren land (USDA 2016).

As defined in the California Wildlife Habitat Relationships System (CWHRS), barren land in marine and estuarine environment includes rocky outcroppings, open sandy beaches and mudflats. Along rivers, barren habitat includes vertical river banks and canyon walls. In desert habitats, barren land cover is defined when vegetation is widely spaced. Within alpine areas, barren habitat includes exposed parent rock, glacial moraines, talus slopes and any surface permanently covered with snow and ice. Urban areas where there is pavement and buildings may be classified as barren as long as they do not meet the percentage cover thresholds for vegetated habitats (CDFW 2014).

Although there may be little to no vegetation within the barren land cover/habitat type, non-vegetated substrate could offer nesting and foraging habitat for many common species including hawks, falcons, and American pika (*Ochotona princeps*) as well as special-status species such as western snowy plover (*Charadrius alexandrinus nivosus*), bank swallows (*Riparia riparia*), bats, and coast horned lizard (*Phrynosoma coronatum*).

Forest and Woodland

The forest and woodland land cover/habitat type in the Central Valley is mainly comprised of mixed evergreen and coniferous forests and oak woodlands. Categories of trees within the forest and woodland land cover/habitat type include deciduous (hardwood), evergreen (conifer), and mixed (deciduous and evergreen). Deciduous trees such as California black oak (*Quercus kelloggii*) and big leaf maple (*Acer macrophyllum*), and coniferous trees such as ponderosa pine (*Pinus ponderosa*) sugar pine (*Pinus lambertinana*) and incense cedar (*Calocedrus decurrens*), can be found in the forests throughout the Central Valley Region. Mixed forest land includes all forested areas where both evergreen and deciduous trees are growing and neither is predominant (Anderson et al. 1976).

The forest and woodland land cover/habitat type contains habitat for a wide variety of species. Trees can provide cavity nesting for special-status species such as the northern spotted owl (*Strix occidentalis*). Canopy cover and understory vegetation provide valuable habitat for special-status species such as Yosemite toad (*Anaxyrus canorus*) and Sierra Nevada yellow-legged frog (*Rana sierrae*), and for common species such as North American porcupine (*Erethizon dorsatum*), pine marten (*Martes martes*), and marmot (*Marmota*). Little Kern golden trout (*Oncorhynchus mykiss whitei*) is a special-status fish species that can be found in high altitude freshwater lakes and rivers.

Desert Scrub

Desert scrub land cover/habitat types are typically open and scattered areas within valley floors and bajadas[4] consisting of both evergreen and deciduous species of shrubs usually between 1.5 and 6.5 feet in height (Cheatham and Haller 1975, Burk 1977, Kuchler 1977). Creosote bush (*Larrea tridentata*) is often considered a dominant plant species although many plant species are found within this land cover/habitat type, such as desert sand verbena (*Abronia villosa*) and desert agave (*Agave deserti*).

Desert scrub habitat provides habitat for a variety of wildlife species. Standing water in the winter and herbaceous plants in the spring provide food and foraging habitat. Typical common species include common kingsnake (*Lampropeltis getula*), various pocket mice (*Heteromyidae* sp.) and kangaroo rats (*Dipodomys* sp.), kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), and the special-status desert tortoise (*Gopherus agassizii*) (CDFW 2014).

Desert Wash

The desert wash land cover/habitat type contains arborescent shrubs (often spiny) that are generally associated with intermittent streams (washes) or drier bajadas, especially in the Sonoran Desert (CDFW 2014). Desert wash plants are generally taller and denser than those in surrounding desert habitats (CDFW 2014). Some plants that are typically found in desert wash land cover/habitat types include blue palo verde (*Parkinsonia florida*), catclaw acacia (*Senegalia greggii*), mesquite (*Prosopis* sp.), desert broom (*Baccharis sarothroides*), snakeweed (*Gutierrezia sarothrae*) and goldenbush (*Isocoma* sp.).

Desert wash land cover/habitat types provide habitat for many species. The dense shrubbery provides food and cover for common species such as desert cottontail (*Sylvilagus audubonii*), desert woodrat (*Neotoma lepida*), and coyote. Bird species such as turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*) and horned lark (*Eremophila alpestris*) also use desert wash for foraging and nesting.

Herbaceous

The herbaceous land cover/habitat type consists of herbaceous vascular plants that total greater than or equal to 10 percent canopy cover. These types of herbaceous vascular plants are defined as vascular plants without perennial aboveground woody stems with perennating buds borne at

[4] A bajada is a broad alluvial slope extending from the base of a mountain range out into a basin and formed by coalescence of separate alluvial fans (Merriam-Webster 2021).

or below the ground surface (USFS 2016). Herbaceous dominated habitats include annual and perennial grassland, wet meadow, fresh and saline emergent wetland, and pasture. A description of the wetland land cover/habitat type are further described below. Plant species found within annual grasslands consist mainly of introduced annual grasses such as wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), and ripgut brome (*Bromus diandrus*). Common forbs include broadleaf filaree (*Erodium botrys*), popcorn flower (*Plagiobothrys*) and many others. Perennial grasslands are dominated by species such as California oatgrass (*Danthonia californica*) and Pacific hairgrass (*Deschampsia cespitosa*).

Many wildlife species utilize the herbaceous land cover/habitat type for foraging and breeding. Common reptiles that can be found in this land cover/habitat type include western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*) and western rattlesnake (*Crotalus atrox*) (Basey and Sinclair 1980). Typical common mammals that can be found include black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), and Botta's pocket gopher (*Thomomys bottae*). A special-status species that can be found in herbaceous areas include San Joaquin kit fox (*Vulpes macrotis mutica*) (White et al. 1980 and USFWS 2021a). Bird species include western meadowlark (*Sturnella neglecta*) and the special-status burrowing owl (*Athene cunicularia*).

Shrub

The shrub land cover/habitat type is characterized by shrubs totaling greater than or equal to 10 percent canopy cover, where a shrub is defined as a woody plant that generally has several erect, spreading, or prostrate stems which give it a bushy appearance (USDA 2016). Shrub species are generally less than 20 feet tall and can consist of both evergreen and deciduous species of true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions (USDA 2015). There are many shrub-dominated habitats that occur within the shrub land cover/habitat type within the Central Valley Region. Some of the shrub species found within this land cover/habitat type include juniper (*Juniperus*) and sagebrush (*Artemisia tridentata*).

The shrub land cover/habitat type serves as habitat to many common species such migratory mule deer (*Odocoileus hemionus*), western fence lizard (*Sceloporus occidentalis*), Brewer's blackbird (*Euphagus cyanocephalus*), Belding's ground squirrel (*Urocitellus beldingi*), and kangaroo rats (*Dipodomys* sp.). Special-status species such as pronghorn antelope (*Antilocapra americana*), sage grouse (Centrocercus urophasianus), and American badger (*Taxidea taxus*) can also be found in this land cover/habitat type.

Urban

Urban or built-up land is comprised of areas of intensive use with much of the land covered by structures and includes cities, towns, villages, strip developments along highways, transportation, power, and communication complexes, and institutions that may, in some instances, be isolated from urban areas (USDA 2016). The urban land cover type falls under the developed habitat type (CDFW 2014). Urban vegetation is defined by five types of vegetative structure: tree grove, street strip, shade tree/lawn, lawn, and shrub cover (CDFW 2014).

Some wildlife species typical of the urban land cover/habitat type include rock dove (*Columba livia*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), racoon (*Procyon*

lotor), plain titmouse (*Baeolophus inornatus*), black-tailed deer (*Odocoileus hemionus*), gopher snake (*Pituophis catenifer*), and western fence lizard *(Sceloporus occidentalis*).

Aquatic (Water)

The aquatic land cover/habitat type includes open water (i.e., lakes and ponds) and riverine (i.e., streams and drainages) habitats. Figure 3.10-1 in Section 3.10, "Hydrology and Water Quality," shows the location of surface waterbodies in the region in relation to lands managed by USFS and BLM. Although not pictured on Figure 3.10-1 (due to the scale of the region/figure), many small ponds and reservoirs may occur USFS and BLM managed lands 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 common 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*). Common amphibian species that may be found in lacustrine features include the Sierran chorus frog (*Pseudacris sierra*), American bullfrog (*Lithobates catesbeianus*), California newt (*Taricha torosa*), and California toad (*Anaxyrus boreas halophilus*).

Riverine features within the Central Valley Region are shown in Figure 3.10-1. As described in Section 3.10, "Hydrology and Water Quality," many streams/drainages in the Central Valley 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 July to October. Many streams/drainages in the region experience very low or no flow during the dry summer months. Larger waterbodies in the region (e.g., portions of Sacramento River, San Joaquin 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 Valley 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).

Wetland

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 2021). 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 2021).

Different types of wetlands may include different specific species assemblages, but all types support facultative[5] 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[6], 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.

Groundwater Dependent Ecosystems

As noted in Section 3.4.2 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). **Figure 3.4-2** shows mapped GDEs in the Central Valley Region in relation to USFS and BLM managed lands based on their relative density at the sub-watershed scale**.**

Special-Status Species

Various special-status species may have potential to occur in proximity to areas within USFS and BLM managed lands that may be affected by the Proposed Project. During the time that this document was prepared, the specific locations of Proposed Project activities (e.g., implementation of management measures for water quality protection associated with the activity types covered by the proposed Federal NPS Permit) were unknown; therefore, it was not possible to determine the potential for individual special-status species to occur within the specific impact areas and whether suitable habitat exists for these species. Special-status species lists (see Appendix D) generated from the California Native Plant Society (CNPS), CDFW, USFWS, and NMFS databases provided lists of special-status species with potential to occur in areas within and near USFS and BLM managed lands within the Central Valley Region; however, on-the-ground habitat assessments and surveys would be needed to confirm potential of special-status species and suitable habitat in areas where impacts to biological resources could occur as described in Mitigation Measure BIO-1.

The special-status species listed in Appendix D 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

[5] Facultative plants are those species that have an equal likelihood of occurring in wetlands and non-wetlands.

[6] 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 packardi*], California clam shrimp [*Cyzicus californicus*], Riverside fairy shrimp [*Streptocephalus woottoni*]).

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 (NEPA) 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 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."

Critical habitat is specific geographic areas that contain features essential to the conservation of an endangered or threatened species and that may require special management and protection (USFWS 2021b). **Figure 3.4-3** shows critical habitat in BLM and USFS managed lands within the Central Valley Region.

Biological Resource Impacts Associated with Activities on Lands Managed by United States Forest Service and Bureau of Land Management

The existing activities covered in the Federal NPS Permit that currently occur on federal land include vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities. These activities and their impacts to biological resources are on-going by USFS and BLM and undergo environmental review as part of the NEPA process. These activities are described in more detail in Chapter 2, *Project Description*. Section 3.4.4 provides an analysis of the potential adverse effects that the Proposed Project would have on biological resources as a result of implementing management measures to avoid, reduce, and/or mitigate the impacts that the activities listed above are causing or could cause.

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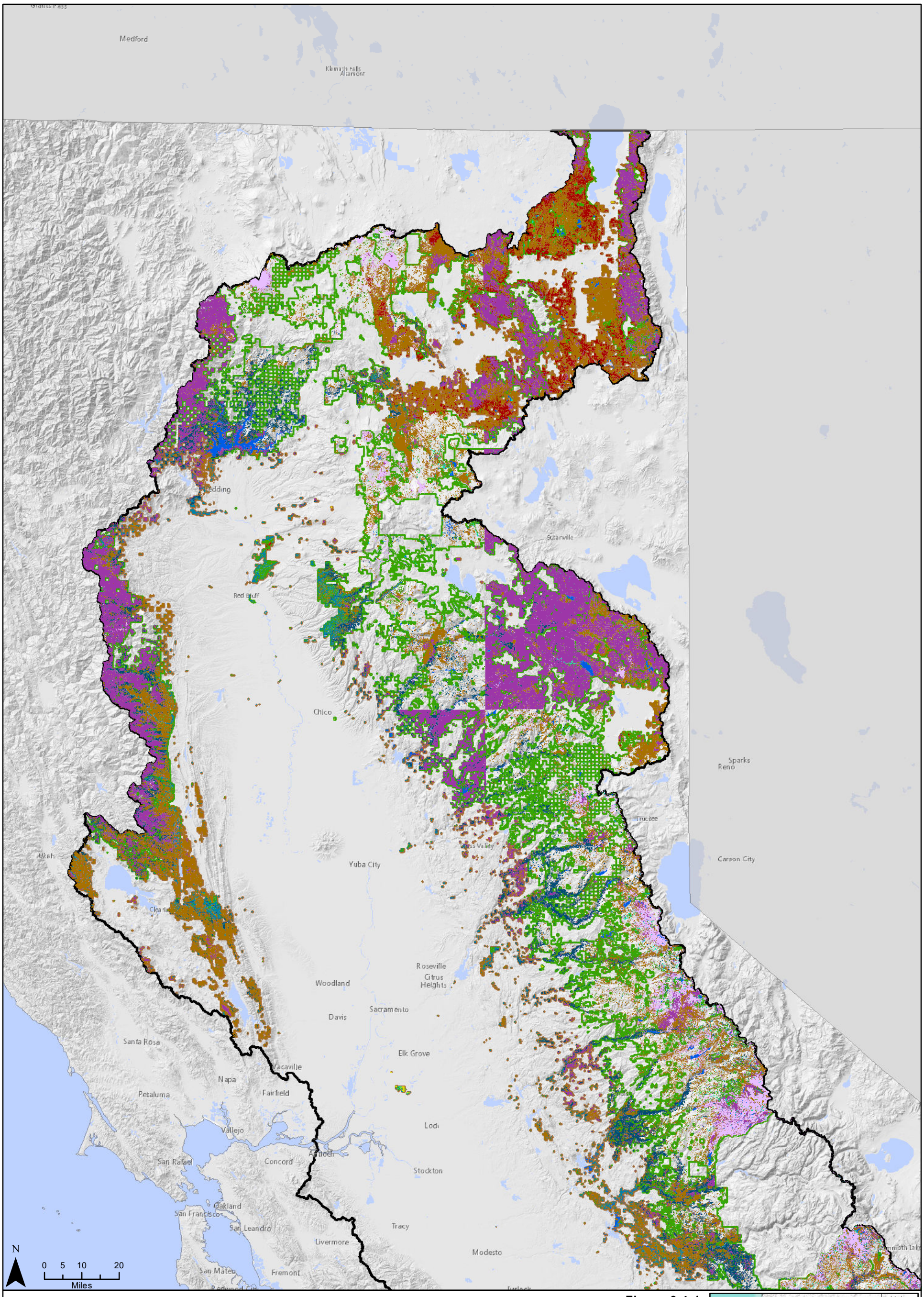


Figure 3.4-1
Land Cover

Sheet 1 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, USDA 2021

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Yuba City
Carson City
Roseville
Citrus Heights
Woodland
Sacramento
Davis
Hawthorne
Elk Grove
Vacaville
Fairfield
Lodi
Concord
Stockton
Tracy
Livermore
Modesto
Fremont
Turlock
Sunnyvale
San Jose
Merced
Los Banos
Gilroy
Santa Cruz
Watsonville
Madera
Clovis
Fresno
Salinas
Soledad
Visalia
Lemoore
Coalinga
Porterville
Delano
Bakersfield
San Luis Obispo
Tehachapi
Santa Maria
Lancaster
Lompoc
Palmdale
Santa Barbara
Santa Clarita
N
0 5 10 20
Miles

Land Cover Types

- Central Valley RWQCB Boundary
- Bureau of Land Management Lands
- U.S. Forest Service Lands
- Agriculture
- Barren/Other
- Conifer Forest
- Conifer Woodland
- Desert Shrub
- Desert Woodland
- Hardwood Forest
- Hardwood Woodland
- Herbaceous
- Shrub
- Urban
- Water
- Wetland

Oregon
Idaho
Nevada

Figure 3.4-1
Land Cover

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, USDA 2021

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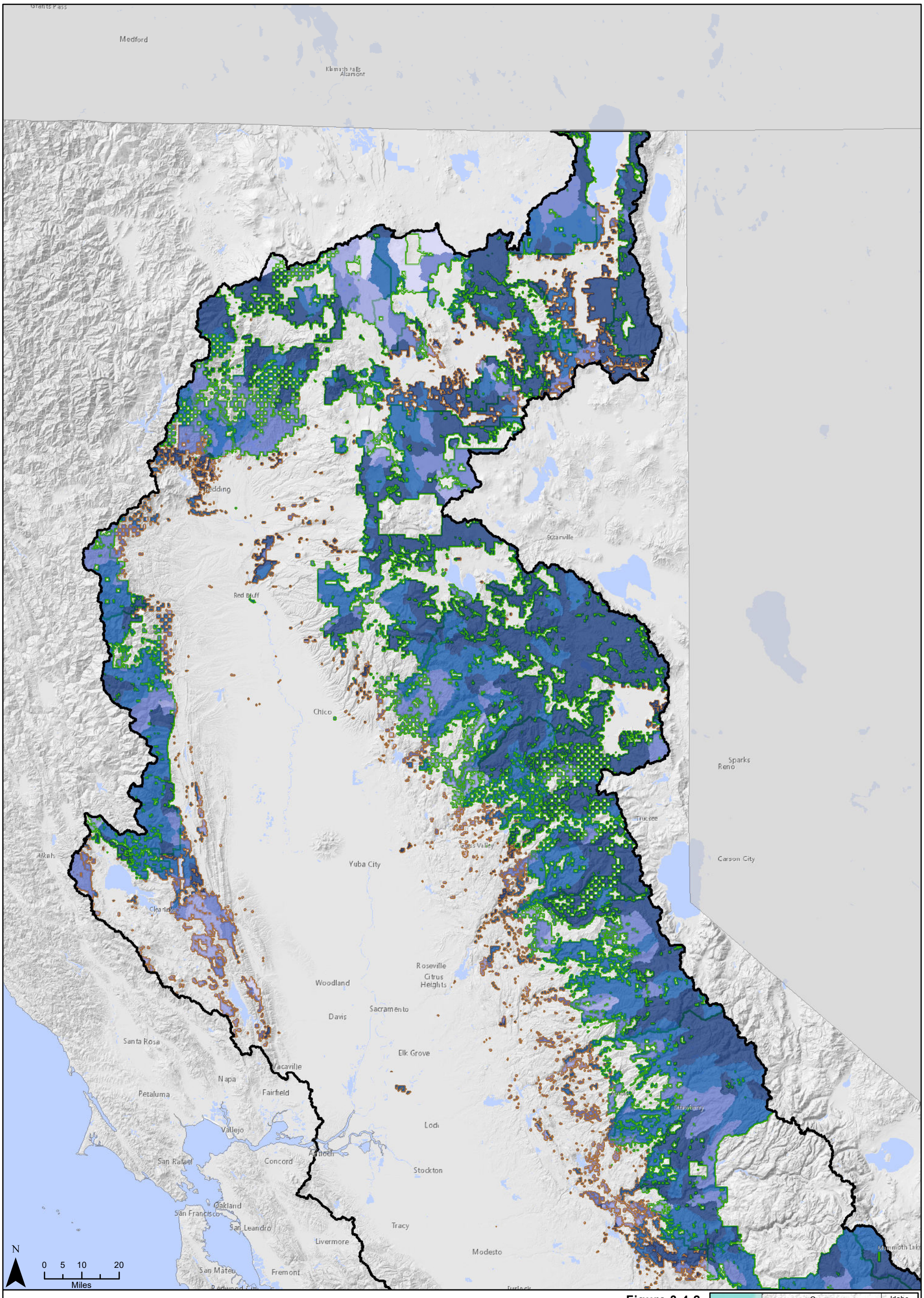


Figure 3.4-2
Groundwater Dependent Ecosystems

Sheet 1 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, The Nature Conservancy 2021

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Yuba City
Carson City
Roseville
Citrus Heights
Woodland
Sacramento
Davis
Hawthorne
Elk Grove
Vacaville
Fairfield
Lodi
Concord
Stockton
Tracy
Livermore
Modesto
Fremont
Turlock
Sunnyvale
San Jose
Merced
Los Banos
Gilroy
Santa Cruz
Watsonville
Madera
Clovis
Fresno
Salinas
Soledad
Visalia
Lemoore
Porterville
Delano
Bakersfield
San Luis Obispo
Santa Maria
Lancaster
Lompoc
Palmdale
Santa Barbara
Santa Clarita
N
0 5 10 20
Miles

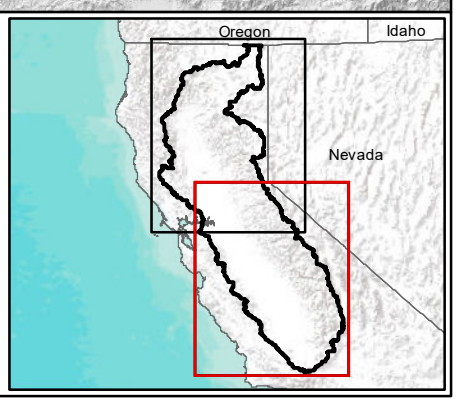
Groundwater Dependent Ecosystem Category

- None
- Very Low
- Low
- Medium
- High

- Central Valley RWQCB Boundary
- Bureau of Land Management Lands
- U.S. Forest Service Lands

Figure 3.4-2
Groundwater Dependent Ecosystems

Sheet 2 of 2



Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, The Nature Conservancy 2021

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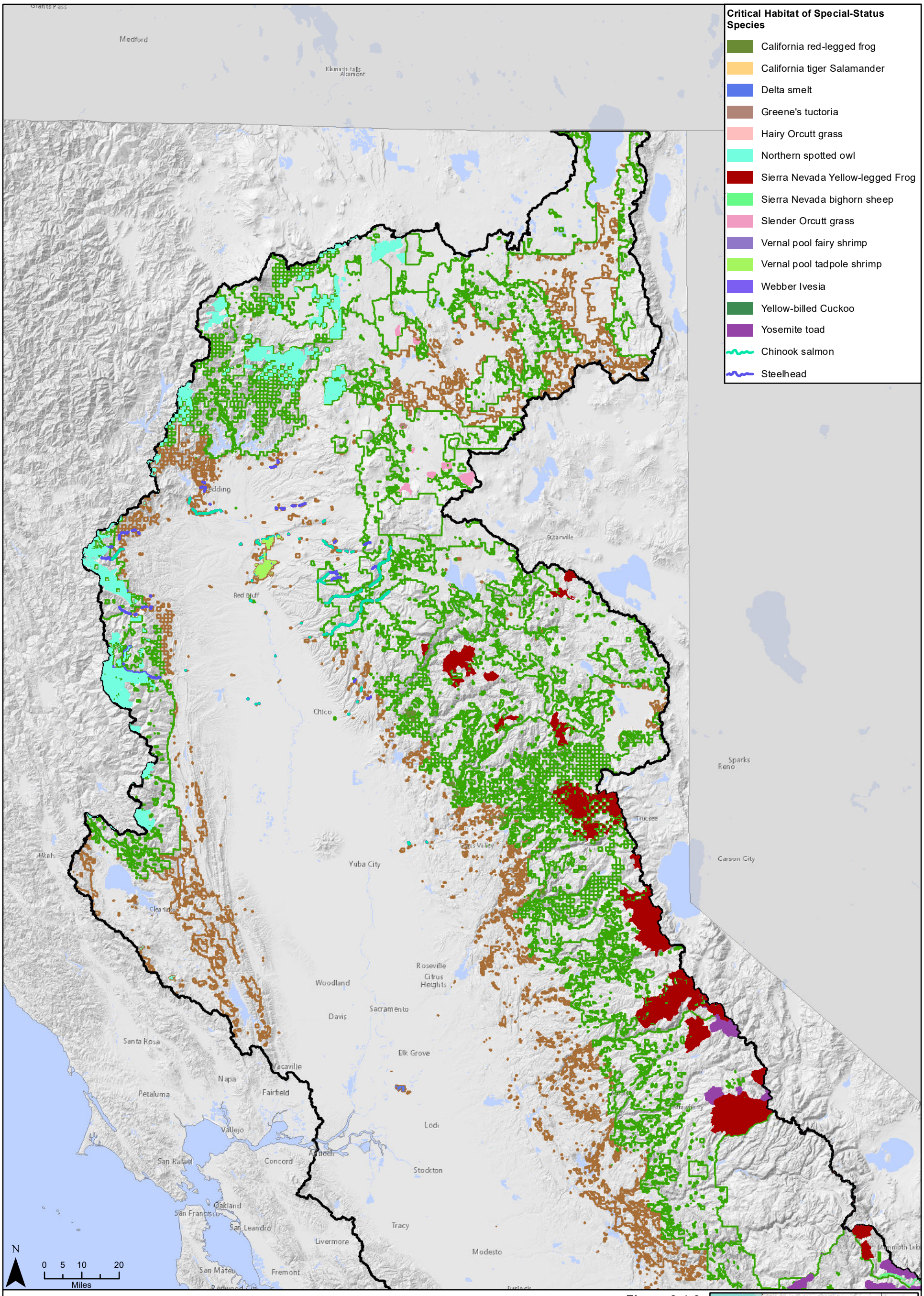


Figure 3.4-3
Critical Habitat of
Special-Status Species

Sheet 1 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, CNDDB 2021

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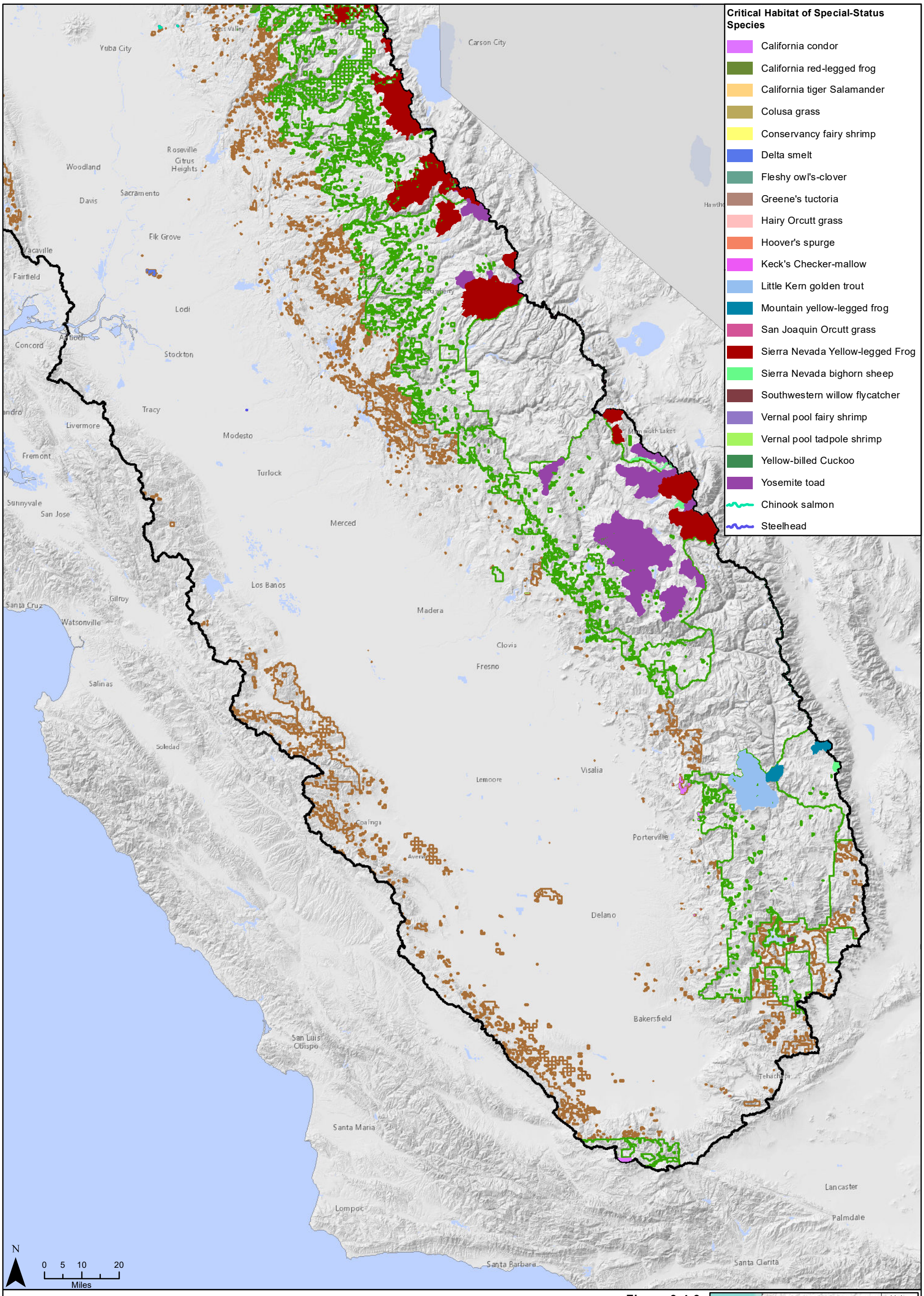


Figure 3.4-3
Critical Habitat of Special-Status Species

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Source: ESRI 2018, CNDDB 2021

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3.4.4 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 in this section evaluates the potential impacts of implementing management measures (as well as monitoring activities) for the activities covered under the proposed Federal NPS Permit (vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities), as they relate to biological resources. As discussed throughout this DEIR, to a certain extent, these impacts are speculative, as the specific locations and types of activities and associated management measures that may be conducted under the Proposed Project are not known. 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.

Criteria E above will not be discussed further in the impact analysis as local policies and ordinances do not apply to projects on federal land.

Environmental Impacts of the Proposed Project

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)*

Many of the common management measures that will be implemented for the activities covered under the Federal NPS Permit (vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities) will help to protect water quality in the long term and would ultimately benefit aquatic habitats, as well as protect riparian habitat and restore disturbed areas that could offer potential habitat for special-status species. For example, the seeding of disturbed soil (once seedlings become established) and the placement of road surface material (such as rock to native surface roads) would help to protect against erosion and sediment transport that could reach waterways and affect water quality and special-status fish species. Additionally, development of campsites away from surface waters or riparian areas would create a buffer so that these sensitive areas and habitats are less likely to experience impacts from human encroachment. Furthermore, other management measures such as tilling compacted soil surfaces, placing vehicle access barriers in areas not authorized for motorized vehicle use, and providing signage for authorized parking and camping areas could potentially help in the restoration of habitats used by special-status species.

Although many of the Proposed Project's management measures are expected to benefit special-status aquatic species and their habitats in the long-term once they are installed, some could have adverse effects to aquatic and other special-status species and habitats in the short-term during construction. If special-status plant or animal species were to occur within areas where construction of certain management measures (i.e., those involving ground disturbance) were to take place, this could result in direct impacts to those species. For example, activities such as tilling of compacted soil surfaces, installing ditches, or placement of rock or armor near culvert inlets and outlets could potentially cause mortality or injury to special-status plant and wildlife species by crushing with vehicles and/or heavy equipment or result in the loss of an active nest or burrow.

As described in Section 3.4.2, the USFS and BLM both have existing protective requirements with respect to special-status species and habitats, such as those laid out in FSM 2600 (USFS 2005) and Manual 6840 (BLM 2008). This includes avoidance and/or mitigation strategies for ESA-listed species, as well as USFS and BLM identified sensitive species[7]. The water quality

[7] USFS defines sensitive species as: "Those plant and animal species identified by a regional forester for which population viability is a concern, as evidenced by: (a) significant current or predicted downward trends in population numbers or density; (b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution" (USFS 2005).

BLM similarly defines sensitive species as "species that require special management consideration to avoid potential future listing under the ESA and that have been identified in accordance with procedures set forth in this manual" (BLM 2008). Sensitive species "must be native species found on BLM-administered lands for which the

protection BMP manuals for each agency (USFS 2012; BLM 2022) also include measures that would serve to avoid or minimize adverse impacts on special-status species and habitats that may be present in areas where management measures would be constructed/installed. The federal agencies' existing requirements would ensure that the potential occurrence of, and impacts to, federally-identified special-status species is considered prior to conducting Proposed Project activities, and that impacts to these species are avoided or minimized to a reasonable extent.

Most species with protection in California (e.g., pursuant to CESA, CFGC, CNPPA, or CEQA) are also designated as sensitive species by the USFS and/or BLM (Appendix D; BLM 2019, 2023). As such, these California special-status species would be afforded the same consideration as federally-listed species, and the potential impacts to these species associated with management measure construction/installation would be avoided or minimized. Nevertheless, as the criteria and underlying authorities are different, there exists the possibility that a California-protected species not also listed under the federal ESA and/or considered a USFS or BLM sensitive species could be impacted by Proposed Project activities. To ensure that biological resources are protected to the extent feasible, **Mitigation Measure BIO-1** would be implemented, which would require that USFS and BLM evaluate the specific on-going activities (vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities) and determine which management measures would result in the least amount of impact to special-status plant and wildlife species (including all those listed or recognized pursuant to California laws and regulations) and their habitats. If management measures would create impacts, implementation of additional avoidance and minimization measures would be required. Implementation of Mitigation Measure BIO-1 would ensure this potential impact would be less than significant.

In addition to potential direct injury or mortality to special-status species and habitats that may be present where management measures may be installed/constructed, construction activities could also indirectly affect species through erosion and sedimentation, or accidental releases or improper management of hazardous materials. As discussed in Section 3.10 "Hydrology and Water Quality," installation of road drainage features (e.g., rolling dips, water bars, outsloping, cross drains, etc.) has the potential to create a pathway for erosion and sedimentation during construction activities which could affect water quality and impact aquatic species if proper precautions are not taken. The construction equipment that will be used for implementation of the management measures also have the potential to leak hazardous materials (e.g., fuel, oil, etc.) that could potentially enter waterways or special-status species habitat. However, whether through implementation of their BMP manuals or via compliance with the Construction General Permit, the USFS and BLM would implement construction BMPs for erosion and sedimentation

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BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or
2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk." (BLM 2008).

control for management activities that could adversely affect water quality and aquatic species, which would reduce this potential impact. The federal agencies' water quality protection BMP manuals (USFS 2012; BLM 2022) also would require implementation of spill prevention, control, and countermeasures, which would avoid or minimize potential impacts to special-status species from accidental releases of hazardous materials used in the construction/installation of the management measures.

Compliance with existing laws and regulations as discussed in Section 3.4.2, including the USFS' and BLM's existing protective requirements, as well as implementation of Mitigation Measure BIO-1, would ensure that this impact is **less than significant with mitigation**.

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

To address potential impacts to California special-status species, as defined and listed in Section 3.4.3 and Appendix D, and sensitive vegetation communities within riparian habitat, waterways, or wetlands, USFS and BLM must complete a desktop analysis of all such areas where management measures will be implemented prior to implementation of any management measure(s). Where construction/installation of management measures could result in impacts to such species and habitat, USFS and BLM must consult a qualified biologist[8] and use the least impactful effective management measure (based on the recommendation of the biologist), to avoid or minimize impacts. Where implementation of management measures cannot be achieved without incurring potentially significant effects to such species and habitat, USFS and BLM must implement the following measures to reduce those effects 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 California special-status plant or animal species.
- Where construction in areas that may contain sensitive biological resources cannot be avoided through the use of management measures, 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 if one is not available through the federal agency's in-house resources to identify riparian and other sensitive vegetation communities and/or habitat for California special-status plant and animal species.

[8] A qualified biologist is defined as an individual with at least a four-year degree in biological sciences, natural history, environmental science, or a related field and at least three years of experience performing field work and impact analysis for species protected under the Endangered Species Act and/or related laws. This would include conducting surveys for the presence of special-status plant and animal species, as well as developing and implementing impact avoidance and minimization measures.

- When constructing/installing management measures, ensure that such activities will not disturb any California special-status species that may be present. If installing/constructing management measures during the nesting season (generally February 1 to August 31), the qualified biologist shall inspect the surrounding trees, vegetation, and ground to ensure that nesting birds are not present within or adjacent to areas where such management measures will occur. If nests or young are identified in such areas, construct/install the management measures outside of the nesting season.

- If substantial adverse effects on sensitive biological resources cannot be avoided or reduced to a less-than-significant level, the activity will not be eligible for coverage under the Federal NPS Permit and the USFS or BLM will need to seek an individual permit from the Central Valley Water Board.

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)*

Many of the management measures that could be implemented for the Proposed Project would have long-term beneficial impacts on biological resources and would offer protection to riparian habitats and sensitive natural communities. As discussed above, development of campsites away from surface waters or riparian areas would create a buffer so that these sensitive areas and habitats are less likely to experience impacts from human encroachment. Additionally, management measures, such as the retention of bank stabilizing vegetation and maintaining watercourse protection buffers while following application requirements for pesticide use, would ensure that the unnecessary removal of vegetation or application of pesticides does not occur in riparian areas during vegetation management activities.

However, some of the management measures could have adverse effects on riparian habitat or other sensitive natural communities, such as wetlands. Construction activities associated with pulling back altered stream banks to a natural grade for restoration could potentially damage/remove existing riparian habitat. Additionally, the installation/construction of other management measures, in particular, adding materials (i.e., rock, armor/hardened surface) near road drainage features, inlets/outlets, removing outside berms on road surfaces, and hydrologic disconnection activities (e.g., installation of rolling dips, water bars, outsloping, cross drains, etc.) could place fill in wetlands or destroy other vegetation classified as a natural community.

The USFS and BLM each have existing protective requirements and protocols with respect to biological resources, such as those identified in FSM 2600 (USFS 2005) and Manual 6840 (BLM 2008). These documents provide robust protections for federally threatened and endangered species, as well as USFS and BLM sensitive species, and their habitats. While riparian habitat and sensitive natural communities would presumably fall within the resources afforded special management considerations and protections by USFS and BLM in most cases, these types of habitats are not specifically called out by the federal agencies' guidance documents. Thus, to ensure riparian habitat and sensitive natural communities are protected to the extent feasible, the Proposed Project would implement **Mitigation Measure BIO-1**.

During construction/installation of management measures involving ground disturbance, there would also be potential for adverse effects on riparian areas and other sensitive natural communities from 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 into riparian areas or sensitive natural communities within, or adjacent to, project areas, significant impacts to these biological resources could occur. As discussed in Section 3.10, "Hydrology and Water Quality," and under Impact BIO-1, in accordance with their respective BMP manuals (USFS 2012; BLM 2022) and/or in compliance with the Construction General Permit, the federal agencies would implement construction BMPs for erosion and sedimentation control when constructing/installing management measures. Likewise, implementation of the USFS/BLM BMP manuals and the Stormwater Pollution Prevention Plan (SWPPP), as applicable, would avoid or minimize impacts to riparian areas and other sensitive natural communities by requiring hazardous materials spill prevention, control, and countermeasures.

Overall, implementation of the management measures would benefit riparian habitats and sensitive natural communities in the long-term but could adversely affect these areas in the short-term. In the long-term, implementation of management measures as discussed above would result in the protection of riparian habitats and sensitive natural communities which would ultimately lead to natural restoration of these areas. In the short-term, construction activities for certain types of management practices would also have potential to cause adverse impacts on riparian habitat and sensitive natural communities, although compliance with existing laws and regulations discussed in Section 3.4.2 and/or implementation of Mitigation Measure BIO-1, as stated above, would ensure these potential impacts would be below the level of significance. 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)*

Many of the management measures, once installed, could be beneficial to federally protected wetlands as they would reduce erosion and sedimentation, reduce stormwater runoff, and improve water quality. For example, restoration activities such as watershed/wetland restoration would restore channels and meadow functions while enhancing hydrology and habitat and reducing sources of sediment from bank erosion.

Installation/construction of some of the management measures, however, could impact potentially jurisdictional drainage features and wetlands. Potentially jurisdictional features (waters and wetlands) within the Project area may be considered both waters of the U.S. and waters of the state, and therefore under the jurisdiction of the USACE and the Central Valley Water Board. Management measures such as rock armoring the road fill below a road drainage feature, adding rock below a culvert outlet to dissipate concentrated flows to protect against scour, adding armor/hardened surface to the inlet or outlet of a culverted watercourse crossing, and installation of road drainage features (i.e., rolling dips, ditches, leadoff ditches) could result in both temporary and permanent impacts to potential jurisdictional waters and wetlands. Additionally, construction vehicles and equipment could degrade and damage waters and wetlands if they are driven adjacent to or through these areas.

Examples of temporary and permanent impacts that could occur to jurisdictional waters and wetlands as a result of installation/construction of management measures include impacts from fill, sedimentation, erosion, and dust. Placement of fill into jurisdictional water features could result from adding rock or road fill into drainage features or near culverts. Construction disturbance could indirectly impact jurisdictional water features through increased erosion and sedimentation and the release of toxic chemicals (e.g., oil or fuel). Sedimentation associated with erosion would adversely affect jurisdictional water features should construction spoils from the Proposed Project reach these areas. Construction activities, such as grading and driving of heavy equipment on unpaved access roads can result in increased levels of blowing dust that may settle in jurisdictional water features, resulting in adverse effects to water quality. Jurisdictional water features could also be adversely affected by decreased water quality if a toxic substance spilled or flowed into them.

In accordance with the CWA and Porter-Cologne Act (see Section 3.10, "Hydrology and Water Quality" for detailed discussion), USFS and BLM would be required to obtain permits from USACE and RWQCB prior to impacting any jurisdictional waters or wetlands, which would include both waters of the U.S. and state. The permits from USACE and RWQCB would impose limitations and mitigation requirements for impacts to jurisdictional resources. USFS and BLM would be required to implement all measures in the permits for impacts to jurisdictional resources. As discussed in Impact BIO-1 and BIO-2, potential indirect impacts on wetlands and waters would be avoided or minimized through implementation of the USFS' and BLM's water quality protection BMP manuals (USFS 2012; BLM 2022), as well as compliance with the Construction General Permit, as applicable. Given compliance with the existing laws and regulatory requirements, the federal agencies would not have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means.

Therefore, this impact would be **less than significant.**

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)*

Streams, rivers, 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 (steelhead, Little Kern golden trout) rely on streams and rivers within the Central Valley Region, many of which serve as migration corridors for spawning habitat, seasonal movements, or the completion of critical lifecycle stages. Section 3.10, "Hydrology and Water Quality" discusses the surface waters in the Central Valley region. Figure 3.10-1 shows where these waterbodies are located within the Project area.

Once installed, many of the management measures would benefit migratory fish and wildlife species as well as migratory wildlife corridors and nursery sites. Restoration activities, such as wildlife and/or aquatic species habitat restoration and aquatic organism passage, would enhance watercourse habitat by removing or adding woody debris. The removal or replacement of culverts, dams, fords, or other instream structures will allow for the unrestricted passage of

aquatic organisms. Forest restoration activities will provide a forest of more varied tree age and species, which may be more favorable to certain wildlife species.

Construction/installation of management measures, however, would generate noise and temporarily increased levels of human activity relative to existing conditions. Noise generated from construction/installation of some of the management measures would come from sources such as vehicles, large construction equipment, generators, and human activity. This noise could create disturbance of wildlife and could disrupt use of the wildlife corridor. Due to the fact that the construction/installation of management measures would be temporary and infrequent at any one location and given compliance with applicable noise prohibitions (see discussion in Section 3.12, "Noise"), impacts from noise would be less than significant.

Installation/construction of the management measures is not expected to result in any permanent barriers to fish or wildlife movement. Work within waterways or riparian areas may temporarily alter dispersal corridors for native fish and wildlife but these effects would be temporary. Particularly given the federal agencies' existing protective requirements related to biological resources (see discussion in Impact BIO-1 and BIO-2), these temporary effects would be less than significant. Implementation of BMPs in accordance with the USFS and BLM BMP manuals and the SWPPP, as applicable, would prevent adverse impacts on spawning habitat in adjacent waterbodies due to potential discharges of fine sediments or hazardous materials during construction activities or from impervious surfaces created through compliance with the proposed Federal NPS Permit.

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

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 Valley Region. Examples include ordinances and local zoning that specify protections for wetlands and streams and regulate the removal of trees.

As described in Section 3.4.2, "Regulatory Setting," lands managed by USFS and BLM are under federal jurisdiction and not subject to regional, county, or city policies and ordinances. 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)*

Natural community conservation plans (NCCPs) and habitat conservation plans (HCPs) in the Central Valley Region support protection of special-status species and habitat, maintaining wildlife movement and habitat connectivity, and protecting and restoring water quality for aquatic ecosystem health. NCCPs and HCPs also may promote maintenance of surface water flows at acceptable levels for special-status fish species movement and spawning.

There are a number of NCCPs and HCPs within the Central Valley Region. The Yolo County HCP/NCCP is a permitted plan that covers some BLM lands within the Central Valley Region, and both the Butte County NCCP/HCP and the Aera Energy Southwest San Joaquin Valley NCCP/HCP

will also cover some BLM lands but are still in the preparation phases. If management measures would be constructed/installed within or near lands covered by an NCCP or HCP, BLM and USFS would need to ensure that all applicable mitigation measures included in the applicable NCCP or HCP are implemented to avoid and/or reduce any impacts resulting from construction/installation of management measures that could enter into lands covered by an NCCP/HCP.

Implementation of the USFS' and BLM's existing protective requirements with respect to biological resources (see discussion in Impact BIO-1 and BIO-2), as well as **Mitigation Measure BIO-1**, would ensure that impacts to California special-status species and sensitive vegetation communities or habitat associated with Proposed Project activities would be avoided or minimized. Implementation of BMPs in accordance with the federal agencies' water quality protection BMP manuals and the SWPPP, as applicable, would prevent adverse impacts to habitats in adjacent waterbodies due to the discharge of fine sediments or hazardous materials during construction/installation of the management measures. Implementation of these existing requirements and Mitigation Measure BIO-1 would ensure that impacts to NCCP/HCP lands are **less than significant with mitigation.**

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3.5 Cultural Resources

3.5.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to cultural resources. Cultural resources include pre-contact Native American archaeological sites, historic-era archaeological sites, historic-era buildings, structures, landscapes, districts, and linear features. Pre-contact archaeological sites are places where Native Americans lived or carried out activities during the pre-contact 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 vists by sea-going explorers in the mid-1500s, for the counties in the Proposed Project area, exploration and settlement began in earnest during the mid-1770s and into the early to mid-1800s. Native American sites can also reflect the historic era. Pre-contact 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 3.15, “Tribal Cultural Resources.”

3.5.2 Regulatory Setting

Federal Laws, Regulations, and Policies

There are many federal laws, regulations, and policies for cultural resources that are applicable to all federal agencies, including both the BLM and USFS; those that are most salient are presented immediately below. Regulations other than those discussed here include, but are not limited to, the Antiquities Act of 1906, the Historic Sites Act of 1935, and the Archeological and Historic Preservation Act of 1974, as they have largely been superseded by the regulations listed below. Executive orders important to the protection of cultural resources include, but are not limited to, Executive Order 11593 – Protection and Enhnacement of the Cultural Environments from 1973 and Executive Order 1113287 – Preserve America of 2003. Regulations specific to Native American religious rights and resources are discussed in Section 3.15, “Tribal Cultural Resources.”

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 (referred to as an “undertaking”) 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 36 CFR, Part 800, as amended (2004).

The implementing regulations for Section 106 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. The eligibility criteria are found at 36 CFR Section 60.4. 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.

If a historic property is identified within an undertaking's area of potential effects, efforts must be made to avoid adverse impacts to the resource through redesign or application of mitigation measures to reduce impacts.

Section 110 of the NHPA further specifies that federal agencies must consult with the State Historic Preservation Officer (SHPO) to identify and evaluate historic properties for listing in the NRHP, and on the development and implementation of agreements (Programmatic Agreements or Memoranda of Agreement) for the treatment of adverse effects to historic properties.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (ARPA) of 1979 provides for the protection of archaeological resources more than 100 years old and that occur on federally owned or controlled lands. The statute makes it unlawful to excavate and remove items of archaeological interest from federal lands without a permit, and it defines the process for obtaining such a permit from the responsible federal agency. This process includes a 30-day notification to interested persons, including Native American tribes, by the agency to receive comments regarding the intended issuing of a permit. The law establishes a process for prosecuting persons who illegally remove archaeological materials from lands subject to ARPA. The law also provides for curation of archaeological artifacts, ecofacts, notes, records, photographs, and other items associated with collections made on federal lands. Standards for curation are provided for in regulations at 36 CFR 79.

In addition to these broadly applicable laws, the BLM and USFS each has its own regulations and policies to further define how the higher-level laws are applied to cultural resources relative to their own agencies' missions and responsibilities. The most pertinent of these policies for each agency are identified.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) provides a process for federal agencies and museums to repatriate or transfer certain Native American cultural items (e.g., human remains, funerary objects, sacred objects, and objects of cultural patrimony) to lineal descendants, tribes, or other entities (BLM 2024). It also provides a process for federal agencies to address new discoveries of Native American human remains and other cultural items intentionally excavated or inadvertently discovered on federal or tribal lands (BLM 2024). The implementing regulations for the NAGPRA are contained in 43 CFR, Subtitle A, Part 10.

With respect to inadvertent discoveries, which is of most relevance to the Proposed Project, NAGPRA generally requires that persons who inadvertently discover human remains or related items must provide notification to the federal agency or applicable tribal official, and cease activity in the area or the discovery and make a reasonable effort to protect the remains. Within three working days, the federal agency must then notify any known lineal descendants of the deceased Native American individual or the tribe or entity culturally affiliated with the cultural items, initiate consultation pursuant to the discovery, follow applicable requirements and precedures related to removal of the remains or cultural items, and ensure that disposition of the remains or cultural items is properly carried out. Activity may resume 30 days after the federal agency receives the notification of the inadvertent discovery or if an agreement is reached with the affiliated tribe regarding a recovery plan.

Bureau of Land Management Regulations and Policies

The policies and procedures to manage BLM cultural resources are provided in the BLM Cultural Programs Manuals, 8100 Series (BLM 2004). The policies and procedures, which were last updated in 2004, provide a framework for meeting the legal and regulatory requirements that underlie BLM's cultural heritage program. The manual sections provide an introduction to the series and give direction about identifying and evaluating cultural resources; working with Native Americans during the identification and evaluation process; the management of cultural resources; protection of cultural resources; procedures for issuing permits to authorize scientific uses of cultural resources; managing collections recovered from BLM lands; and interpreting cultural resources for the public. In 2021, BLM issued a Handbook of Guidelines and Procedures for Inventory, Evaluation, and Mitigation of Cultural Resources to support implementation of the 8000 series policies (BLM 2021).

In 2012[1], the BLM, Advisory Council on Historic Preservation, and the National Conference of Historic Preservation Officers entered into a Programmatic Agreement that legally replaces the

[1] The BLM had previously entered into a Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of Historic Preservation Officers in 1997. The 2012 version supercedes the 1997 Programmatic Agreement and complies with updates made to the 36 CFR 800 regulations.

36 CFR 800 regulations as the way BLM complies with Section 106 of the NHPA. The goal of the Programmatic Agreement was to implement efficiencies in the Section 106 process and emphasizes government-to-government consultation with Native American Tribes. The Programmatic Agreement, as amended in 2014, also encourages state BLM directors to establish separate agreement documents with SHPOs to "establish streamlined (as opposed to case-by-case) consultation on evaluation of cultural resources for National Register Eligiblity and for no-historic-properties-affected, no-adverse-effect, and adverse-effect determinations…" (BLM 2021).

Following the lead of the national Programmatic Agreement, the California BLM state director, who oversees lands in both California and northwestern Nevada, entered into a Programmatic Agreement with the California and Nevada SHPOs in 2014. The Programmatic Agreement, updated in 2019, streamlines the consultation process for undertakings pursuant to the requirements of 36 CFR 8000 and ensures that the requirements of the implementing procedures are met by allowing qualified BLM staff to integrate protocols established by the respective states.

United States Forest Service Regulations and Policies

Similar to BLM, the USFS has a Forest Service Manual for Recreation, Wilderness, and Related Resource Management; Chapter 2360 is devoted to Heritage Program Management (USFS 2008). The manual outlines how the USFS complies with the implementing regulations of Sections 106 at 36 CFR Section 800. The USFS has also prepared a Heritage Program Management Handbook (USFS 2015) that, among other things, provides additional detail for complying with established protocols for identifying and evaluating historic properties on USFS lands.

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. Pursuant to PRC Section 5097.98, the NAHC, in turn, will immediately contact an individual who is most likely descended from the remains (the "Most Likely Descendant"). The Most Likely Descendant has 48 hours to inspect the site once access is granted and recommend treatment of the remains. The landowner is obligated to work with the Most Likely Descendant in good faith to find a respectful resolution to the situation and entertain all reasonable options regarding the Most Likely Descendant's preferences for treatment. If a Most Likely Descendant cannot be identified or fails to make a recommendation, the landowner shall reinter the human remains and associated items with appropriate dignity on the property in an area where they will not be disturbed.

California Register of Historical Resources

The California Register of Historical Resources (CRHR) is established in PRC Section 5024.1. The CRHR 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

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans.

3.5.3 Environmental Setting

BLM and USFS managed lands within the Central Valley Region reflect diverse landscapes, climatic conditions, and land use types, from the flat plains of the Central Valley to the rugged peaks of the Cascade, Sierra Nevada, Coast Range, and Tehachapi mountains, and the sage-covered plateau of the northeast corner of the state. As described in Chapter 2, *Project Description,* Proposed Project activities would occur in all areas managed by the BLM and USFS, which are shown in Figure 2-1.

Pre-Contact Native American Archaeology

Archaeological evidence currently indicates that people 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 state, thereby leaving increased evidence (i.e., material culture) 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.

When systematic archaeological research began in California in the late 19th century, archaeologists began organizing the archaeological record into cultural stages to develop a chronological sequence, or "culture history," of California. These cultural histories were developed regionally. Generally, ten pre-contact archaeological regions have been identified in California. Of these, four of the archaeological regions are entirely or partially within the Project area: the North Coast, Northeast, Central Valley, and Sierra Nevada (Moratto and Chartkoff 2010).

Within these regions, various chronologies attempt to account for changes in the archaeological record as a result of inferred changes in human behavior. The archaeological record in California, therefore, reflects some shared broad-based patterns, but it also exhibits locally expressed culture traits. The numerous indigenous groups that arrived in the region now referred to as California were linguistically diverse, and they further distinguished themselves from their neighbors by developing cultural traits unique to their communities.

Although the various archaeological regions developed specific cultural traits, the prehistories of all of the regions reflect a similar progression of technological changes and social complexity over time, and thus share similar artifact types. The broad periods of culture change, defined by Fredrickson (cf. 1994; adapted from Willey and Philips [1958]) (the Paleo-Indian Period; the Lower, Middle, and Upper Archaic periods; and Lower and Upper Emergent periods) are applicable to all the archaeological regions in the Proposed Project area, though to differing degrees. More recently, however, researchers have paired these culture changes with

adaptations to a changing climate and use geological nomenclature to distiguish cultural periods, referring to cultures of the Late Pleistocene, and early, middle, and late Holocene cultures (Moratto and Chartkoff 2010).

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.

BLM and USFS managed lands within the Central Valley Region were occupied by indigenous populations that represented a wide array of language groups at the time of initial colonization. From north to south, roughly, these groups are represented by the Northern Paiute, Modoc, Achomawi, and Astugewi, Shasta, New River Shasta, and Okwanuchuin in the northeastern and north central portions of the state. In the North Coast Range and Sacramento Valley west of the Sacramento River, were the Wintu, Nomlaki (Hill and Valley), Patwin (Hill and Valley), Pomo (Northern, Eastern, and Southeastern), Lake Miwok, and Wappo. The Northern Valley Yokuts, Ohlone/Costanoans, Salinan, Chumash and Southern Valley Yokuts lived in areas now managed by BLM and the USFS in areas of the South Coast Range, Transverse Range, and southern San Joaquin Valley under the jurisdiction of the Central Valley Water Board. Along the length of the Sierra Nevada (including the southern Cascades in the north and the Tehachapi mountains in the south) were the Yana, Northeastern Maidu, Konkow Maidu, Nisenan, Washo, Plains Miwok, Sierra Miwok, Foothill Yokuts, Monache, Tubatulabal, and Kawaisu, and Kitanemuk (Kroeber 1925: Plate 1).

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 within the Central Valley Region relied primarily on terrestrial resources for subsistence. Agriculture, in the modern sense, was not generally practiced, although indigenous Californians within the Central Valley Region managed their environment and resources through methods such as fire and the grooming and cultivation of plants in their natural habitats.

The indigenous populations were all greatly affected by European and Euro-American colonization, but because of the geographic expanse of the Proposed Project area, these impacts did not occur in a uniform manner. For example, while most tribes' first experience with colonists was brief and took place during interactions with Spanish, Mexican, or American explorers, the time span for this occurrence covered nearly a century. The Spanish quickly

worked their way north along the Pacific coast, establishing missions from San Diego in 1769 to San Francisco in 1776, conscripting tribes as they went. It didn't take long for their interests to turn inland and, beginning in the early 1770s, Spanish explorers scouted areas inland from the coast to establish ranchos to support the missions and identify potential sources of labor. These first incursions inland greatly impacted tribes living on the east slope of the South Coast Ranges, in the San Joaquin Valley, and in the San Joaquin-Sacramento River Delta (Kyle et al. 2002); by the early 1800s, tribes in the foothills of the southern Sierra Nevada were also feeling the impact of the mission presence.

The Spanish continued to scout lands to the north, into the Sacramento Valley, during the late 1700s and early 1800s, but did not create any settlements. It was not until after the Spanish were overthrown and California became part of Mexico that more agressive exploration occurred in the Sacramento Valley and the surrounding foothills, largely on the part of American mountain men and fur trappers. Their arrival, in the 1820s and 1830s, brought disease that devastated the Sacramento Valley tribes. At this same time, the Mexican government began issuing grants of land to favored citizens. First granted only to Mexican nationals, these tracts of land were soon bestowed upon those outsiders (largely Americans) who agreed to become Mexican citizens (Kyle et al. 2002), and many were located in the Central Valley and the surrounding foothills. In order to satisfy the labor requirements of these large tracts of land, the Mexican military were known to brutally round up tribal communities who were forced to work on the ranchos in order to survive (Castillo 1978). The Gold Rush of 1849 instigated a massive migration of people from all over the world into the Sierra Nevada, which caused a major denigration of the natural flora and fauna and created extreme conflict between colonists and indigenous communities. By the late 1800s, the Native American population in the Central Valley Region was significantly reduced by disease and conflict, and tribal communities were largely forced to live on small rancherias or relegated to working on the ranchos throughout the region.

Through newfound political, economic, and social influence, California tribes now constitute a growing and thriving constituency in the State. This has allowed tribes to reinvest in their traditional cultures and languages, and to continue to pass ancestral knowledge and practices to their children.

History

As indicated previously, the beginning of the historic era varied by region throughout California, but generally it started between the mid-1500s and mid-1800s, moving from south to north through the state. Historic-era cultural activities provide a record of Spanish, Mexican, and American rule, occupation, and land use. A much-abbreviated history is presented to provide a background of the presence, chronological significance, and historical relationship of cultural resources within the state.

During the Spanish Period (1769–1822), the Spanish government established a series of presidios, missions, and towns along the coast of Alta California (also called New Spain), from San Diego to San Francisco. The Spanish conscripted the local Native Americans along the way. Despite scattered Spanish occupation, however, California remained largely uncolonized throughout this period. The routes used to travel between the presidios and missions provided the outline for today's U.S. Interstate Highways 101 and 5 (Kyle et al. 2002).

The Mexican people overthrew the Spanish in 1822 and renamed New Spain the Republic of Mexico, thus beginning the Mexican Period (1822–1848). During this time, the Catholic missions were secularized and the Indians 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, as described above. The American 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).

Cultural Resources in the Proposed Project Area

Due to the long period of known habitation and rich history in California, there is potential for a variety of cultural resources to exist in the Proposed Project area, many of which have not been recorded. 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 (milling equipment or waste flake from manufacturing knives, etc.), 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.

- 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.

3.5.4 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 that could result from implementation of common management measures under the Proposed Project. As described in Chapter 2, *Project Description,* the precise location and timing of individual actions (e.g., management measure construction/implementation) that could occur under the Federal NPS Permit are not known and cannot be known at this time. Therefore, the analysis considers generally the impacts to cultural resources that could occur on federal lands in the Central Valley Region based on the reasonably foreseeable management measures 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. 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)*

Many of the common management measures that would be implemented for the activities covered under the Federal NPS Permit (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities) have the potential to impact historical resources, particularly those that are archaeological in nature. Any ground disturbance has the potential to impact archaeological resources, primarily by exposing buried cultural remains that had not previously been identified. Though less likely, significant built environment resources could also be affected by actions, such as road modifications. Examples of actions that have potential to impact historical resources are listed in **Table 3.5-1**. It must be noted, however, that any action that causes ground disturbance could impact significant archaeological resources.

Table 3.5-1. Project Actions that Could Potentially Impact Historical Resources

Activity Class	Action
Vegetation Management	▪ Installing water bars to skid trails or landings ▪ Tilling compacted soil surface
Transportation Management	▪ Installing road drainage features
Recreation Facilities Management	▪ Developing campsites away from surface waters or riparian areas (establishing new campsites usually require ground disturbance by minor levelling and/or installation of facilities such as water lines or vault toilets) ▪ Adding hardened surface to parking areas, watercraft launch sites, and staging areas
Post-Emergency Recovery	▪ Installing water bars on fire lines ▪ Repairing or replacing damaged or at-risk infrastructure such as culverts, watercourse crossings ▪ Repairing roads
Restoration Activities	▪ Pulling back altered stream banks to a natural grade and providing ground cover on exposed or disturbed soils

As discussed above in Section 3.4.2, both the BLM and USFS have developed robust guidelines for implementing the NHPA Section 106 regulations within their respective agencies. The guidelines describe detailed protocols for defining a project and its area of potential effect; resource identification and historic property evaluations by applying the NRHP criteria provided in 36 CFR 60.4; assessing the adverse effects of a project on identified historic properties; and the resolution of adverse effects to historic properties. The agencies' policies also detail actions to take if unanticipated archaeological discoveries occur during project construction, as well as consultation with Native American groups. Somewhat similar protocols are provided under Section 15064.5 of the CEQA Guidelines for historical resources, but they do not include nearly as much specificity as the Section 106 regulations. Consultation with Native American tribes has recently been expanded under CEQA with the addition of Section 21080.3 to the Public Resources Code.

Language developed to address historical resources under CEQA has relied heavily on the implementing regulations for Section 106, such that the criteria for eligibility for listing in the CRHR echoes the criteria for NRHP eligibility. PRC 5024.1(c) states that "A resource may be listed as an historical resource in the California Register if it meets any of the following National Register of Historic Places criteria…" CEQA also relies on federal guidelines for mitigating impacts to built environment resources under Section 15064.5(b)(3) of the CEQA Guidelines: "Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of Interior's Standards for Rehabilitation and Guidelines for

Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource."

All actions undertaken by the BLM and USFS under the Proposed Project must comply with Section 106 of the NHPA, unless those actions are determined to be exempt; that is, there is no potential for the undertaking to adversely affect historic properties. Such exempt undertakings are largely ministerial. All other actions must be considered under Section 106, and the implementing regulations under 36 CFR 800 must be applied. Most of the activities described in Section 2.5.2, Covered Activities, and listed in Table 3.5-1 would require analysis under Section 106. Moreover, all activities covered under the Federal NPS Permit must be conducted in accordance with any associated NEPA document(s) prepared for the activity. The implementation of conditions to for water quality protection imposed as part of the Federal NPS Permit would result in minimal additional ground disturbance compared to the underlying federal activity.

Given the level of Section 106 review the actions under the Proposed Project will undergo under the BLM and USFS policies for addressing cultural resources, it is reasonable to assume that historical resources will be adequately identified, the potential impacts to historical resources will be assessed, and appropriate treatments to historical resources that would be affected by the Proposed Project will be implemented. There is also assurance that unanticipated archaeological discoveries will similarly be treated appropriately. As a result, impacts to historical resources by the Proposed Project would be **less than significant**.

Impact CUL-2: Disturb any human remains, including those interred outside of dedicated cemeteries. *(Less than Significant)*

Human remains identified during the implementation of Section 106 protocols by the BLM and USFS for individual undertakings under the Proposed Project shall be treated according to treatment plans developed to avoid or mitigate impacts to historic properties, as disussed under Impact CUL-1. However, as with archaeological sites, human remains may be buried with no surface manifestation. Ground disturbances associated with management measures for the covered activities (see Table 3.5-1) could, therefore, expose previously undocumented human remains. Impacts on accidentally discovered human remains would be considered a significant impact.

BLM and USFS protocols are consistent with CEQA in that they require work to stop immediately when human remains are discovered. When discovered on federal lands, specified authorities are immediately notified and the remains are treated wih appropriate dignity. Native American human remains are treated under NAGPRA, within the guidelines developed for the BLM and USFS. This includes extensive consultation with culturally affiliated tribes about the treatment, disposition, and repatriation of the human remains and all funerary items associated with remains, as well as items of cultural patrimony. In this regard, the BLM and USFS protocols with respect to NAGPRA would be protective of any human remains that may be inadvertently discovered during implementation of the Proposed Project. As a result, significant impacts to human remains would not occur, and 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 GHG emissions, refer to Section 3.8, "Greenhouse Gas Emissions."

3.6.2 Regulatory Setting

Federal Laws, Regulations, and Policies

Energy Policy Act

The Energy Policy Act of 2005 sought to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. This act established energy-related tax incentives for energy efficiency and conservation; renewable energy; oil and gas production; and electricity generation and transmission. The act also established requirements for increased amounts of renewable fuel (e.g. ethanol or biodiesel) to be used in gasoline sold in the U.S.; provisions to increase oil and natural gas production on federally-owned lands, and federal reliability standards regulating the electrical grid.

Corporate Average Fuel Economy and Greenhouse Gas Emissions Standards

The federal government is responsible for establishing regulations to improve the efficiency of motor vehicles. The National Highway Traffic Safety Administration's (NHTSA) Corporate Average Fuel Economy (CAFE) standards regulate how far vehicles must travel on a gallon of fuel. NHTSA sets CAFE standards for passenger cars and light trucks (collectively, light-duty vehicles), and separately sets fuel consumption standards for medium- and heavy-duty trucks and engines (NHTSA 2021). Jointly with CAFE, NHTSA also regulates GHG emissions from vehicles of various weight classes.

The CAFE and GHG emissions standards have been rolled out in multiple phases. On April 1, 2010, USEPA and the 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 2021a, Center for Climate and Energy Solutions 2021). However, some of these standards have been stayed by a court order and USEPA has proposed repealing certain Phase 2 emissions standards (Center for Climate and Energy Solutions 2021). On August 5, 2021, USEPA announced plans to reduce GHG emissions and other harmful air pollutants from heavy-duty trucks through a series of rulemakings over the next three years. The first rulemaking, to be finalized in 2022, will apply to heavy-duty vehicles starting in model year 2027 (Center for Climate and Energy Solutions 2021).

In September 2019, USEPA and NHTSA issued a final action that enables federal vehicle standards to preempt State action and withdrew the waiver for California's Advanced Clean Cars Program, Zero Emission Vehicle (ZEV) Program, and Low-Emission Vehicle (LEV) Program. In March 2020, USEPA and the NHTSA issued new GHG emission standards and fuel economy standards for new passenger cars and light-duty trucks. In April 2021, USEPA and NHTSA announced they are reconsidering both the final action regarding California's waiver and new Safer Affordable Fuel-Efficient (SAFE) vehicle emissions standards (USEPA 2021b, NHTSA 2021).

United States Forest Service Strategic Energy Framework

In 2011, the USFS published its Strategic Energy Framework (USFS 2011) to set direction and proactive goals for the USFS to significantly and sustainably contribute toward resolving U.S. energy resource challenges, by fostering sustainable management and use of forest and grassland energy resources. This framework outlined five main goals:

Goal 1: Significantly contribute to national energy security, environmental quality, and economic opportunities through sustainable land management, energy production and conservation.

Goal 2: Produce, acquire, disseminate, and effectively use science and technology to (a) sustainably produce and transform America's renewable and abundant forest biomass resources into cost-competitive, high-performance biofuels, bioproducts, thermal energy, and biopower and combined heat and power; and (b) integrate energy production into sustainable forest and grassland management in conjunction with management goals and ownership objectives.

Goal 3: Build strong alliances and partnerships with energy interests in other Federal agencies, State and local governments, Tribes, private landowners, non-governmental organizations, and international partners to sustainably provide and enhance the goods and services from America's forests and grasslands.

Goal 4: Promote and provide problem-solving, energy awareness, sustainable resource conservation, and energy-related assistance to States, Tribes, and local communities through a variety of educational outreach efforts.

Goal 5: Ensure that life-cycle analysis of the energy and environmental impacts of Forest Service decisions and actions is standard operating procedure throughout the organization and that broad policy decisions are made in the context of accomplishing the Agency mission as a whole rather than as unrelated actions.

Bureau of Land Management's National Renewable Energy Strategy

The Energy Act of 2020 and Executive Order 14008 set a goal of permitting at least 25 gigawatts of electricity production from wind, solar, and geothermal energy projects on public lands by 2025 and directed federal agencies to establish national goals for renewable energy production on Federal land (BLM 2022). The BLM is considering revisions to its regulations related to wind and solar energy permitting and linear rights-of-way on public lands. As part of this process, the agency has been soliciting preliminary input from the public on relevant areas, with an aim to publish a proposed rule in the Federal Register by early 2022. The BLM also has prioritized a list

of key programmatic actions, regulation updates, and interim policies to facilitate renewable energy development on BLM-managed lands in the short and medium term. This includes reviewing renewable energy market dynamics and exploring additional flexibility to expand siting options as part of the agency's land-use planning process. The BLM has a goal of updating its solar energy zones by identifying new or expanded zones at least once every five years (BLM 2013).

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 for the governor and legislature every 2 years (CEC 2021a). The report contains an integrated assessment of major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors. The report provides policy recommendations to conserve resources, protect the environment, ensure reliable, secure, and diverse energy supplies, enhance the state's economy, and protect public health and safety (CEC 2021a). The 2020 Integrated Energy Policy Report Update identifies actions the state and others can take to ensure a clean, affordable, and reliable energy system; focusing on microgrids and transitioning to zero-emission vehicles (CEC 2021b).

Renewables Portfolio Standard

California has established a Renewables Portfolio Standard (RPS) program, through multiple senate bills (SB 1078, SB 107, SB X1-2, SB 350, SB 100) and executive orders (S-14-08, B-55-18), that requires increasingly higher targets of electricity retail sales be served by eligible renewable resources. The established eligible renewable source targets include 20 percent of electricity retail sales by 2010; 33 percent of electricity retail sales by 2020; 50 percent by 2030, and 100 percent zero-carbon electricity for the state and statewide carbon neutrality by 2045 (CEC 2020a, CEC 2017).

Climate Change Scoping Plan

The Climate Change Scoping Plan details the State's strategy for achieving its GHG reduction targets and is discussed in greater detail in Section 3.8, "Greenhouse Gas Emissions." Natural and working lands and low carbon energy are two of the key sectors targeted in the Plan, which has the following goals and actions related to energy that may apply to the Proposed Project (CARB 2017):

- Reduce fossil fuel use;
- Decrease fugitive methane emissions.

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), energy plans, or GHG emission reduction plans that involve energy-related measures.

However, these plans would not be applicable to activities conducted by federal agencies on federal lands; therefore, no discussion of local general plans is included here.

3.6.3 Environmental Setting

As described in Chapter 2, *Project Description,* Proposed Project activities would occur in areas managed by BLM or USFS in the Central Valley Water Board's jurisdictional area. These areas are located throughout the region and shown in Figure 2-1. Energy use on BLM and USFS managed lands includes fuel use for operation of staff vehicles and equipment and transport of material (such as during road maintenance and vegetation management activities). Additionally, facilities, pumps, or electric vehicles may use electricity. Indirect energy consumption also occurs from the use of fuel and feedstock (especially natural gas) in the manufacturing of chemicals such as herbicides and pesticides (USDA 2016).

BLM lands, including in California and within the Central Valley Region, can include energy-related infrastructure such as oil and gas wells, wind turbines, solar farms, and geothermal power plants. USFS managed lands include hydroelectric and transmission infrastructure, renewable energy such as solar, and access to natural resources including biomass and minerals. Generally, oil and gas resources are concentrated in the southwestern portion of the Central Valley Region (e.g., Kern County), as shown on Figure 3.11-2 in Section 3.11, "Mineral Resources." Figure 3.16-2 in Section 3.16, "Utilities and Service Systems," shows electrical transmission lines in relation to the USFS and BLM managed lands in the Central Valley Region.

Electric Service Providers in the Proposed Project Area

The majority of the Central Valley Region is served by Pacific Gas & Electric Company (PG&E). Additionally, Southern California Edison (SCE) and multiple Community Choice Aggregators (CCAs) provide electric service to portions of the region. Many of these CCAs do not 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. In addition to their base plans, both PG&E and SCE offer options where renewables make up a larger share of generation. **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 Valley Region Electric Service Providers

	Utility Power Mix (Percentage) (2019 Data)		
Energy Sources	**Pacific Gas & Electric**	**Southern California Edison**	**California**
Eligible Renewable	28.5	35.1	31.7
Coal	0	0	3.0
Large Hydroelectric	27.2	7.9	14.6
Natural Gas	0	16.1	34.2

Energy Sources	Utility Power Mix (Percentage) (2019 Data)		
	Pacific Gas & Electric	Southern California Edison	California
Nuclear	44.3	8.2	9.0
Unspecified Power[1]	0	32.6	7.3
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 2020b, CEC 2020c

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

This section analyzes the impacts related to energy that could result from implementation of the Proposed Project, following the methodology and using the significance criteria described below.

Methodology

Due to the nature of the Proposed Project, it is not possible to predict the specific actions that will be taken on BLM and USFS managed lands under the Federal NPS Permit (as the permit would not require a specific manner of compliance); therefore, it is not possible to provide a quantitative estimate and analysis of current and future energy use associated with implementation of common or reasonably foreseeable management measures. As a result, this section provides a qualitative analysis of the impacts associated with common management measures with regard to energy use.

Effects on energy resources are evaluated based on the energy demand associated with management measures that could occur under the Proposed Project (e.g., construction/implementation of management practices, vehicle trips to monitoring locations, etc.), including direct consumption of diesel, gasoline, natural gas, and electricity.

Note that the products and equipment that could be used during Proposed Project implementation would include "embodied" energy, which is the sum of all the energy required during their production. For example, the extraction and processing of raw materials used in the manufacturing of construction equipment used during management practice installation required the use of energy. To date, adequate information is not available to conduct an accurate lifecycle analysis of the embodied energy of materials utilized for the management measures under the Proposed Project or for any project subject to CEQA. Thus, any attempt to quantify embodied energy would include a great deal of speculation, and would be of little or no practical value.

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, implementation and monitoring of management measures during certain activities on USFS and BLM managed lands (e.g., sediment control measures, construction of water bars on fire lines, placement of riprap, etc.) would require the operation/use of gasoline- or diesel-fueled vehicles and equipment (e.g., trucks, excavators, trenchers, bulldozers, etc.).

Once installed, certain management measures may require some energy use in their operation or maintenance. For example, water bars, rolling dips, and other drainage features would require periodic maintenance, including removal of accumulated sediments, which would involve energy use in operation of equipment and transportation of materials for disposal. Some of the equipment used in construction, operation, and maintenance of the reasonably foreseeable management measures may require grid electricity use to support maintenance of the equipment. Some monitoring activities under the Proposed Project also could require some energy use, such as vehicle trips to monitoring locations. By contrast, some BMPs implemented under the Proposed Project, such as improving design/capacity of culverts and diversion and conveyance structures, or improving water use efficiency, could potentially reduce direct and/or indirect energy use by reducing future maintenance needs or decreasing pumping requirements. These effects could be reduced through use of equipment that uses renewable energy. The USFS and BLM will continue to evaluate the feasibility of utilizing such equipment.

As noted above under “Methodology,” due to the nature of the Proposed Project, these effects cannot be quantified. However, given the purpose of the Proposed Project, energy use from management measures may increase compared to existing conditions due to increased management measure implementation. In general, the energy use that would occur under the Proposed Project would not be wasteful in the sense that management measures are necessary for the protection and restoration of water quality in the Central Valley Region. Additionally, as discussed in Section 3.2, “Air Quality,” and Section 3.8, “Greenhouse Gas Emissions,” compliance with existing laws and regulations by USFS and BLM would prevent unnecessary or wasteful energy use. For these reasons, energy use would not constitute a wasteful, inefficient, or unnecessary use of energy, and 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 natural and working lands as a key sector and contains goals for reducing fossil fuel use. The State's RPS also sets goals for renewable energy use. Additionally, numerous jurisdictions in the Central Valley Region have adopted CAPs, which typically include goals for renewable energy use and energy efficiency, as described further in Section 3.8, "Greenhouse Gas Emissions."

In general, the Proposed Project would serve to protect water quality in the Central Valley Region through increased implementation and monitoring of management measures during certain activities on USFS and BLM managed lands. Many of the reasonably foreseeable management measures that may be implemented to comply with the permit would promote energy and water use efficiency over the long term (see Impact ENE-1 for further discussion). While construction/installation of certain management measures 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 use of such energy sources. Some BLM land in the Central Valley Region is used to produce renewable energy (e.g., from wind, solar, etc.), and this energy could potentially be used to support implementation of the Proposed Project.

Accordingly, the Proposed Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and the impacts would be **less than significant**.

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3.7 Geology and Soils

3.7.1 Introduction

This section summarizes the environmental and regulatory setting related to geology and soils in the context of the Proposed Project. This section also presents the impact methodology and evaluates the potential geology and soils impacts associated with the Proposed Project.

3.7.2 Regulatory Setting

Federal Laws, Regulations, Policies, or Programs

Federal Clean Water Act

The federal 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 USEPA; these standards form a legal basis for controlling pollution that enters the waters of the United States.

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 USACE). USEPA also has the option to delegate implementation of certain programs to a state agency. In California, the State Water Board and its nine RWQCBs administer various sections of the CWA.

Refer to Section 3.10, "Hydrology and Water Quality" for further discussion of the CWA, including the General Permit for Construction Activities pursuant to CWA Section 402 and the NPDES.

Federal Earthquake Hazards Reduction Act

The United States Congress passed the Earthquake Hazards Reduction Act in 1977 (Public Law [PL] 95-124, 42 USC Section 7701 et. seq.), as amended in 2004 by PL 101-614, 105-47, 106-503, and 108-360 to reduce the risks to life and property from future earthquakes through the establishment and maintenance of an earthquake hazards and reduction program. This act established the National Earthquake Hazards Reduction Program (NEHRP). The Federal Emergency Management Agency (FEMA), the National Institute of Standards and Technology, the National Science Foundation; and the United States Geological Survey (USGS) are agencies responsible for managing the NEHRP (FEMA et. al 2021).

Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act (PRPA), as provided in Title VI, Subtitle D, Paleontological Resources Preservation of the Omnibus Public Land Management Act of 2009

(PL 111-011), requires the secretaries of the interior and agriculture to manage and protect paleontological resources on Federal land using scientific principles and expertise. The law, which applies only to Federal lands, reaffirms the authority of Federal Land managing agencies to implement many of the policies for managing paleontological resources, such as issuing permits for collecting paleontological resources, curating paleontological resources, and maintaining confidentiality of locality data. The law provides authority for the protection of significant paleontological resources on Federal lands, including criminal and civil penalties for fossil theft and vandalism.

The implementing regulations for the PRPA are included in 43 CFR Part 49. The regulations spell out specifics of permit requirements for collecting paleontological resources, and selecting approved repositories for paleontological specimens. Section 49.300 identifies prohibited acts; most notably for the Proposed Project, a person may not "excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage, or otherwise alter or deface any paleontological resource located on Federal land unless this activity is conducted in accordance with the Act and this part." The regulations in 43 CFR Part 49 were developed in partnership between the federal agencies responsible for carrying out the PRPA, i.e., the BLM, Bureau of Reclamation, the National Park Service, and USFWS (all within the Department of the Interior). In 2022, these agencies together promulgated a Final Rule describing the relevant background; proposed additions to the CFR, and the robust public review and comment process that was undertaken in developing the final regulations.

Forest Service Rules, Regulations, and Policies

Forest Service Specifications for Construction of Roads & Bridges

The USFS implements the Forest Service Specifications for Construction of Roads & Bridges (EM-7720-100) (USFS 1996), which include specifications for all aspects of road construction and improvement. Of particular relevance to the Proposed Project, Section 204 pertains to soil erosion and water pollution control measures and describes various methods for minimizing discharges during road construction activities. Section 210 addresses treatment of existing roads and discusses construction of water bars and vehicle access barriers (USFS 1996). Numerous sections of the document address establishing or maintaining stability of road structures with respect to underlying soils and geologic materials.

National Best Management Practices Program

The USFS' National BMP Program was developed to improve management of water quality consistent with the federal CWA and State water quality programs (USFS 2023). As described in Chapter 2, *Project Description,* the National BMP Program consists of four main components: (1) The National Core BMP Technical Guide; (2) The National Core BMP Monitoring Technical Guide; (3) Revised National Direction, and (4) A national data management and reporting system (USFS 2023). The National Core BMP Technical Guide (USFS 2012; see Appendix B of this DEIR) includes a wide range of BMPs for various USFS activities which would protect water quality and reduce erosion and loss of topsoil. The BMPs typically take the form of an overall objective for the BMP; an explanation of the reasoning for the BMP and the potential impacts arising from the activities; and a set of practices and/or policy direction, from which site-specific BMP prescriptions would be developed for individual projects or activities (USFS 2012).

Water Quality Management Handbook

Chapter 10 of FSH 2509.22 (Soil and Water Conservation Handbook) is USFS' Water Quality Management Handbook (USFS 2011), developed for the USFS Pacific Southwest Region. The Handbook is intended to ensure that the quality and beneficial uses of water are maintained and protected, among other water quality objectives, on National Forest System lands in California. The Handbook includes a wide range of BMPs for water quality protection, arranged by type of activity (i.e., timber management, road building and site construction, mining, recreation, vegetation management, fire suppression and fuels management, watershed management, and range management) (USFS 2011). Many of the BMPs would serve to control erosion and limit the loss of topsoil during ground-disturbing activities.

Similar to the National Core BMPs (see above), the BMPs included in the Water Quality Management Handbook are programmatic in nature, and are intended to lead to on-the-ground site-specific BMP prescriptions, which would be developed on a project-specific basis.

Heritage Program Management Handbook

FSH 2309.12 (Heritage Program Management Handbook; USFS 2015) outlines responsibilities and policy guidance for implementing the USFS' Heritage Program. The Heritage Program is intended to allow for the USFS to coordinate, and consult, with other federal, tribal, state, and local government agencies regarding cultural resources, including allowing such agencies to comment on land use and project level planning (USFS 2015). The Handbook identifies specific protocols for coordination and consultation with applicable agencies, as well as identification, assessment, and avoidance/mitigation of cultural resources during project planning (USFS 2015). The Heritage Program does not address paleontological resources, but provides protection for prehistoric cultural remains/artifacts.

Bureau of Land Management Rules, Regulations, and Policies

Manual 9113 – Roads Design Handbook

The BLM follows its Roads Design Handbook (BLM 2011) with respect to road construction and reconstruction. This includes requirements related to surveys and investigations, design guidelines, and specifications and drawings. Section .11C requires that soil surveys and material site investigations be performed to furnish information on the types of soils and physical limits of the various soils or materials that will be encountered on a project. For roads that are designed for heavy loads, high volumes, or paving require more thorough and accurate sampling and testing to determine structural values. BLM requires the use of American Association of State Highway and Transportation Officials (AASHTO) classification, sampling, and testing procedures for such road soil surveys and materials site investigations (BLM 2011). Section .12H addresses drainage elements, including drainage culverts, and indicates that dips may be used if they are not a hazard to traffic.

California Best Management Practices for Water Quality

The BLM has developed standard set of BMPs for water quality protection in California (California BMP Manual) to enhance agency performance, consistency, and accountability in managing water quality within the State consistent with the CWA and Porter-Cologne Act (BLM 2022). See Appendix B to this DEIR. Similar to the USFS approach with respect to its National

BMP Program, the BLM typically develops site-specific prescriptions or BMPs as part of the NEPA process for specific projects, and may utilize or tailor the more general BMPs from the BMP Manual. The BMPs are generally organized by types of activities or operations, and include an objective, explanation, and list of BMPs. The BMP Manual includes a wide range of BMPs that would serve to reduce erosion and loss of topsoil, including those BMPs specifically developed for road construction and reconstruction activities (BLM 2022).

Paleontology Program

The BLM's Paleontology Program works to preserve and protect paleontological resources for the benefit of current and future generations; assess for the presence and significance of paleontological resources prior to making land use decisions; facilitate insightful research into the geology and paleobiomes that preserve extinct organisms; and produce programs that increase the public's awareness and appreciation of paleontological resources (BLM 2023). BLM has developed policy guidance for implementation of the PRPA and its implementing regulations (43 CFR Part 49) regarding (1) casual collection; (2) confidentiality; (3) permitting; and (4) potential fossil yield classification (BLM 2023). See discussion above under "Paleontological Resources Preservation Act" regarding the implementing regulations (43 CFR Part 49).

Handbook H-8270-1 – General Procedural Guidance for Paleontological Resource Management

BLM's Handbook H-8270-1 is intended to enhance the general policy and broad direction contained in Manual 8270 by giving practical guidance to BLM managers and staff whose duties include coordination of planning, permitting, and other activities related to the management of paleontological resources on BLM public lands (BLM 1998). The Handbook provides guidance related to the following (BLM 1998):

a. Identifying areas and geological units, i.e., formations, members, etc., containing paleontological resources;

b. Evaluating the potential of areas to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils;

c. Developing management recommendations (including mitigation measures in specific locations) to promote the scientific, educational and recreational uses of fossils on public lands and mitigate resource conflicts; and

d. Developing strategies to regularly monitor public lands where important paleontological localities have been identified.

Of note, the Handbook recommends that during initial scoping for land use planning, BLM Field Offices should notify and consult with their State Office or Regional Paleontologist when beginning a process of identifying and evaluating lands where paleontological resources may exist (BLM 1998). If fossils are identified as being present in an area, further analysis and evaluation shall be carried out by a qualified paleontologist whenever surface disturbing actions

are proposed for such lands (BLM 1998). BLM uses a three-tiered classification system[1] for ranking areas based on their potential to contain vertebrate fossils, or noteworthy occurrences of invertebrate or plant fossils, with either Condition 1 or 2 potentially triggering formal analysis prior to authorizing land use actions involving surface disturbance (BLM 1998).

The Handbook notes that mitigation for potential impacts to paleontological resources may be accomplished: (1) by collection of data and fossil material; (2) by obtaining representative samples of the fossils; (3) by avoidance, or (4) in some cases, by no action (e.g., surface disturbance may have a beneficial impact on paleontological resources where it exposes additional outcrop area for study, or public education/interpretation) (BLM 1998). Finally, the Handbook provides information on the permitting process for collection of paleontological resources on BLM lands.

Federal Highway Administration Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects

The Federal Highway Administration's (FHWA) Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-14) (FHWA 2014) are issued primarily for constructing roads and bridges on Federal Highway projects under the direct administration of FHWA. However, the BLM indicates that it follows the FHWA specifications for construction of roads and bridges. The FP-14 Specifications include comprehensive specifications for all aspects of road and bridge construction.

State Laws, Regulations, Policies, or Programs

California Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The Alquist-Priolo Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Alquist-Priolo Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides (see further discussion below).

[1] ***Condition 1*** – Areas that are known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. Consideration of paleontological resources will be necessary if the Field Office review of available information indicates that such fossils are present in the area.

Condition 2 – Areas with exposures of geological units or settings that have high potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. The presence of geologic units from which such fossils have been recovered elsewhere may require further assessment of these same units where they are exposed in the area of consideration.

Condition 3 – Areas that are very unlikely to produce vertebrate fossils or noteworthy occurrences of invertebrate of plant fossils based on their surficial geology, igneous or metamorphic rocks, extremely young alluvium, colluvium, or aeolian deposits or the presence of deep soils. However, if possible it should be noted at what depth bedrock may be expected in order to determine if fossiliferous deposits may be uncovered during surface disturbing activities. (BLM 1998).

The Alquist-Priolo Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones. Projects include all land divisions and most structures for human occupancy. However, local agencies can be more restrictive than State law requires. Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings will not be constructed across active faults. An evaluation and written report of a specific site must be prepared by a licensed geologist. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back from the fault (generally 50 feet) (CDOC 2019a).

California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act is part of the California Public Resources Code Chapter 7.8 and is intended to reduce the threat to public safety resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The California Seismic Hazards Mapping Act highlights the need to identify and map Seismic Hazard Zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety. Cities and counties are required to regulate development within mapped Seismic Hazard Zones (CDOC 2019b).

California Building Code

The State of California mandates minimum standards for building design through the California Building Code (CBC) (CCR Title 24). The CBC also specifies standards for geologic and seismic hazards, other than surface faulting to address seismic safety, earthquake-resistant design and construction (California Building Standards Commission 2021b). The 2019 CBC was published in July 2019 with an effective date of January 1, 2020 (California Building Standards Commission 2021a). The CBC applies to building design and construction and is based on the International Conference of Building Officials Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by district basis). The UBC was incorporated as part of the CBC, which has been modified for California conditions with more detailed and/or more stringent regulations.

Local Laws, Plans, Policies, and Regulations

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans. Nevertheless, local county general plans are discussed below for discussion purposes only.

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 that address a range of public health and safety issues, including those related to geologic hazards, protection of natural resources and open spaces, including soils and paleontological resources. An increasing number of county general plans include provisions to promote the overall health of county residents, including cultural, historical, and paleontological resources.

3.7.3 Environmental Setting

Geology and Soils

Geomorphic Provinces

The Central Valley Region includes a wide diversity of geologic landscapes and soil types. As depicted in **Figure 3.7-1**, lands managed by the USFS and BLM in the Central Valley Region are spread across several geomorphic provinces[2], primarily including: the Coast Ranges, Klamath Mountains, Cascade Range, Modoc Plateau, Basin and Range (northern tip), and Sierra Nevada (California Geological Survey [CGS] 2015). A very small fraction of USFS and BLM managed lands are located within the Great Valley and very northern tip of the Transverse Ranges. A summary of geologic characteristics found within those geomorphic provinces that traverse the Proposed Project Area is provided in **Table 3.7-1**.

Table 3.7-1. Geologic Characteristics for Geomorphic Provinces within the Proposed Project Area

Geomorphic Province	Geologic Characteristics and Soils
Coast Ranges	The Coast Ranges are northwest-trending mountain ranges (2,000 to 4,000, occasionally 6,000 feet elevation above sea level), and valleys. The ranges and valleys trend northwest, subparallel to the San Andreas Fault. Strata dip beneath alluvium of the Great Valley. To the west is the Pacific Ocean. The coastline is uplifted, terraced and wave-cut. The Coast Ranges are composed of thick Mesozoic and Cenozoic sedimentary strata. The northern and southern ranges are separated by a depression containing the San Francisco Bay. The northern Coast Ranges are dominated by irregular, knobby, landslide-topography of the Franciscan Complex. The eastern border is characterized by strike-ridges and valleys in Upper Mesozoic strata. In several areas, Franciscan rocks are overlain by volcanic cones and flows of the Quien Sabe, Sonoma and Clear Lake volcanic fields. The Coast Ranges are subparallel to the active San Andreas Fault. The San Andreas is more than 600 miles long, extending from Pt. Arena to the Gulf of California. West of the San Andreas is the Salinian Block, a granitic core extending from the southern extremity of the Coast Ranges to the north of the Farallon Islands.

[2] California's geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landforms with unique, defining features based on geology, faults, topographic relief, and climate (CGS 2015).

Geomorphic Province	Geologic Characteristics and Soils
Klamath Mountains	The Klamath Mountains have rugged topography with prominent peaks and ridges reaching 6,000-8,000 feet above sea level. In the western Klamath, an irregular drainage is incised into an uplifted plateau called the Klamath peneplain. The uplift has left successive benches with gold-bearing gravels on the sides of the canyons. The Klamath River follows a circuitous course from the Cascade Range through the Klamath Mountains. The province is considered to be a northern extension of the Sierra Nevada
Cascade Range	The Cascade Range, a chain of volcanic cones, extends through Washington and Oregon into California. It is dominated by Mount Shasta, a glacier-mantled volcanic cone, rising 14,162 feet above sea level. The southern termination is Lassen Peak, which last erupted in the early 1900s. The Cascade Range is transected by deep canyons of the Pit River. The river flows through the range between these two major volcanic cones, after winding across interior Modoc Plateau on its way to Lake Shasta, and thence the Sacramento River.
Modoc Plateau	The Modoc Plateau is a volcanic table land (elevation 4,000-6,000 feet above sea level) consisting of a thick accumulation of lava flows and tuff beds along with many small volcanic cones. Occasional lakes, marshes, and sluggishly flowing streams meander across the plateau. The plateau is cut by many north-south faults. The province is bound indefinitely by the Cascade Range on the west and the Basin and Range on the east and south.
Basin and Range	The Basin and Range is the westernmost part of the Great Basin. The province is characterized by interior drainage with lakes and playas, and the typical horst and graben structure (subparallel, fault-bounded ranges separated by down dropped basins). Death Valley, the lowest area in the United States (280 feet below sea level), is one of these grabens. Another graben, Owens Valley, lies between the bold eastern fault scarp of the Sierra Nevada and Inyo Mountains. The northern Basin and Range Province includes the Honey Lake Basin.
Sierra Nevada	The Sierra Nevada is a tilted fault block nearly 400 miles long. Its east face is a high, rugged multiple scarp, contrasting with the gentle western slope (about 2 degrees) that disappears under sediments of the Great Valley. Deep river canyons are cut into the western slope. Their upper courses, especially in massive granites of the higher Sierra, are modified by glacial sculpturing, forming such scenic features as Yosemite Valley. The high crest culminates in Mount Whitney with an elevation of 14,495 feet above sea level near the eastern scarp. The metamorphic bedrock contains goldbearing veins in the northwest trending Mother Lode. The northern Sierra boundary is marked where bedrock disappears under the Cenozoic volcanic cover of the Cascade Range.
Great Valley	The Great Valley is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. Its northern part is the Sacramento Valley, drained by the Sacramento River and its southern part is the San Joaquin Valley drained by the San Joaquin River. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago). Great oil fields have been found in southernmost San Joaquin Valley and along anticlinal uplifts on its

Geomorphic Province	Geologic Characteristics and Soils
	southwestern margin. In the Sacramento Valley, the Sutter Buttes, the remnants of an isolated Pliocene volcano, rise above the valley floor.
Transverse Ranges	The Transverse Ranges are an east-west trending series of steep mountain ranges and valleys. The east-west structure of the Transverse Ranges is oblique to the normal northwest trend of coastal California, hence the name "Transverse." The province extends offshore to include San Miguel, Santa Rosa, and Santa Cruz islands. Its eastern extension, the San Bernardino Mountains, has been displaced to the south along the San Andreas Fault. Intense north-south compression is squeezing the Transverse Ranges. As a result, this is one of the most rapidly rising regions on earth. Great thicknesses of Cenozoic petroleum-rich sedimentary rocks have been folded and faulted, making this one of the important oil-producing areas in the United States.

Source: CDOC 2002

Stratigraphic Units

Stratigraphy is the branch of geology which describes the formation, composition, sequence, and properties of stratified (sedimentary) rocks. Stratigraphic or geologic units in and around the Proposed Project area are shown on **Figure 3.7-2**. As shown on Figure 3.7-2, USFS and BLM managed lands located within the Central Valley Region traverse a wide range of geologic compositions. **Table 3.7-2** provides the percentage and primary characteristics of geologic units found within the Proposed Project area.

Table 3.7-2. Geologic Units and Characteristics

Stratigraphic Unit Age	Rock Type	Area within USFS/BLM Lands in Central Valley Region (Acres)	Characteristics
Holocene (Qrv)	volcanic rocks	289,830	Recent (Holocene) volcanic flow rocks; minor pyroclastic deposits.
Pleistocene-Holocene (Qg)	nonmarine (continental) sedimentary rocks	439,560	Glacial till and moraines. Found at high elevations mostly in the Sierra Nevada and Klamath Mountains.
Pleistocene (Qoa)	marine and nonmarine (continental) sedimentary rocks	11,325	Older alluvium, lake, playa, and terrace deposits.
Quaternary (Qv)	volcanic rocks	925,529	Quaternary volcanic flow rocks; minor pyroclastic deposits.
Tertiary (Tv)	volcanic rocks	2,182,795	Tertiary volcanic flow rocks; minor pyroclastic deposits
Pliocene-Pleistocene (QPc)	nonmarine (continental) sedimentary rocks	74,820	Pliocene and/or Pleistocene sandstone, shale, and gravel deposits; mostly loosely consolidated.

Stratigraphic Unit Age	Rock Type	Area within USFS/BLM Lands in Central Valley Region (Acres)	Characteristics
Miocene (M)	marine sedimentary rocks	58,671	Sandstone, shale, siltstone, conglomerate, and breccia; moderately to well consolidated.
Oligocene (O)	marine sedimentary rocks	7,902	Sandstone, shale, conglomerate; mostly well consolidated.
Eocene (Ec)	nonmarine (continental) sedimentary rocks	53,066	Sandstone, shale, conglomerate; moderately to well consolidated.
Paleocene (Ep)	marine sedimentary rocks	9,824	Sandstone, shale, and conglomerate; mostly well consolidated.
pre-Cenozoic (m)	mixed rocks	329,507	Undivided pre-Cenozoic metasedimentary and metavolcanic rocks of great variety. Mostly slate, quartzite, hornfels, chert, phyllite, mylonite, schist, gneiss, and minor marble.
Upper Cretaceous (Ku)	marine sedimentary and metasedimentary rocks	142,641	Upper Cretaceous sandstone, shale, and conglomerate.
Lower Cretaceous (Kl)	marine sedimentary and metasedimentary rocks	74,752	Lower Cretaceous sandstone, shale, and conglomerate.
Cretaceous-Jurassic (KJfs)	marine sedimentary and metasedimentary rocks	489,149	Blueschist and semi-schist of Franciscan Complex.
Jurassic (J)	marine sedimentary and metasedimentary rocks	148,023	Shale, sandstone, minor conglomerate, chert, slate, limestone; minor pyroclastic rocks.
Triassic (Tr)	marine sedimentary and metasedimentary rocks	118,218	Shale, conglomerate, limestone and dolomite, sandstone, slate, hornfels, quartzite; minor pyroclastic rocks.
Mesozoic (Mzv)	metavolcanic rocks	4,173,978	Undivided Mesozoic volcanic and metavolcanic rocks. Andesite and rhyolite flow rocks, greenstone, volcanic breccia and other pyroclastic rocks; in part strongly metamorphosed. Includes volcanic rocks of Franciscan Complex: basaltic pillow lava, diabase.
Mesozoic to pre-Cambrian (gr-m)	mixed rocks	21,698	Granitic and metamorphic rocks, mostly gneiss and other metamorphic rocks injected by granitic rocks. Mesozoic to Precambrian.
Paleozoic or Mesozoic (ls)	marine sedimentary and metasedimentary rocks	14,884	Limestone, dolomite, and marble whose age is uncertain but probably Paleozoic or Mesozoic.

Stratigraphic Unit Age	Rock Type	Area within USFS/BLM Lands in Central Valley Region (Acres)	Characteristics
Paleozoic and Permo-Triassic (grPz)	plutonic rocks	510	Paleozoic and Permo-Triassic granitic rocks in the San Gabriel and Klamath Mountains.
Paleozoic (Pz)	marine sedimentary and metasedimentary rocks	1,073,914	Undivided Paleozoic metasedimentary rocks. Includes slate, sandstone, shale, chert, conglomerate, limestone, dolomite, marble, phyllite, schist, hornfels, and quartzite.
Permian (Pm)	marine sedimentary and metasedimentary rocks	22,253	Shale, conglomerate, limestone and dolomite, sandstone, slate, hornfels, quartzite; minor pyroclastic rocks.
Carboniferous (C)	marine sedimentary and metasedimentary rocks	156,737	Shale, sandstone, conglomerate, limestone, dolomite, chert, hornfels, marble, quartzite; in part pyroclastic rocks.
Devonian (D)	marine sedimentary and metasedimentary rocks	1,099	Limestone and dolomite, sandstone and shale; in part tuffaceous.
Silurian-Ordivician (SO)	marine sedimentary and metasedimentary rocks	1,063	Sandstone, shale, conglomerate, chert, slate, quartzite, hornfels, marble, dolomite, phyllite; some greenstone.
pre-Cambrian (pC)	marine sedimentary and metasedimentary rocks	10,271	Conglomerate, shale, sandstone, limestone, dolomite, marble, gneiss, hornfels, and quartzite; may be Paleozoic in part.

Source: CDOC 2013

Soils

Soils are comprised of particles known as sand, silt, and clay, or loams (a mixture of sand, silt, and clay). Soil types provide background for engineering constraints, such as erosion and runoff potential, corrosion risks, and various behaviors that effect structures, such as expansion and settlement. Soils that are primarily sandy are porous with less fine particulate matter embedded between sand grains. These sandy soils are less stable and more susceptible to seismic hazards, such as liquefaction and erosion. Soils that are dominated by clay are close-textured but can be expansive, or susceptible to shrinking and swelling, which can lift or settle during rain events and cause damage to structures. Soils overlaying steep slopes or soft alluvial geologic structures are more susceptible to instability, such as landslides.

Seismicity

Seismicity refers to the occurrence and frequency of earthquakes in a region. An earthquake is a sudden and violent shaking of the ground as a result of movements within the earth's crust or

volcanic action. One of the primary causes of earthquakes is the collision of tectonic plates, which occurs at the location of faults.

Seismic activity in California is concentrated in tectonically active regions, such as the Coast Ranges, the Sierra Nevada Range, and the Cascades Range (CDOC 2015). Earthquake damage generally occurs in two ways: ground shaking and surface rupture. Seismically-induced ground shaking covers a wide area and is greatly influenced by the distance of the site to the seismic source, soil conditions, and depth to groundwater. Surface rupture is limited to the area very near the fault. Other seismic hazards include earthquake-triggered landslides and tsunamis.

Faults

The CGS classifies faults on the basis of surface fault rupture hazard, as follows:

- Historic faults have shown movement within the past 200 years,
- Holocene faults have shown movement in the past 11,000 years, and
- Late Quaternary faults have shown movement within the past 1.6 million years.

In accordance with the Alquist-Priolo Act, only faults with evidence of historic or Holocene surface fault rupture are considered active earthquake faults. Faults with evidence of surface fault rupture within the past 1.6 million years are considered potentially or conditionally active (CDOC 2019c). Other faults are considered inactive. Major active and inactive fault lines located within and adjacent to the Proposed Project area are depicted in **Figure 3.7-3**.

Ground Shaking

Seismic ground shaking is controlled by the earthquake magnitude, duration, and distance from the source. Ground conditions also influence impacts from strong ground motions. Seismic waves attenuate with distance from their sources, so estimated bedrock accelerations are highest in areas closest to the source. Local soil conditions may amplify or dampen seismic waves as they travel from the underlying bedrock to the ground surface. Ground shaking can be described in terms of acceleration, velocity, and displacement of the ground.

Landslides

Slope failure and the downslope transport of soil and rock en masse occurs when the downhill-driving forces of the native material, principally under the influence of gravity, exceed the resisting forces of the material. The driving forces can be increased by adding to the weight of the soil or rock mass through saturation during periods of high rainfall or by loading with fill, while resisting forces can be reduced by erosion or grading at the toe of a slope or landslide mass. Zones with low resisting forces are often associated with the presence of expansive clay soils and weak bedrock units or structural features susceptible to failure. Landslides may also be induced by ground shaking from earthquakes and may take several forms, including soil creep, earthflow, slump, debris slide, debris flow, and rockfall. When saturated soils occur near roadways, landslides may be exacerbated by road vibration and can occur as road slip-outs.

Figure 3.7-4 depicts landslide potential for the Proposed Project area. As shown in Figure 3.7-4, the Proposed Project area ranges in terms of landslide potential, but it is primarily located on lands rated as moderate susceptibility for landslide (Classes V-VIII). Landslide potential is greatest along the northern coastline and Coast Ranges at the north-western edge of the Central Valley Region boundary.

Liquefaction

Liquefaction is the temporary transformation of saturated and very low cohesion or cohesionless soils into a viscous liquid as a result of ground shaking. Liquefaction may occur in water-saturated sediment during moderate to great earthquakes. Liquefied sediment loses strength and may fail; causing damage to structures. The susceptibility of an area to liquefaction is determined largely by its depth to groundwater and the properties of the soil and sediment within and above the groundwater. The factors known to influence liquefaction potential are soil type and depth, grain size, density, groundwater level, degree of saturation, and both the intensity and duration of ground shaking. Sediments most susceptible to liquefaction are saturated, unconsolidated sand and silt within 50 feet of the ground surface.

Paleontological Resources

Paleontological resources are the fossil remains of prehistoric flora and fauna, or traces of evidence of the existence of prehistoric flora and fauna. Paleontological resources include fossil remains, as well as fossil localities and rock or soil formations that have produced fossil material. Fossils, which are the remains or traces of prehistoric animals and plants, are important scientific and educational resources because of their use in:

(1) documenting the presence and evolutionary history of particular groups of now-extinct organisms;

(2) reconstructing the environments in which these organisms lived; and

(3) determining the relative ages of the strata in which they occur, as well as the relative ages of the geologic events that resulted in the deposition of the sediments that formed these strata and in their subsequent deformation.

The potential for paleontological resources to be present on or beneath a given site depends on the type of rock formation/substrate, as well as whether any documented fossil localities are on or near the site. In California, paleontological resources are generally observed in sedimentary and metasedimentary deposits.

Existing Impacts Associated with Activities on Lands Managed by USFS and BLM

Although the analysis in this section focuses on the potential adverse effects of Proposed Project, i.e., implementation of management measures on geology and soils, there are existing adverse impacts on these resources being caused, at least in part, by the activities covered by the Federal NPS Permit. **Table 3.7-3** below provides a summary of existing adverse impacts on geology and soils.

Table 3.7-3. Impacts on Geology and Soils Associated with Activities on Lands Managed by USFS and BLM

Activity Type	Impacts on Geology and Soils
Vegetation Management	Management of vegetation involves road construction, logging, and post-logging operations, all which contribute to erosion and loss of topsoil. Fuel reduction and timber harvesting activities can result in soil disturbance and reduced ground cover from removal of vegetation and the use of roads, skid trails, landings, and yarding corridors. Additionally, landslides and other mass soil movements can occur as a result of timber operations.
Transportation Management	Transportation management – including construction, road and trail use, maintenance, reconstruction, upgrades, and decommissioning – can lead to erosion and sediment-related NPS pollution. Roads and trails can cause disruptions in hillslope drainage patterns, slope instability, and soil erosion. Culverted stream crossings can plug, causing erosion of the fill or gullies where the diverted streamflow runs down nearby roads and hillslopes. Landsliding may be triggered by: roads built on steep or unstable slopes; filling and sidecasting that increase slope weight; road cuts that remove slope support; and construction that may alter groundwater pressures. Unstable road or landing sidecast materials can fail, often many years after the materials were put on steep hillslopes. Lack of inspection and maintenance of drainage structures and unstable road fills along older roads can also result in soil movement.
Recreational Facilities Management	Recreational activities may include ground disturbing activities that have potential to result in impacts on geology and soils. Additionally, water-related recreational activities can cause increased lake bank erosion caused by waves from boating.
Post-Emergency Recovery	Activities conducted as part of fire suppression repair, post-emergency recovery, and long-term post-emergency recovery may include erosion control, timber salvage, and hazard tree or vegetation removal. Wildfires (and management for wildfires) resulting in vegetation and groundcover removal may lead to soil erosion. Additionally, wildfire in forested landscapes can result in increased soil water repellency and other changes to soil properties that reduce infiltration rates and increase the rate and frequency of runoff.
Restoration Activities	Restoration projects may include watercourse crossing improvement, channel and bank stabilization, stream channel and floodplain habitat enhancement, and meadow restoration. These projects may include ground-disturbing activities that have potential to result in impacts to geology and soils.

Source: Central Valley Water Board 2018; Weaver et. al. 2015, Martin and Moody 2001, Robichaud 2000, and Robichaud et al. 2016, cited in Central Valley Water Board 2017

Basin and Range

Modoc Plateau

Klamath Mountains

Cascade Range

Great Valley

Coast Ranges

Sierra Nevada

Northern Coastline SubProvince

Medford
Klamath Falls
Altamont
Redding
Susanville
Red Bluff
Chico
Sparks
Reno
Ukiah
Yuba City
Grass Valley
Truckee
Carson City
Roseville
Citrus Heights
Woodland
Davis
Sacramento
Santa Rosa
Elk Grove
Vacaville
Napa
Petaluma
Fairfield
Arnold
Strawberry
Lodi
Vallejo
Antioch
San Rafael
Concord
Stockton
Oakland
San Francisco
San Leandro
Tracy
Livermore
Modesto

N
0 5 10 20
Miles

Geomorphic Provinces

- Central Valley RWQCB Boundary
- Bureau of Land Management Lands
- U.S. Forest Service Lands
- Basin and Range
- Cascade Range
- Coast Ranges
- Great Valley
- Klamath Mountains
- Modoc Plateau
- Northern Coastline SubProvince
- Sierra Nevada

Figure 3.7-1
Geologic Provinces

Sheet 1 of 2



Horizon WATER and ENVIRONMENT

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Source: ESRI 2018; DOC 2018

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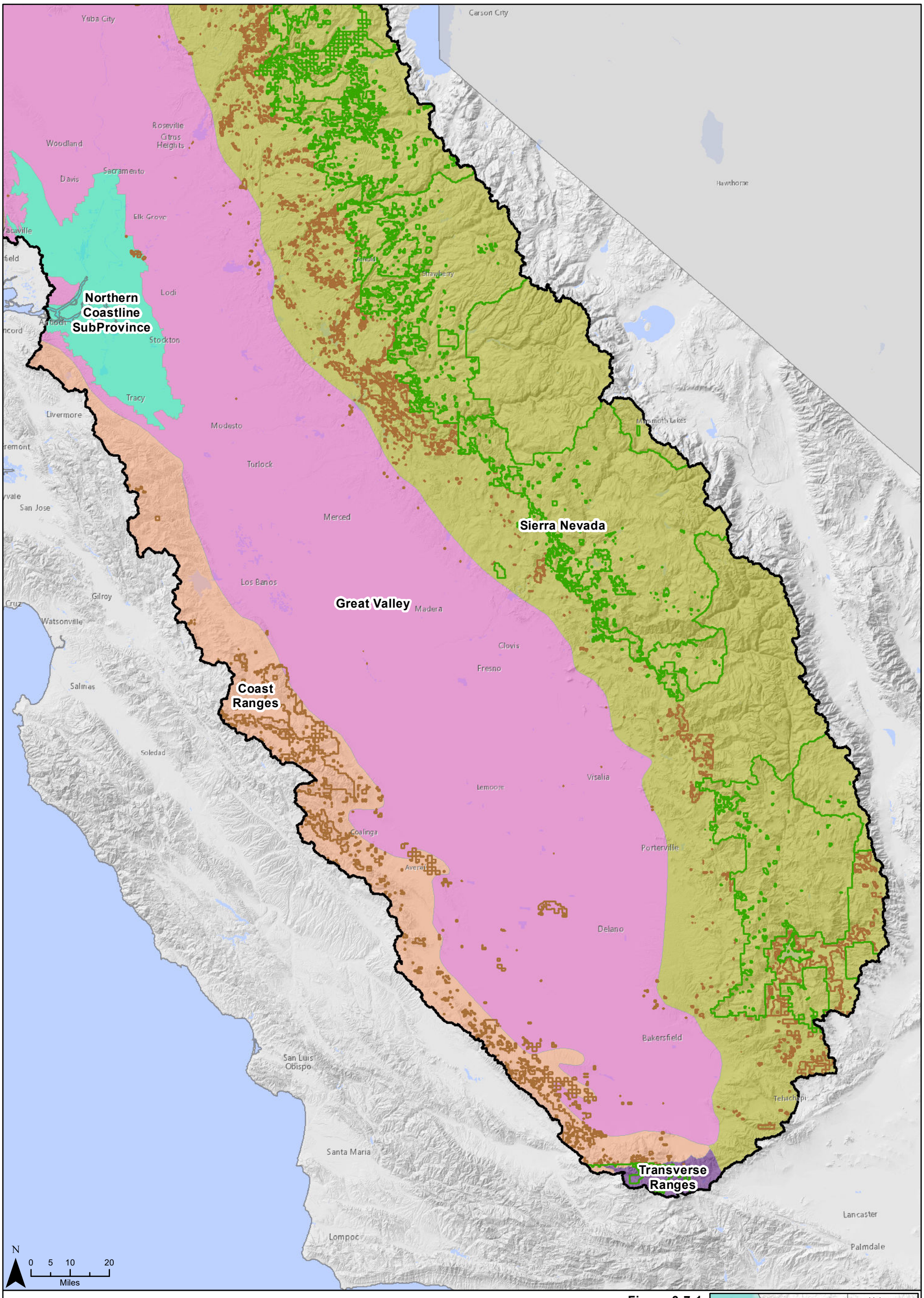


Figure 3.7-1
Geologic Provinces

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018; DOC 2018

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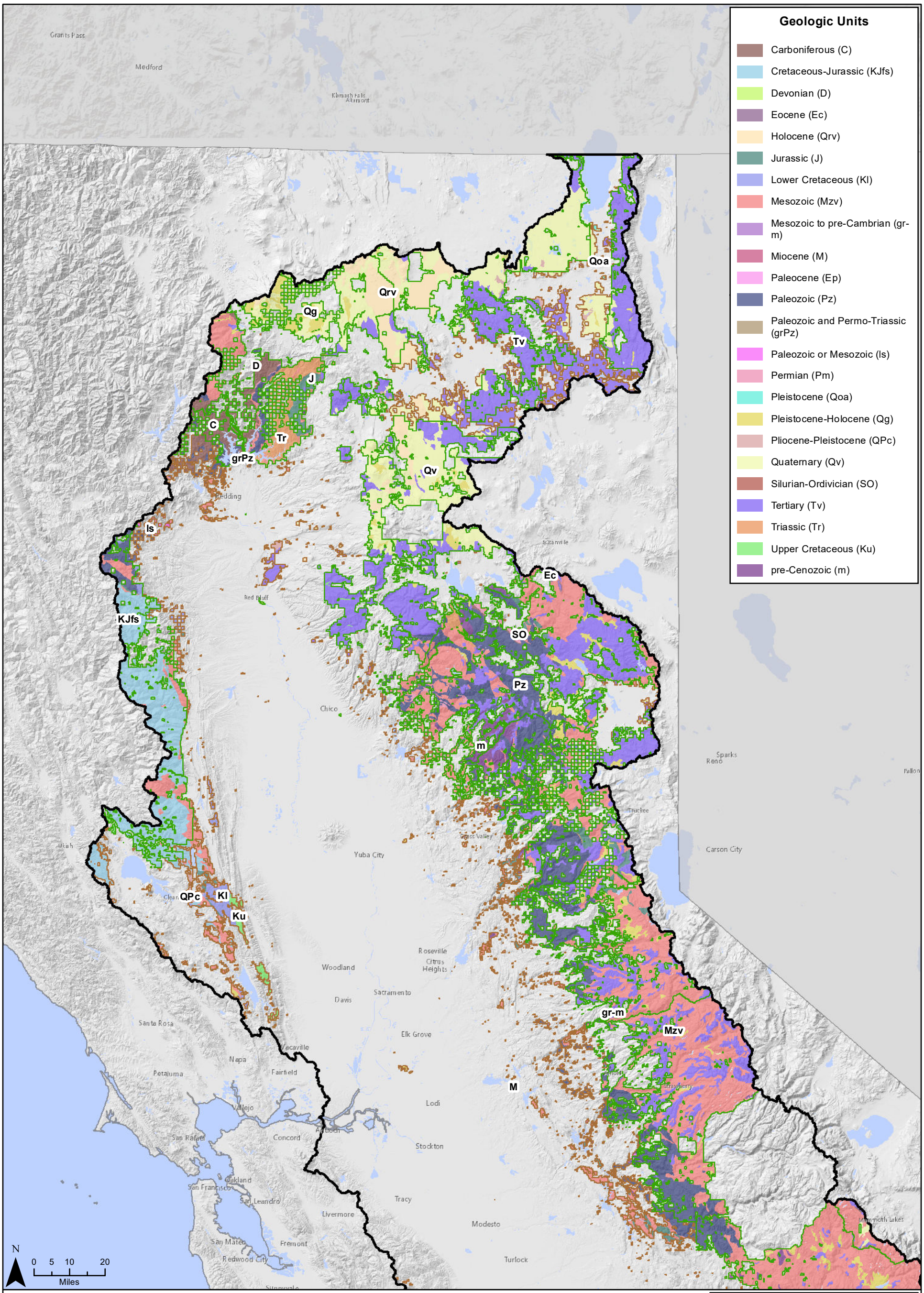


Figure 3.7-2
Geologic Units

Sheet 1 of 2

Federal Nonpoint Source Permit
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Source: ESRI 2018, CDC 2020

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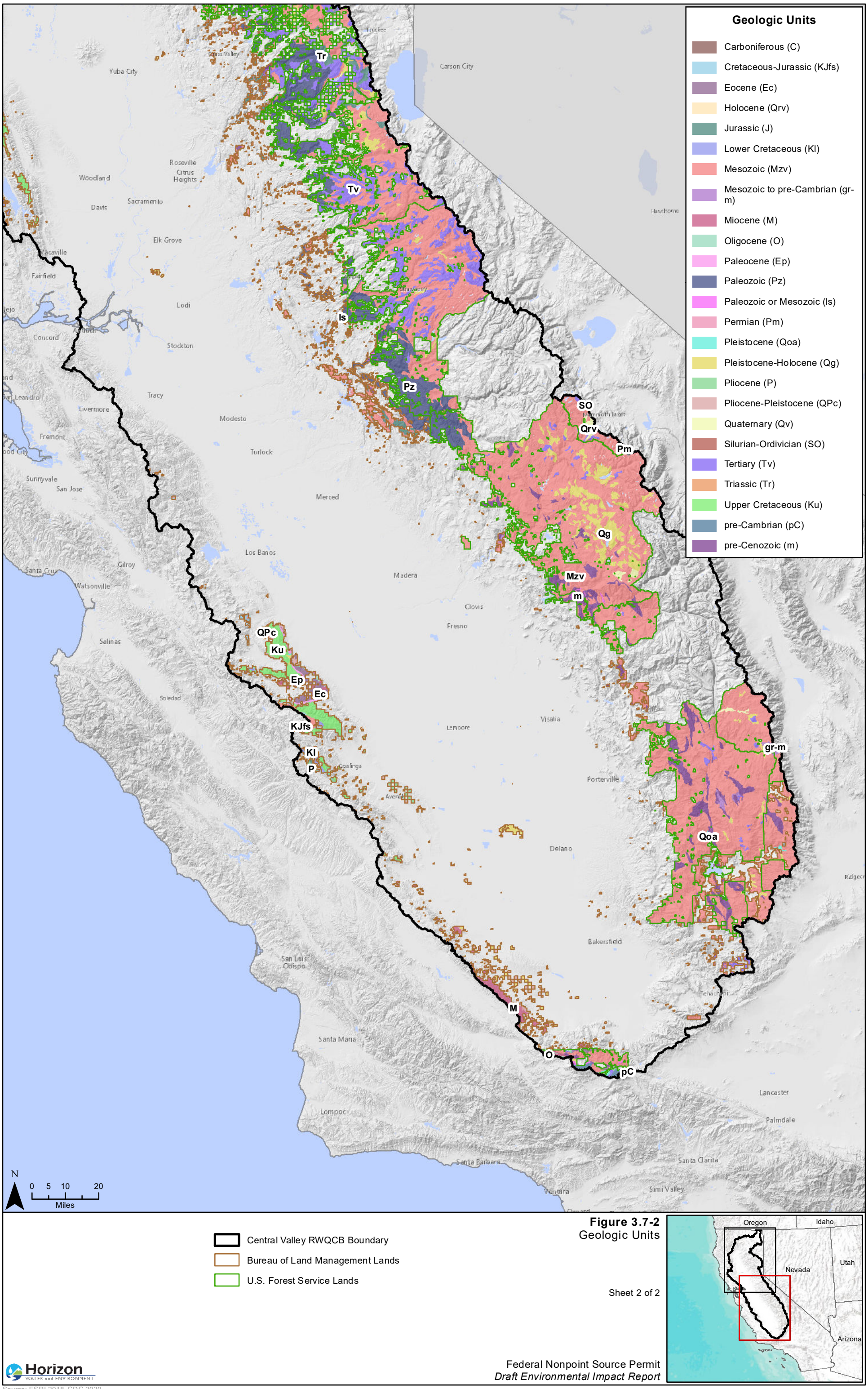


Figure 3.7-2
Geologic Units

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, CDC 2020

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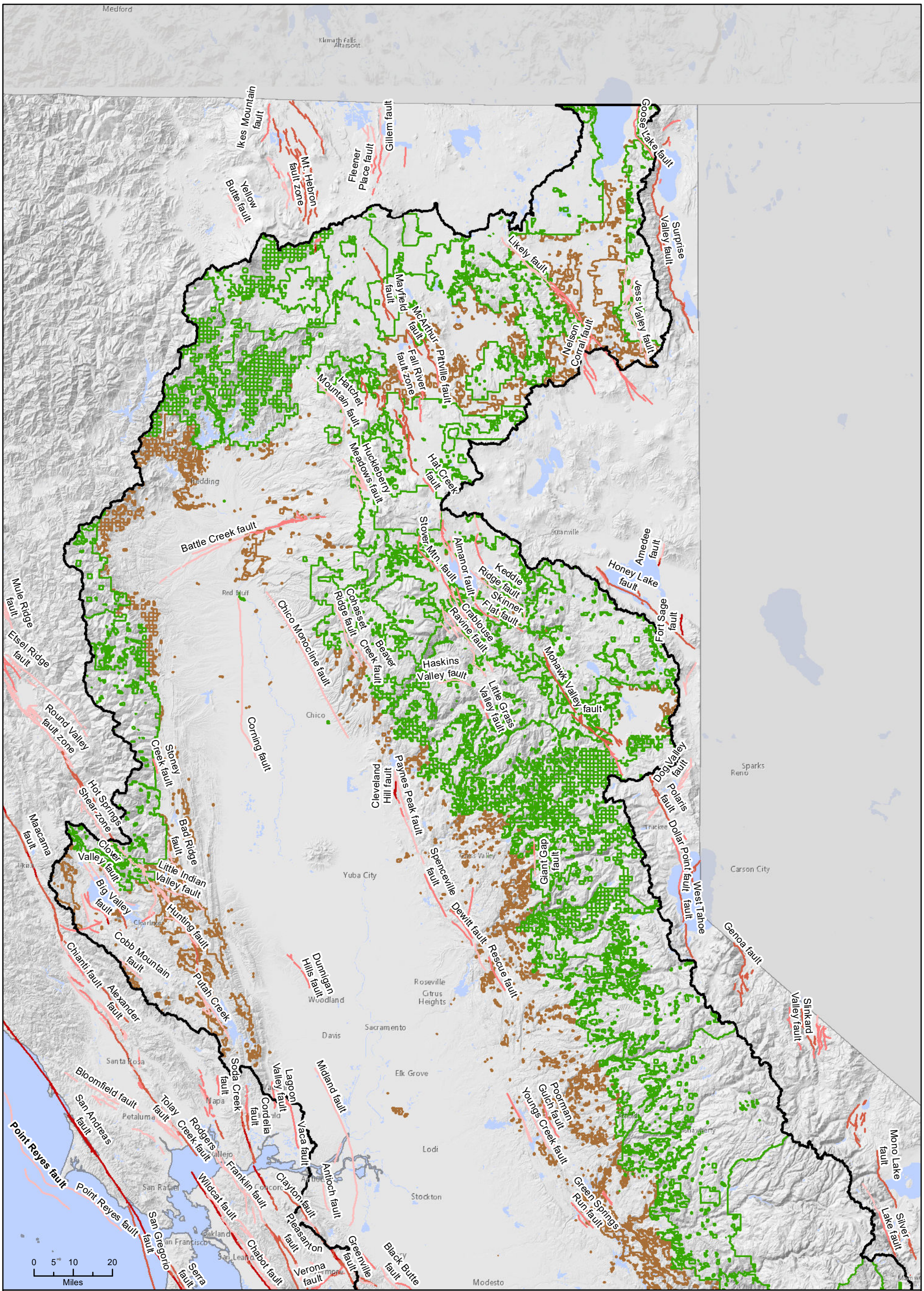


Figure 3.7-3
Fault Zones

Sheet 1 of 2

Federal Nonpoint Source Permit
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Horizon WATER and ENVIRONMENT

Source: ESRI 2018, CDC 2010

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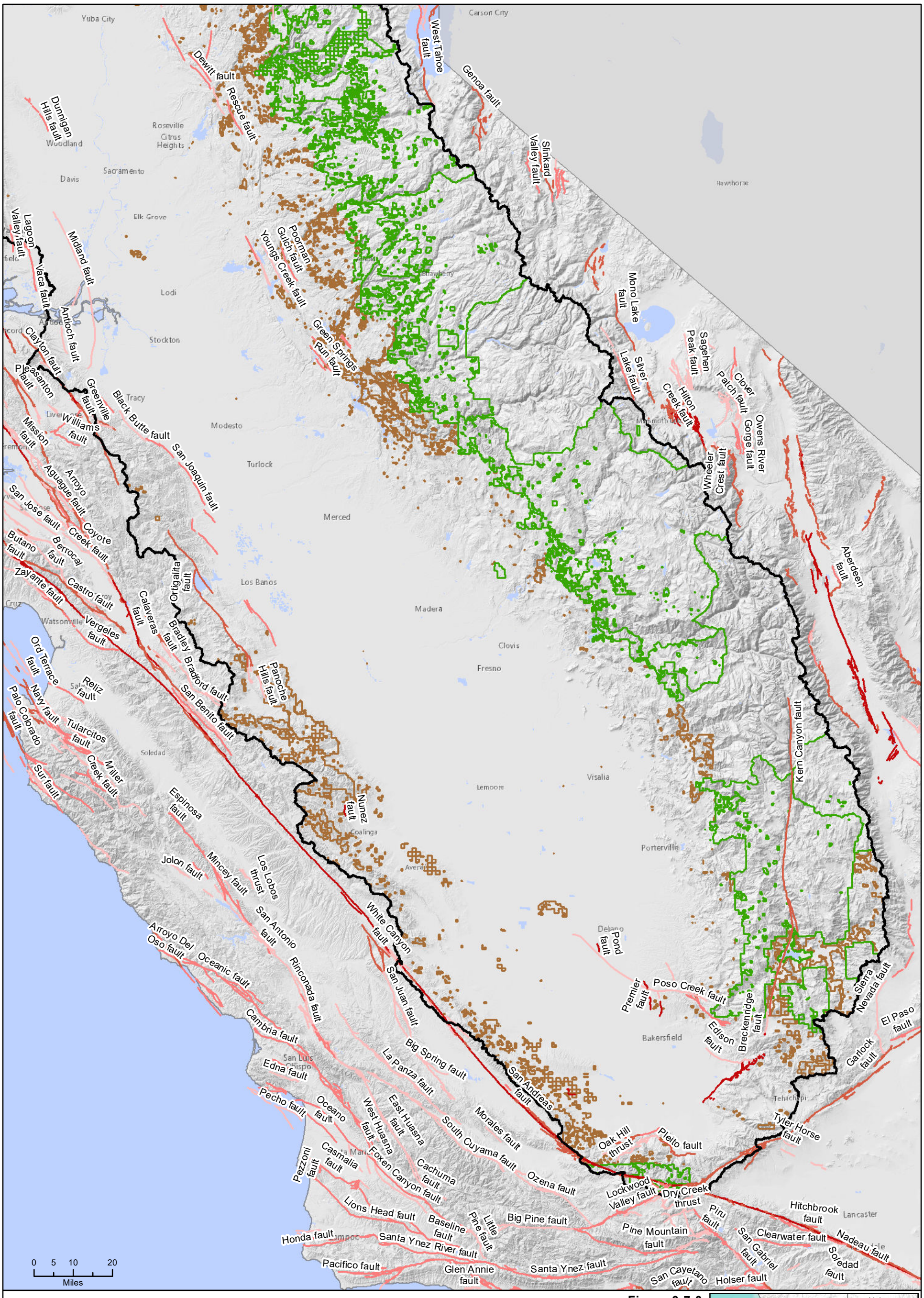


Figure 3.7-3
Fault Zones

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, CDC 2010

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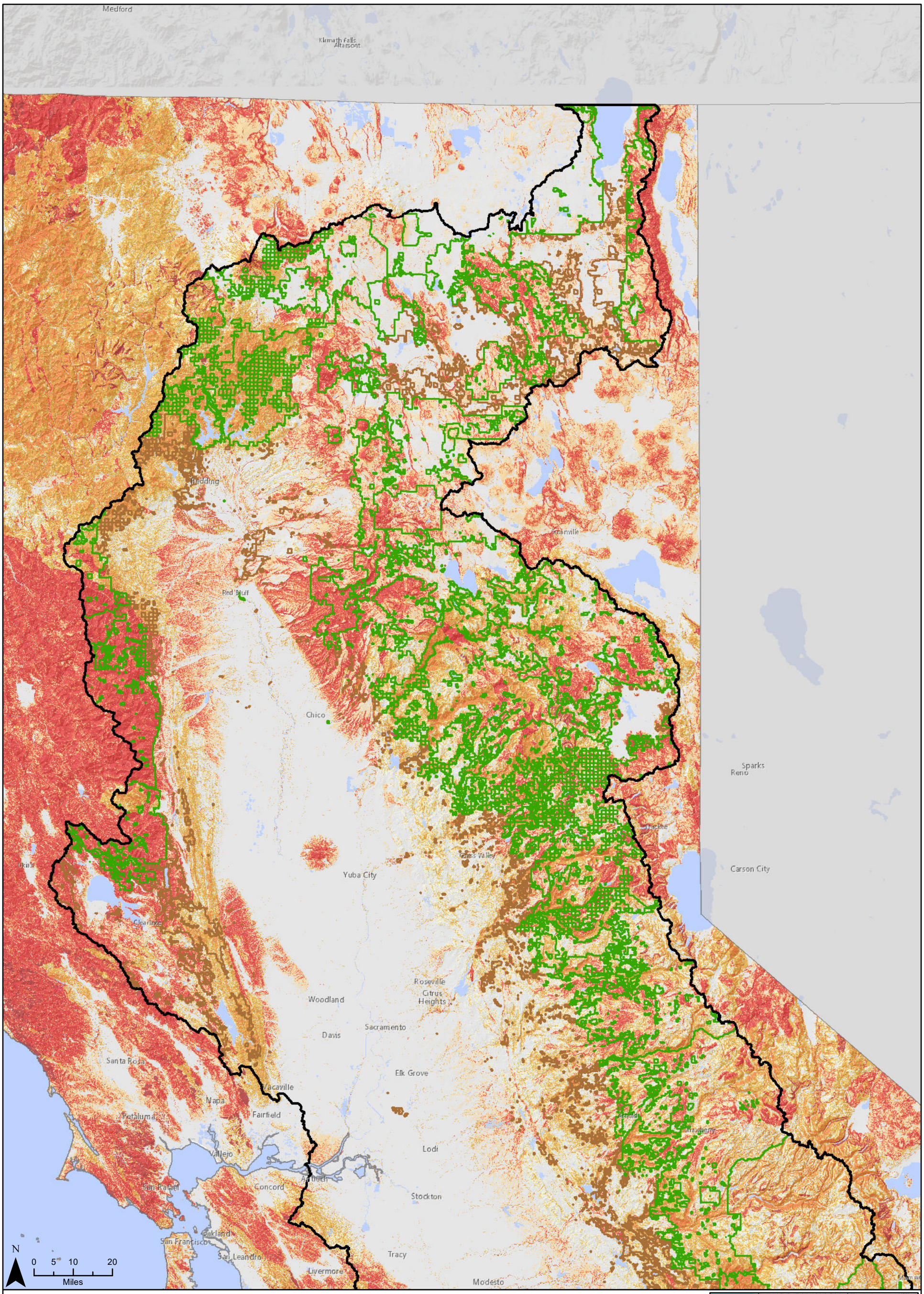


Figure 3.7-4
Landslide Potential

Sheet 1 of 2

Horizon WATER and ENVIRONMENT

Federal Nonpoint Source Permit
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Source: ESRI 2018, CDC 2020

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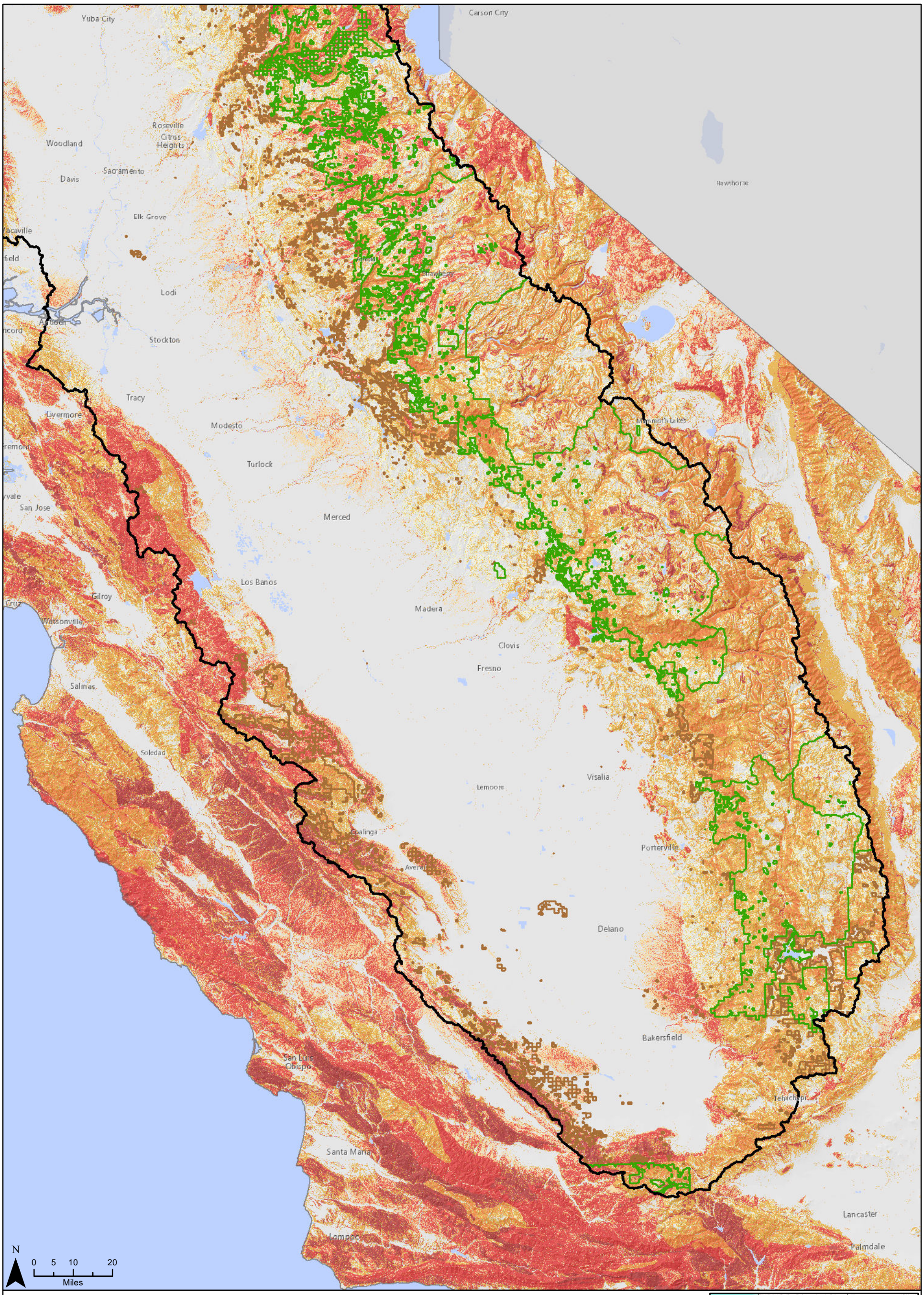


Figure 3.7-4
Landslide Potential

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Source: ESRI 2018, CDC 2020

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3.7.4 Impact Analysis

This section describes the methodology and significance criteria that were used to analyze geology and soils. It also presents the analysis of the potential environmental impacts of the Proposed Project and presents mitigation measures to be implemented for potentially significant impacts.

Methodology

The analysis evaluates the direct and indirect effects on geology and soils from implementing management actions that would occur as a result of the Proposed Project. As discussed in Chapter 2, the proposed WDRs would apply to NPS discharges related to vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities. The scope of the environmental analysis in this DEIR does not include the effects of the covered activities themselves. Rather, the focus is on the potential impacts from implementing reasonably foreseeable management measures, which may be required by the proposed Federal NPS Permit. The environmental impacts analysis below focuses on the potential effects from constructing/implementing reasonably foreseeable management measures (especially those measures involving ground disturbance), as well as the potential effects from monitoring activities.

As described further below, the impact analysis takes into account the California Supreme Court decision, *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 ("*CBIA v. BAAQMD*") that has bearing on the analysis of geology and soils.

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 geology and soils if it would:

A. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

   ii. Strong seismic groundshaking.

   iii. Seismic-related ground failure, including liquefaction.

   iv. Landslides.

B. Result in substantial soil erosion or the loss of topsoil.

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

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

E. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

F. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

The analysis takes into account the 2015 California Supreme Court's holding in *CBIA v. BAAQMD* that CEQA does not generally operate "in reverse." That is, CEQA generally does not require analysis of the impact of the existing environmental conditions on future users or residents of a proposed project. The Court determined, "it is the *project*'s impact on the environment – and not the *environment's* impact on the project – that compels an evaluation of how future residents or users could be affected by exacerbated conditions." (*Id*. at p. 377.) Evaluating "the environment's effects *on* a project… would impermissibly expand the scope of CEQA." (Id. at p. 387.) Thus, the court determined, "when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users." (*Id.* at p. 377.)

In applying *CBIA's* holding with respect to geology and soils, a proposed project that places structures or people in areas subject to geological hazards would only result in significant impacts if it were to *exacerbate* these existing geological hazards or conditions. Therefore, the impact analyses below focus on the extent to which the Proposed Project could exacerbate any existing geologic hazards or conditions that may already be present within the impact area.

Environmental Impacts of the Proposed Project

Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault. *(No Impact)*

As depicted in Figure 3.7-3, the Proposed Project area contains numerous inactive and active (i.e., having surface ruptured in the last 200 years or shown displacement in the last 11,000 years) fault lines and faults zoned under the Alquist-Priolo Earthquake Fault Zoning Act. Due to the nature of the Proposed Project, the exact locations and distances between covered activity areas/management measures and known fault lines are unknown and would depend on a number of site-specific factors. Therefore, there is potential for Proposed Project construction and operation activities to traverse active fault lines.

Common management measures for water quality protection (see Section 2.6.4 in Chapter 2, *Project Description*) would have very limited potential to result in impacts that would reasonably increase the likelihood of an earthquake or increase the force of magnitude of a fault rupture. Certain measures, such as maintaining watercourse protection buffers and following application requirements for herbicide use, would have no potential for impacts, as they would not involve ground disturbance or equipment operation. For those management measures that do involve ground disturbing activities, these activities would be relatively minor in terms of the depth and

scale of ground disturbance, as well as in duration. Some grading and excavation would be required for construction/installation of certain measures (e.g., water bars, rolling dips, rock armor placement on slopes or at culvert inlets/outlets, etc.); however, the level and depth of disturbance would be relatively minor, particularly in relation to that involved with other types of projects (e.g., large development projects) that occur in the Central Valley Region.

There is no substantial evidence indicating that minor ground disturbances, typical of those that could be required for the Proposed Project, would directly or indirectly exacerbate the effects of a potential rupture. Monitoring and reporting activities pursuant to the Proposed Project would involve vehicle trips to monitoring sites, visual observations, and related activities that would have no potential to affect earthquake fault rupture. The Proposed Project would not include any habitable structures that could be placed on or near active faults. Therefore, **no impact** would occur.

ii. Strong seismic groundshaking. *(No Impact)*

As described above and as depicted in Figure 3.7-3, active faults are located within the Proposed Project area and there is potential for a high-magnitude earthquake to occur along one of the existing regional fault lines. As depicted in Figure 3.7-2, the Proposed Project area includes a wide range of geologic formations, some of which tend to experience stronger ground-shaking than others. Seismic ground shaking is controlled by the earthquake magnitude, duration, ground conditions, and distance from the source. Due to the nature of the Proposed Project, the exact locations and distances between covered activity areas/associated management measures and known active fault lines are unknown. Nevertheless, it is possible that locations where the covered activities would be occurring could experience Peak Ground Acceleration[3] levels that translate to very strong to severe perceived intensity with the potential for moderate to heavy damage.

While common management measures for water quality protection could be located in an area susceptible to earthquakes, these activities would not exacerbate the effects of ground shaking that may occur in the Proposed Project area. As noted above under subsection i., construction/installation of certain management measures for the Proposed Project would involve grading and excavation; however, these activities would not cause or exacerbate seismic ground shaking. The proposed Federal NPS Permit would not include or result in the construction or operation of new facilities that would be used for human occupancy. Because construction and operation of the Proposed Project would neither directly nor indirectly cause nor exacerbate seismic ground shaking that may occur in the Proposed Project area, **no impact** would occur.

iii. Seismic-related ground failure, including liquefaction. *(Less than Significant)*

[3] When you push on the gas pedal in the car or put on the brakes, the car goes faster or slower. When it is changing from one speed to another, it is accelerating (faster) or decelerating (slower). This change from one speed, or velocity, to another is called acceleration. Technically, then, acceleration is how much the velocity changes in a unit time. During an earthquake when the ground is shaking, it also experiences acceleration. The peak acceleration is the largest increase in velocity recorded by a particular station during an earthquake (USGS 2022).

The Proposed Project would be implemented throughout USFS and BLM managed lands within the Central Valley Water Board's jurisdictional area, which includes a wide diversity of site-specific conditions, including soil types, sediment conditions, and groundwater depths, all of which contribute to the susceptibility of an area to liquefaction. Common or reasonably foreseeable management measures that may be implemented pursuant to the Proposed Project would not involve construction or operation activities that would directly or indirectly exacerbate any existing liquefaction hazards in the Project vicinity for the reasons that follow. While some management measures (e.g., those associated with transportation management or recreational facilities management) could involve construction activities that require the use of heavy equipment, ground disturbance would primarily occur within existing disturbed areas, such as existing roadways and areas supporting existing recreational facilities.

Additionally, typical management measures would not include uses that would substantially change the existing soil composition in the area, nor would they increase the groundwater table or otherwise increase soil saturation. On the contrary, management measures, such as those required for vegetation and post-emergency management, would include measures designed for long-term soil stability and improved drainage of soils (e.g., placement of woody material, straw mulch, rock armoring, etc.). Additionally, as noted above, the Proposed Project would not include or result in the construction or development of any habitable structures, which could potentially be affected by seismic-related ground failure, including liquefaction. Monitoring and reporting activities would be limited to vehicle trips to monitoring sites, visual observations, and related activities that would have no potential cause or exacerbate seismic-related ground failure.

Because the Proposed Project would not involve construction or operation activities that would directly or indirectly exacerbate any existing liquefaction hazards in the Proposed Project vicinity, impacts would be **less than significant**.

iv. Landslides. *(Less than Significant)*

As noted in Chapter 2, *Project Description*, the purpose of the Proposed Project is to ensure implementation of appropriate management measures for water quality protection, including reducing erosion and sediment discharges. Landsliding may be triggered by infrastructure or construction on roads built on steep or unstable slopes; filling and sidecasting that increase slope weight; and/or road cuts that remove slope support. Lack of inspection and maintenance of drainage structures and unstable road fills along roads can also result in soil movement. In many respects, implementation of the Proposed Project would reduce the potential for landslides on federal lands and in the Central Valley Region generally over the long term because the common management measures associated with the Proposed Project would lead to more effective management measure implementation, including those measures that may reduce the potential for landslides and/or smaller slope failures, relative to the baseline.

As shown in Figure 3.7-4, the Proposed Project area ranges in terms of landslide potential, but it is primarily located on lands rated as moderate susceptibility for landslide (Classes V-VIII), although there are many areas within the USFS and BLM managed lands that are rated as having higher susceptibility (Classes IX-X). Construction/installation of select management measures would involve grading and other ground-disturbing activities that, depending on site-specific conditions, including soil types, groundwater level, and bedrock units, could result in minor

downslope transport of soil and/or soil erosion over the short-term (even while the goal of these facilities would be to generally improve soil stability over the long-term.) Implementation of management measures, such as slash packing a skid trail no longer in use or adding woody material to disturbed soil or existing areas of erosion, may require use of heavy, mechanical equipment which could loosen soils and thereby increase their susceptibility to landslide. Similarly, installation of water bars to skid trails or landings, or to other types or roads or fire lines, would involve grading or other ground-disturbing activities that could lead to downslope transport of soil.

The federal agency BMP manuals include measures that would serve to minimize erosion and sedimentation, and which would also reduce potential impacts associated with landslides/slope failures. These include, in particular, USFS BMPs Road-3 (Road Construction and Reconstruction) and Road-7 (Stream Crossings); and BLM BMPs R-10, R-32, and RM 30 through 31 (refer to Appendix B for the text of these BMPs). Given that these BMPs would be implemented during construction of the reasonably foreseeable management measures, and considering that the effects of the management measures would be relatively minor (e.g., in relation to the ongoing activities on federal lands), significant impacts would not occur.

It should be noted that the common management measures would primarily be installed within existing disturbed areas, such as existing roadways and areas supporting existing recreational facilities, where construction activities would not substantially exacerbate any existing landslide hazards. Minor grading associated with the Proposed Project would not involve the creation of new steep slopes that might directly or indirectly cause landslides.

Once constructed/installed, the management measures that may be required through the Proposed Project would be expected to perform their intended purposes, which would include reducing potential for erosion and sedimentation, and which would also serve to reduce potential for landslides. For example, management measures intended to improve soil stability, such as adding ground cover on exposed soils for wildland fire recovery, would reduce the potential for landslides over the long term. For any management measures that are not performing adequately and/or require continued maintenance to perform adequately over a number of years, the Proposed Project's monitoring and reporting provisions would provide a mechanism for identifying and correcting deficiencies.

The monitoring activities under the Proposed Project would be limited to visual inspections or evaluations by USFS and BLM personnel. Given the Proposed Project's robust monitoring requirements, it is likely to result in increased numbers of vehicle trips to project sites by the federal personnel to perform monitoring evaluations. However, these trips would presumably occur via existing roads and would not cause or exacerbate the existing risk of landslides.

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

Impact GEO-2: Result in substantial soil erosion or the loss of topsoil. *(Less than Significant)*

As noted in Chapter 2, *Project Description*, the purpose of the Proposed Project is to ensure implementation of appropriate management measures for water quality protection, including water quality protection from soil erosion, during covered activities. It is therefore reasonable to

assume that implementation of the Proposed Project, including the enforceable permit conditions and mechanisms for tracking and monitoring management measure implementation, would reduce potential for soil erosion on federal lands and in the Central Valley Region generally over the long term. The mechanisms included in the Proposed Project would lead to more effective management measure implementation, including those measures intended to reduce soil erosion and loss of topsoil, relative to the baseline.

As described above under Impact GEO-1, subsection iv, however, grading, excavation and other ground-disturbing activities associated with construction/installation of select management measures could increase susceptibility of soil to erosive forces over the short-term during the construction periods. Intense rain or wind events in areas where these activities are occurring could result in soil erosion into adjacent waterways. As described in Section 3.7.3, the Proposed Project area contains USFS and BLM managed lands within the Central Valley Water Board's jurisdictional area, which includes a wide diversity of site-specific conditions, including soil types, which would affect the susceptibility of a specific area to soil erosion.

Generally, the federal agency BMP manuals include measures that would serve to minimize potential impacts associated with erosion and loss of topsoil. These include, in particular, USFS BMPs Road-3 (Road Construction and Reconstruction), Road-7 (Stream Crossings), Fac-2 (Facility Construction and Stormwater Control), R5 Erosion Control Plan, and Veg-3 (Erosion Prevention and Control); and BLM BMPs AQ 15, AQ 17, AQ 23 through 26, RST 09, SC 08, SC 13, R 01 to R 02, R 06, R 09, R 12, R 14 to R 15, R 20, RM 20 through 22, TM 14, and REC 01 to REC 02, and REC 08, REC 20, REC 32 (refer to Appendix B). While the federal agency BMPs have not historically been completely effective in reducing adverse water quality effects (see discussion in Chapter 2, *Project Description*), in the context of the Proposed Project, the BMPs would be expected to avoid or reduce the majority of impacts.

Additionally, in some cases, where federal projects or activities (including ground-disturbing management measures implemented pursuant to the Proposed Project) would disturb greater than one acre of land, the federal agencies may be subject to the Construction General Permit (see Section 3.10, "Hydrology and Water Quality" for detailed discussion). This would require development of a SWPPP, including BMPs to limit erosion and loss of topsoil. Given implementation of applicable federal agency BMPs and compliance with the Construction General Permit, the potential for the Proposed Project to result in substantial adverse impacts involving soil erosion or the loss of topsoil during construction-related activities would be less than significant.

Once constructed/installed, the reasonably foreseeable management measures would be expected to perform their intended purposes, which would include reducing erosion and loss of topsoil. For example, erosion and sediment control measures (e.g., adding ground cover on exposed soils for wildland fire recovery) would function to minimize erosive forces related to discharges. As such, the management measures would reduce potential for erosion and loss of topsoil over the long term. The monitoring requirements under the Proposed Project may lead to increased numbers of vehicle trips to project sites by the federal personnel to perform monitoring evaluations. However, these trips would presumably occur via existing roads and would not be expected to result in substantial erosion or loss of topsoil. Therefore, impacts during the operation phase would be less than significant.

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

Impact GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. *(Less than Significant)*

As described in Section 3.7.3, the Proposed Project area spans a wide range of existing conditions pertaining to soil types and density, groundwater levels, geologic units, and slopes – all site-specific conditions that would contribute to soil stability. Proposed Project activities that involve ground disturbance, and therefore may impact the stability of soils in the short term, include, but are not limited to: vegetation removal, grading, excavation, trenching, and cut and fill. These activities would be associated with construction/installation of certain reasonably foreseeable management measures. The Proposed Project would not include, or result in the construction of, any habitable structures or any other above-ground structures that may be used for commercial, industrial, or other purposes.

The potential for the Proposed Project's construction-related activities to result in soil instability is discussed above under Impact GEO-1, subsection iv. As described in subsection iv., the federal agency BMP manuals presently include measures that would serve to minimize erosion and sedimentation, and which may also prevent potential soil instability and movement. Additionally, the construction/installation of management measures may, in some instances, require preparation and implementation of a SWPPP, including BMPs for erosion and sediment-control. In addition to addressing water quality effects, the BMPs included in the federal agency manuals and/or in the SWPPP, as applicable, would reduce potential soil stability effects from construction.

While the majority of the reasonably foreseeable management measures under the Proposed Project would not involve or include any structures or load-bearing facilities whatsoever; certain management measures would include facilities that may bear weight and/or could affect the stability of existing infrastructure. In particular, management measures related to the transportation management category of activities include installation of water bars, rolling dips, or other road drainage features. These measures would be installed in existing roads or incorporated into design/planning for any new roads that are implemented over the life of the Federal NPS Permit. Generally, it is assumed that such measures would be installed within the existing road prism and the disturbance or excavation areas required for installation would be limited to previously disturbed areas and/or engineered, stable road fill material. However, in some cases, it is possible that construction/installation of these types of measures could extend into softer soils that may be unstable or that may become unstable as a result of the management measures.

The management measures that may be implemented under the Proposed Project are relatively standard measures that are widely accepted amongst agencies. Thus, it is assumed that the measures would be implemented in accordance with applicable standards and guidelines, including requirements related to geologic and soil stability. As described in Section 3.7.2, the USFS and BLM both have internal guidance and requirements (e.g., Forest Service Specifications for Construction of Roads & Bridges [USFS 1996], and BLM Manual 9113 – Roads Design Handbook [BLM 2011]) related to roads design, which include specifications related to soil and

materials stability. Thus, application of these procedures with respect to the Proposed Project would ensure that construction/installation of the reasonably foreseeable management measures would not exacerbate soil instability or cause adverse geologic effects.

Over the long term, the reasonably foreseeable management measures under the Proposed Project related to roads would improve drainage and thereby reduce potential for adverse effects related to geologic or soil instability. Similarly, as noted above, once constructed/installed the management measures would be expected to improve the stability of soils in many instances. For example, seeding disturbed bare soil, adding straw mulch for ground cover, adding woody material to disturbed soil or existing areas of erosion, rock armoring the road fill below a road drainage feature, and retention of bank stabilizing vegetation may all serve to reduce potential for soil instability and related impacts. The monitoring activities under the Proposed Project would have no potential to cause or result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

Therefore, this impact would be **less than significant.**

Impact GEO-4: Be located on expansive soil, creating substantial direct or indirect risks to life or property. *(Less than Significant)*

As described in Section 3.7.3, the Proposed Project area spans a wide range of soil types, which greatly vary in terms of shrink-swell potential. Areas characterized as having expansive soils are rated as having a high potential for shrinking and swelling and can lift or settle during rain events, potentially causing damage to structures located in these areas. Due to the nature of the Proposed Project, the exact locations of new management measures are unknown and would depend on a number of site-specific factors. Therefore, there would be potential for management measures, including those involving excavation and ground disturbing activities, to be located in areas containing expansive soils.

Many of the common management measures for water quality protection would have limited potential to result in substantial impacts related to soil expansion, as they would not involve construction or improvements to habitable structures or other infrastructure that could impact or exacerbate soil shrink-swell potential, or create substantial direct or indirect risks to life or property. Many typical management measures, such as maintaining watercourse protection buffers, would have no potential for impacts to expansive soils. However, some measures, in particular those related to transportation management, may involve modifications to load-bearing components and which could encounter expansive soils during their construction/installation. Although unlikely (particularly considering that installation of management measures would primarily occur in previously disturbed areas [e.g., within the existing road prism]), if load-bearing management measures were to encounter expansive soils, this could create substantial risks to life and property.

As discussed above under Impact GEO-3, the USFS and BLM would adhere to applicable design standards and guidelines when constructing/installing management measures within roadways, including consideration of soil composition and suitability of soils and materials, which would limit the potential for adverse effects. The monitoring activities under the Proposed Project would be limited to visual inspections or evaluations by USFS and BLM personnel. These trips

would presumably occur via existing roads and would have no impacts nor result in excessive risks to life or property from expansive soils.

Because the Proposed Project would have limited potential to result in substantial impacts related to soil expansion, would not involve the construction of habitable structures, and would include adherence to applicable USFS and BLM standards and guidelines, the Proposed Project would not be subject to excessive risks from expansive soils. For these reasons, the Proposed Project components would not exacerbate any existing hazards from expansive soils; and this impact would be **less than significant**.

Impact GEO-5: Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water. *(No Impact)*

The Proposed Project would not include the use of septic tanks or alternative wastewater disposal systems. Therefore, **no impact** would occur.

Impact GEO-6: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. *(Less than Significant)*

As described in Section 3.7.3, the Proposed Project area spans a wide range of geologic units, some of which are known to contain unique geologic features. The potential for paleontological resources to be present on or beneath a given site often depends on the type of rock formation/substrate, as well as whether any documented fossil localities are on or near the site. Due to the nature of the Proposed Project, the exact locations of new management measures are unknown; therefore, whether or not a particular management measure would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature would be determined on a site-specific basis. There is, therefore, potential for the construction or operations and maintenance of the Proposed Project, specifically those activities that would involve new ground-disturbing activities, to encounter buried paleontological resources and/or result in adverse significant impacts to these resources. However, it is assumed that disturbance within previously disturbed ground (e.g., within the existing road prism and above the depth of previous disturbance during construction of the road) would not encounter and substantially affect buried paleontological resources.

The PRPA, described in Section 3.7.2, provides for the protection of paleontological resources on federal lands. Both agencies and/or their contractors would be subject to the PRPA, which includes the clause that a person may not “excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage, or otherwise alter or deface any paleontological resource located on Federal land unless this activity is conducted in accordance with the Act and this part” (43 CFR Section 49.300). Additionally, the BLM, in particular, has substantial internal guidance for the protection of paleontological resources. For example, Handbook H-8270-1 includes guidance for identifying areas containing or likely to contain paleontological resources and developing management recommendations or mitigation measures to reduce potential impacts. Implementation of these guidelines and compliance with the PRPA would reduce potential for construction/installation of management measures under the Proposed Project to result in substantial adverse effects on paleontological resources. Therefore, this impact would be **less than significant**.

3.8 Greenhouse Gas Emissions

3.8.1 Introduction

This section presents the environmental setting and potential impacts of the Proposed Project related to GHG emissions. For information on the effects of the Proposed Project related to energy, please refer to Section 3.6.

3.8.2 Regulatory Setting

Federal Laws, Ordinances, Regulations, and Standards

At the federal level, the USEPA has developed regulations to reduce GHG emissions from motor vehicles and has developed permitting requirements for large stationary emitters of GHGs. On April 1, 2010, USEPA and the 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 2021). However, some of these standards have been stayed by a court order and USEPA has proposed repealing certain Phase 2 emissions standards (Center for Climate and Energy Solutions 2021). In August 2021, President Biden's Executive Order 14037, *Strengthening American Leadership in Clean Cars and Trucks*, directed EPA to begin work on establishing new emissions standards for heavy-duty vehicles for model years 2027 through 2030 or later. The order called for EPA to finalize this rulemaking by December 2022. (Center for Climate and Energy Solutions 2021.)

United States Forest Service

In 2011, the USFS finalized a National Roadmap for Responding to Climate Change (USFS 2011). This roadmap sets forth a strategic framework for the USFS to hold itself accountable for progress under this roadmap in four major areas: agency or organizational capacity; partnerships and conservation education; adaptation; and mitigation. The USFS will respond to climate change in three interconnected ways:

- Assess current risks, vulnerabilities, policies, and gaps in knowledge;
- Engage employees and stakeholders to seek solutions;
- Manage for resilience, in ecosystems as well as in human communities, through adaptation, mitigation, and sustainable consumption strategies.

Within these interconnected response areas, the roadmap identifies various actions and initiatives to undertake as part of USFS's response to climate change.

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.

Statewide Greenhouse Gas Emission Targets

In 2006, the California State Legislature enacted 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). Natural and working lands are one of the key sectors discussed in this Scoping Plan Update which includes recommendations such as managing for carbon, fuel reduction, reforestation, and prescribed fire.

California Forest Carbon Plan

The California Forest Carbon Plan discusses recent trends in wildfires and the balance between forest carbon emissions and sequestration. It describes opportunities to establish California's forests as a more resilient and reliable long-term carbon sink, rather than a GHG and black carbon[1] emission source. The plan identifies the following objectives and goals that may be relevant to the Proposed Project (Forest Climate Action Team 2018):

> **Enhance:** Expand and improve forest management to enhance forest health and resilience, resulting in enhanced long-term carbon sequestration and storage potential.
>
> - Improve Health and Resilience on Federal Forestlands
> - Restore Ecosystem Health of Wildfire- and Pest-Impacted Areas through Reforestation
>
> **Protect:** Increase protection of California's forested lands and reduce conversion to non-forest uses, resulting in a more stable forested land base.

[1] Black carbon consists of pure carbon and is formed during the incomplete combustion of biomass or fossil fuels. It is a major component of particulate matter emitted during wildfires.

Innovate: Pursue innovations in wood products and biomass utilization in a manner that reduces or offsets GHG emissions; promotes land stewardship; and strengthens rural economies and communities

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 2020a). The LCFS regulation includes annual performance standards for fuel producers and importers, applicable to all fuels used for transportation in California (CARB 2020a). 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

The State Water Board 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, and programs to expand water conservation and recycling and storm water use (California Environmental Protection Agency [CalEPA] 2020). Other State Water Board emission reduction strategies include promoting the use of methane capture and stormwater detention and infiltration (State Water Board 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 Valley Region have adopted or drafted CAPs, energy plans, or GHG emission reduction plans. However, these plans would not be applicable to activities conducted by federal agencies on federal lands; therefore, no discussion of local general plans and policies are included here.

3.8.3 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_2), methane, and N_20, trap heat that is emitted from the earth's surface, creating a "greenhouse effect" (National

Aeronautics and Space Administration [NASA] 2021). 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_2, methane, N_20, and others may remain semi-permanently in the atmosphere and thereby act as a "forcing" of climate change (NASA 2021). 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 2021). About 90 percent of this heat is then absorbed by the GHGs and radiated back toward the surface.

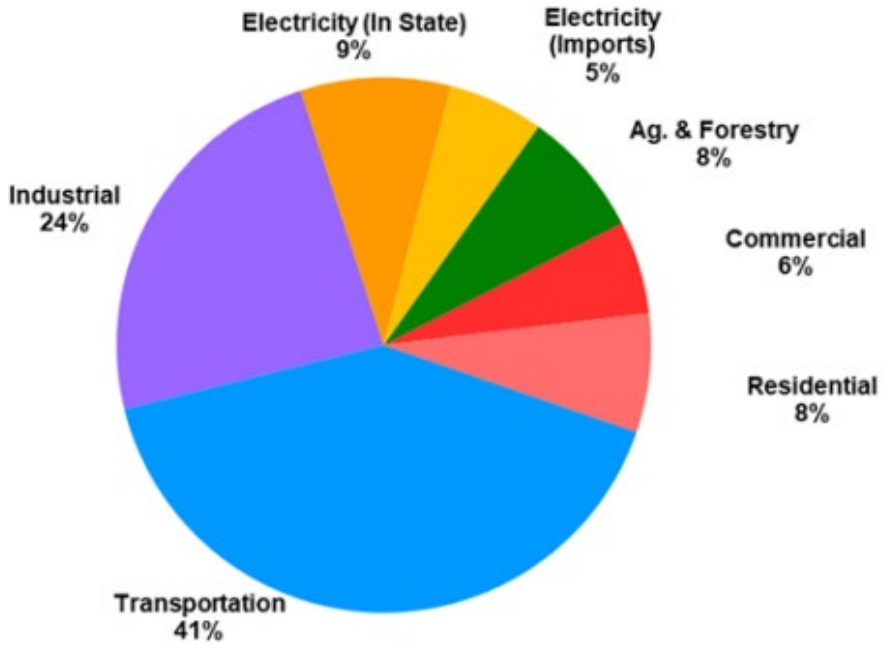
Other potential causes of global climate change include changes in the irradiance of the sun, which is thought to have been the primary cause for the Little Ice Age between approximately 1650 and 1850 (NASA 2021). However, this is not thought to have played a role in the recent warming observed in the 20th and 21st centuries for several reasons (NASA 2021): (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 GHGs.

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

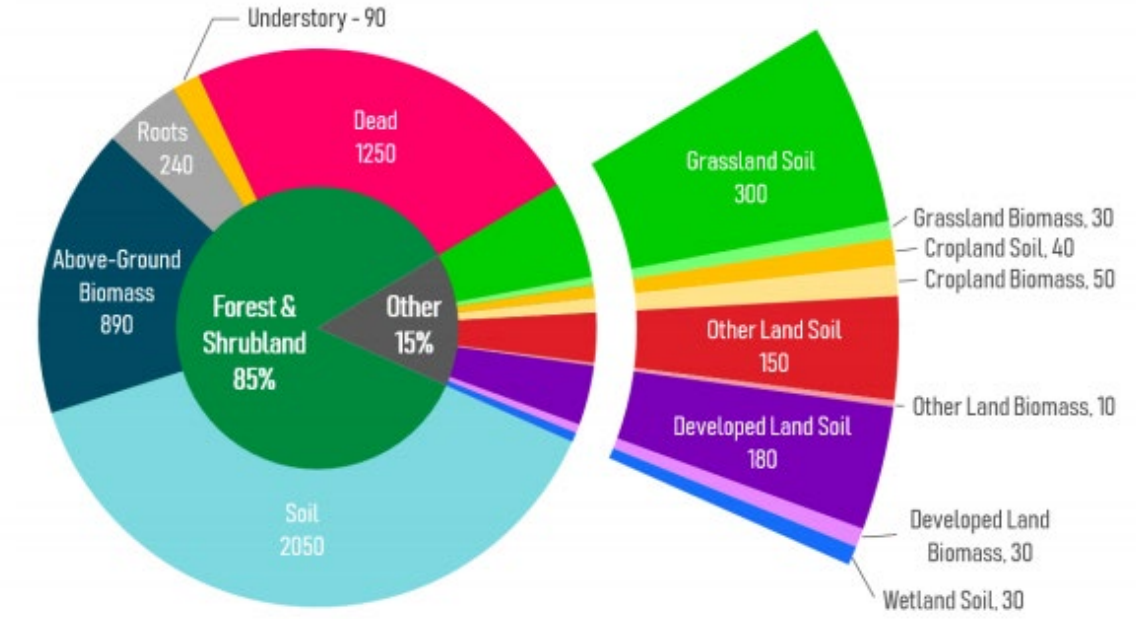
GHG emissions typically are measured in terms of mass of carbon dioxide equivalents (CO_2e). CO_2e is calculated as the product of the mass of a given GHG and its specific Global Warming Potential (GWP). Worldwide emissions of GHGs in 2019 totaled approximately 36.4 billion metric tons (MT) of CO_2e, with 15 percent of those coming from the U.S. (Global Carbon Project 2020). In 2019, the U.S. emitted about 6.6 billion MT of CO_2e, which was an increase of about 1.8 percent since 1990, but a reduction of about 13 percent from 2005 inventories (USEPA 2021a). Fossil fuel combustion accounts for approximately 76 percent of the U.S.'s GHG emissions (USEPA 2021a).

In 2019, sources within the state of California emitted approximately 418 million metric tons (MMT) of CO_2e (CARB 2021). Per capita GHG emissions in California have dropped from a 2001 peak of 14.0 MT per person to 10.5 MT per person in 2019, a 25 percent decrease (CARB 2021). **Figure 3.8-1** shows an overview of relative GHG emissions in California by source. **Figure 3.8-2** provides details on biomass and soil carbon stocks in California.



Source: CARB 2021

Figure 3.8-1. Greenhouse Gas Emissions by Source in California (2019)



Source: CARB 2020b

Figure 3.8-2. Distribution of Biomass and Soil Carbon Stocks in the California Landscape (2014)

Natural lands in California store carbon in soil and biomass and release carbon into the atmosphere through the decay process and wildfires. Forest and shrubland contain the vast majority of California's carbon stock because they cover the majority of California's landscape and have the highest carbon density of any land cover type (CARB 2020b). Between 2000-2019, GHG emissions from wildfires averaged approximately 14 MMT CO_2 per year, but were estimated to be much higher (over 110 MMT CO_2) in 2020 (CARB 2020c). Over half of the forestland in California is managed by the federal government, primarily by the USFS Pacific Southwest Region, and these lands comprise the largest potential forest carbon sink under one ownership in the state (CARB 2017).

Global Climate Change and Greenhouse Gas Emissions in the Proposed Project Area

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 California, act on the same scale as those in Europe, Africa, or any other part of the world. Likewise, the climate in the Central Valley 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 2,288,000 and 9,310,000 acres of land in the Central Valley Region are under BLM and USFS management, respectively. GHG emissions associated with the federal activities covered by the Federal NPS Permit (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration) and associated BMP implementation on lands managed by the USFS and BLM include:

- CO_2 emissions from operation of off-road machinery and equipment;
- CO_2 emissions from electricity generation for operation of pumps (e.g., water drafting) and electric vehicles and equipment;
- CO_2 emissions from work vehicles and other transportation-related activities;
- CO_2 emissions from disturbed soils and mulched/chipped vegetation; and
- CO_2 and N_2O emissions from controlled burns.

Quantitative data are not available regarding the specific quantities of GHG emissions attributable to BMP implementation on BLM and Forest Service lands within the Central Valley Region.

Vulnerability to Climate Change

Forests and natural lands are particularly vulnerable to changes in climate. 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 Valley Region could have deleterious effects on forests and natural lands. Although increased concentrations of CO_2 are a possible benefit to plant growth, increased temperatures, more frequent or extreme droughts, or otherwise more

variable precipitation patterns could be harmful. A changing climate combined with anthropogenic factors has already contributed to more frequent and severe forest wildfires in California and the western U.S. (State of California 2018).

3.8.4 Impact Analysis

This section analyzes the impacts related to GHG emissions that could result from implementation of management actions that could occur as a result of the Proposed Project, following the methodology and using the significance criteria described below.

Methodology

Because the proposed Federal NPS Permit would not mandate a specific manner of compliance for USFS and BLM and it is unknown where specific activities and associated BMP implementation would occur within the federal lands, 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 implementing management actions that would occur as a result 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 and other GHG emitting activities due to these management measures.

Note that many of the products and equipment that could be used during the Proposed Project implementation could include “embodied” 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 or maintenance equipment used during management measure installation may involve fossil fuel combustion and GHG emissions. Likewise, transporting equipment parts to markets and ultimately to the consumer could generate GHG emissions. To date, adequate information is not available to conduct an accurate lifecycle analysis of GHG emissions from the production of materials utilized for the Proposed Project or for any project subject to CEQA. Thus, any attempt to quantify embodied GHG emissions would include a great deal of speculation and would be of little or no practical value. This is consistent with the California Air Pollution Control Officers Association’s (CAPCOA’s) CEQA and Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act (January 2008), which states the following regarding estimating GHG emissions from construction:

> “The full life-cycle of GHG emissions from construction activities is not accounted for in the modeling tools available, and the information needed to characterize GHG emissions from manufacture, transport, and end-of-life of construction materials would be speculative at the CEQA analysis level. The emissions disclosed will be from construction equipment and worker commutes during the duration of construction activities. Thus, the mass emissions in units of metric tons of carbon dioxide per year should be reported in the environmental document as new emissions."

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 Valley Region have drafted or adopted GHG emission significance thresholds for analysis of GHG impacts under CEQA, though few if any have updated these to reflect post-2020 goals (Bay Area Air Quality Management District [BAAQMD] 2017, Santa Barbara County APCD 2015, San Joaquin Valley APCD 2009, San Luis Obispo County APCD 2021). 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, it should be noted that the federal threshold of 10,000 $MTCO_2e$ per year suggested in Council on Environmental Quality guidance for NEPA projects would be more applicable to the Proposed Project as thresholds developed by air districts primarily are for land use development for commercial, retail and residential uses rather than activities occurring on natural lands.

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)*

Under the Proposed Project, implementation and monitoring of management measures (e.g., sediment control measures, installing water bars, placement of riprap, measures to reduce the water quality impacts of prescribed burns, etc.) during certain activities on USFS and BLM managed lands would result in emissions of GHGs. In some cases, the measures may utilize material that is the waste product of covered activities (e.g., slash packing a skid trail or fire line), as well as equipment that would have already been in use in conducting the covered activities under baseline conditions – in these cases, there would be no change or reduced impacts. In other cases, materials specifically used for water quality protection (e.g., straw mulch, rock for armoring or barrier construction, straw bales, etc.) may be transported to the site(s). The level of emissions associated with these activities would depend on the location of specific site(s) and the source location of the materials and equipment, as well as the type of trucks used. This would vary on a case-by-case basis.

It should be noted that many of these GHG emissions are occurring under existing baseline conditions, as many of the management measures for water quality protection are already being implemented at some level. As such, while the Proposed Project is anticipated to result in increased management measure implementation and monitoring (and associated GHG emissions), the GHG emissions that occur from the Proposed Project should be considered in light of the GHG emissions that are occurring under existing conditions.

The Proposed Project would not create any new substantial stationary sources of GHG emissions, though GHG emissions from management measures could increase compared to current baseline levels due to increased levels of implementation, particularly for the increased use of fossil-fueled equipment. Additionally, GHG emissions from equipment and vehicle fleets would decrease over time, as newer more efficient models replace older ones and as equipment and vehicles transition to electric and alternative fuels. While the specific change in GHG emissions under the Proposed Project compared to baseline levels is unknown, it is not

anticipated over time that there will be a substantial increase in GHG emissions since these will be temporary and cease after a specific activity is complete. In addition, given current regulations and policies that encourage the use of more efficient fossil-fueled equipment or alternatively powered equipment and vehicles GHG emissions would be anticipated to decrease over time with the same level of activity. For these reasons, the Proposed Project's impact due to GHG emissions generated by implementation of management measures and monitoring would be less than significant.

Therefore, this impact would be **less than significant**.

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, the 2017 Climate Change Scoping Plan, or the California Forest Carbon Plan (see Section 3.8.2). The implementation of many management measures and the Proposed Project's covered activities, including fuel reduction, revegetation, and prescribed fire, would align with strategies mentioned in these plans and potentially reduce emissions of some GHGs or improve sequestration of carbon. As discussed above in Impact GHG-1, implementation of some management measures would generate short-term GHG emissions but would not result in new stationary sources of substantial GHGs. These emissions would not be significant and would not conflict with applicable State plans, policies, or regulations.

For similar reasons, while local plans and policies would not be applicable to activities conducted by federal agencies on federal lands, the Proposed Project would generally be 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**.

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3.9 Hazards and Hazardous Materials

3.9.1 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]).

3.9.2 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 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 (USEPA 2021a). 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 2021b). 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 2021b).

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) (42 USC 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 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 2021c).

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).

The National Strategy: The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy

In the FLAME Act of 2009, Congress mandated the development of a national cohesive wildland fire management strategy to comprehensively address wildland fire management across all lands in the United States (Secretary of the Interior and Secretary of Agriculture 2014). The National Strategy is the result of a collaborative effort by Federal, state, local, and tribal governments and non-governmental partners and public stakeholders, in conjunction with scientific data analysis, which was initiated after enactment of the FLAME Act. The National Strategy describes how the Nation can focus future efforts in making strategic investments to reduce the severe effects of wildfire on areas of high risk, and includes a set of guidelines intended to provide basic direction when planning activities (Secretary of the Interior and Secretary of Agriculture 2014).

The Cohesive Strategy (of which the National Strategy is a part) vision for the next century is as follows: "To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire" (Secretary of the Interior and Secretary of Agriculture 2014).

Executive Order 13855 – Promoting Active Management of America's Forests, Rangelands, and Other Federal Lands to Improve Conditions and Reduce Wildfire Risk

EO 13855 established that "it is the policy of the United States to protect people, communities, and watersheds, and to promote healthy and resilient forests, rangelands, and other Federal lands by actively managing them through partnerships with States, tribes, communities, non-profit organizations, and the private sector." EO 13855 identified the following goals related to treatment of Department of Interior (DOI) and USFS lands:

<u>Department of Interior</u>

- Treating 750,000 acres of DOI-administered lands to reduce fuel loads;
- Treating 500,000 acres of DOI-administered lands to protect water quality and mitigate severe flooding and erosion risks arising from forest fires;
- Treating 750,000 acres of DOI-administered lands for native and invasive species;
- Reducing vegetation giving rise to wildfire conditions through forest health treatments by increasing health treatments as part of DOI's offering for sale 600 million board feet of timber from DOI-administered lands; and
- Performing maintenance on public roads needed to provide access for emergency services and restoration work.

<u>United States Forest Service</u>

- Treating 3.5 million acres of USFS lands to reduce fuel load;

- Treating 2.2 million acres of USFS lands to protect water quality and mitigate severe flooding and erosion risks arising from forest fires;
- Treating 750,000 acres of USFS lands for native and invasive species;
- Reducing vegetation giving rise to wildfire conditions through forest health treatments by increasing health treatments as part of USDA's offering for sale at least 3.8 billion board feet of timber from USFS lands;
- Performing maintenance on roads needed to provide access on USFS lands for emergency services and restoration work.

Forest Service Rules, Regulations, and Policies

Pacific Southwest Region Post-Fire Recovery Action Plan

The Region 5 (Pacific Southwest Region) Post-Fire Recovery Action Plan 2022 (USFS 2022) identifies the actions and status of recovery activities from the previous fire seasons (calendar years 2020-2021). These include suppression repair, burned area emergency response, burned area rehabilitation, rapid assessments and post fire restoration framework, hazard tree mitigation, hazardous materials mitigation, landscape restoration, and disaster supplemental programs. Together with the Region 5 Post-Fire Recovery Plan, the document outlines activities to recover National Forest System lands after a wildfire (USFS 2022).

Everyday Hazmat User's Training Guide

The USFS' Everyday Hazmat User's Training Guide (USFS No Date) provides guidance regarding hazardous materials management when conducting USFS activities. This includes discussion of the common types of hazardous materials encountered during USFS activities; storage protocols and permitting requirements for the various types of situations and hazardous materials; and information regarding hazardous wastes (USFS No Date). For example, the Guide specifies requirements for storage of flammable liquids in indoor and outdoor areas; spill control and secondary containment are required if any individual container has more than a 55-gallon capacity, or if the total capacity of all containers exceeds 1,000 gallons (USFS No Date). With respect to dispensing flammable liquids, USFS personnel must have spill containment and cleanup materials readily available, and secondary containment is required for drums when dispensing (USFS No Date).

Bureau of Land Management Rules, Regulations, and Policies

Manual 1703 – Hazard Management and Resource Protection

Manual 1703 (BLM 2009) establishes the framework for BLM's Hazard Management and Resource Restoration Program. General policies included in the Manual of relevance to the Proposed Project include the following:

- Comply with all applicable Federal and State environmental laws and regulations.
- Minimize waste and prevent pollution generated or released on public lands and BLM facilities, consistent with regulatory policy.

- Manage all releases, or threats of releases of hazardous substances, or other hazards on or affecting public lands, or at BLM facilities, and give immediate priority based on risk. Priority shall be given to the control of all releases, threatened releases or other hazards that pose an imminent health, safety, or environmental danger.

- Develop and maintain contingency plans as required by the [National Contingency Plan] NCP (40 CFR Part 300) for CERCLA, [Emergency Planning and Community Right-to-Know Act] EPCRA, Homeland Security, and other significant hazards as appropriate.

- Maintain an inventory of hazardous materials sites using the Abandoned Mine and Site Cleanup Module (AMSCM).

- Disposal of RCRA, Subtitle C hazardous wastes generated by the BLM will occur only at Treatment Storage Disposal Facilities (TSDF) on the EPA's most recent list of approved facilities. Contracted TSDF audits will also continue.

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.

California Public Resources Code

The 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. The following requirements in the PRC apply to construction activities at 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).

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 CDPR 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 2021).

California Occupational Safety and Health Administration Regulations

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[1] 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 2021). The law also requires that new homes be constructed with fire-resistant materials, such as fire-resistant roofing, enclosed eaves, and dual-paned windows.

Unified Program—Certified Unified Program Agencies

The Unified Program consolidates and coordinates several regulatory programs in California related to hazardous wastes and materials (CalEPA 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 (CalEPA 2012). After local agencies are certified by CalEPA 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

[1] 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.

Program. With oversight from CalEPA, CUPAs conduct inspections for all program activities according to the standards contained in the relevant statute or regulation (CalEPA 2012).

Local Laws, Regulations, Plans, and Policies

Local Ordinances and General Plans

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans.

3.9.3 Environmental Setting

Proximity to Schools

Schools are distributed throughout the Central Valley 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. Given the nature of lands managed by the USFS and BLM, there are a limited number of schools within proximity to them. **Figure 3.9-1** shows schools within 0.25-mile of USFS and BLM managed lands in the Central Valley Region.

Hazardous Waste Sites and Clean-up Sites

The provisions in California Government Code Section 65962.5, regulated by the CalEPA, are commonly referred to as the "Cortese List." The list, or a site's presence on the list, has bearing on the local permitting process as well as on compliance with CEQA. The Cortese List, which includes the resources listed below, was reviewed for references to the Central Valley Region:

- Hazardous Waste and Substances sites from the California Department of Toxic Substances Control (DTSC) EnviroStor database;
- Leaking Underground Storage Tank (LUST) Sites from the State Water Board's GeoTracker database;
- Solid waste disposal sites identified by the State Water Board with waste constituents above hazardous waste levels outside the waste management unit;
- "Active" Cease and Desist Orders and Cleanup and Abatement Orders from the State Water Board; and
- Hazardous waste facilities subject to corrective action identified by DTSC.

The EnviroStor and GeoTracker databases identify 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 3.9-1** shows hazardous materials cleanup sites within 0.25-mile of USFS and BLM managed lands in the Central Valley Region.

Airports

Airports are located throughout the Central Valley 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. **Figure 3.9-1** shows airports that are located within 2 miles of USFS and BLM managed lands in the Central Valley Region.

Fire Hazard

Wildland fire hazard varies in accordance with vegetation, climatic patterns, development, and other factors. The USFS and BLM conduct wildfire management and recovery activities on lands within their jurisdiction as part of existing conditions. This includes wildland fire suppression activities, salvage logging, rehabilitating fire and suppression damage (recovery), and prescribed fire. In any given year, the frequency and extent of wildland fire suppression and recovery activities within the Central Valley Region may be dictated by the extent and location of individual wildland fires (e.g., whether and to what degree fires occur on federal lands within those areas). Fuels management activities (e.g., prescribed fire) are typically planned on the National Forest or BLM Field Office level and may be implemented based on individual project planning timelines.

The Central Valley Region includes a wide variety of landscapes and vegetation types, as discussed throughout this DEIR. In particular, the lands within the Central Valley Region that are managed by the USFS and BLM include conifer forests and other landscapes that would be considered high risk for wildfire. CAL FIRE does not map fire risk (i.e., Fire Hazard Severity Zones) within Federal Responsibility Areas, but much of the lands within the Proposed Project would likely be considered high or very high risk for wildfire. However, many areas within USFS and BLM managed lands in the Central Valley Region are not near people or structures, so the potential for loss of life or damage from a wildfire in these areas may be reduced.

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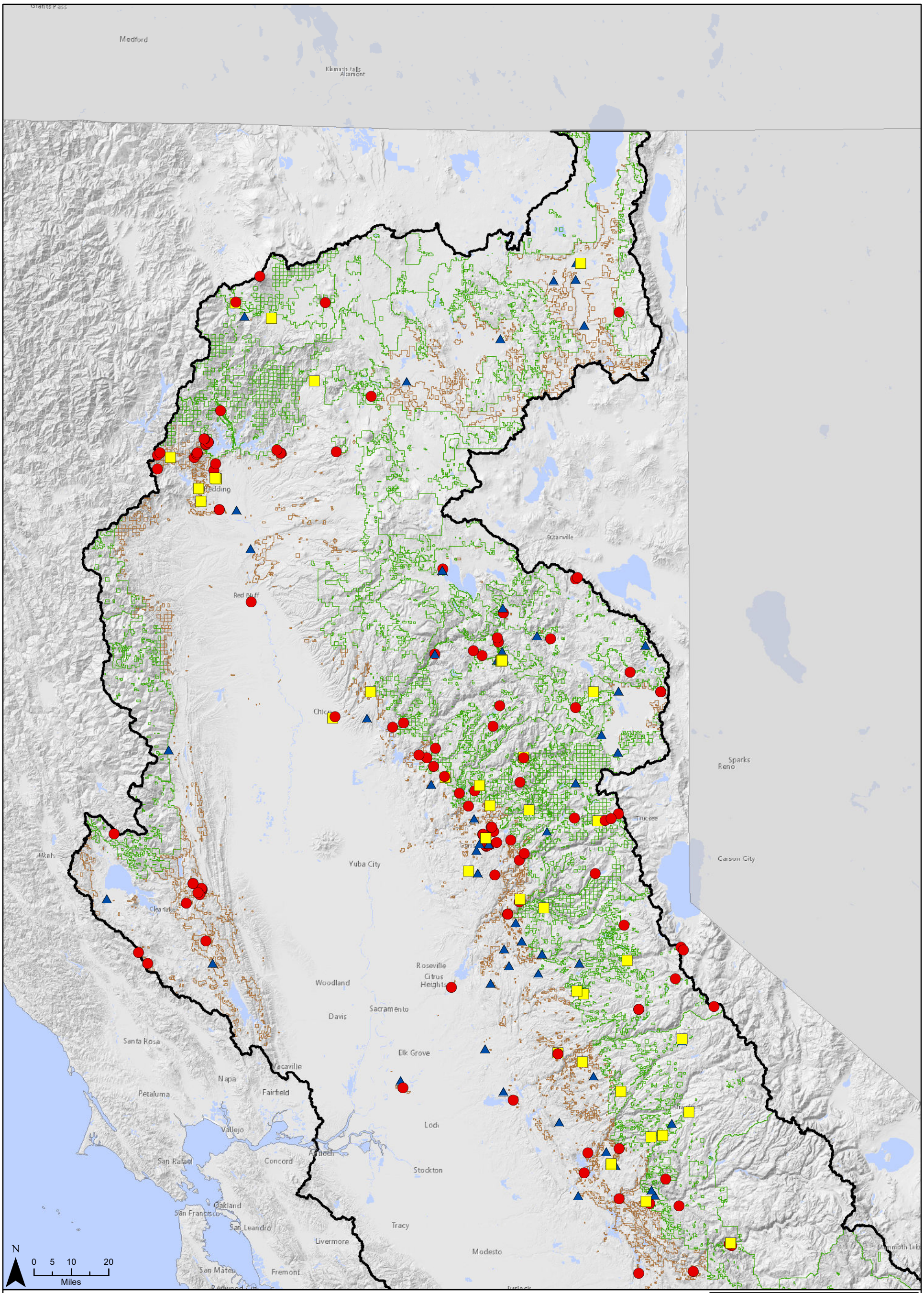


Figure 3.9-1
Schools, Airports, and Hazardous Materials Clean-up Sites

Sheet 1 of 2

*Within 2 miles of BLM and USFS lands.
**Within 0.25 miles of BLM and USFS lands.

Source: ESRI 2018; Caltrans 2014 and 2021; CDE 2021; SWRCB 2021; DTSC 2021

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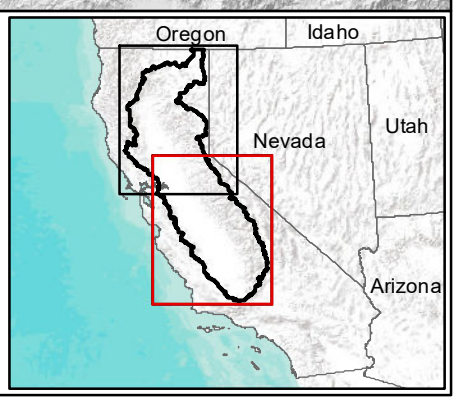
Yuba City
Carson City
Roseville
Citrus Heights
Woodland
Sacramento
Davis
Hawthorne
Elk Grove
Vacaville
Fairfield
Lodi
Antioch
Concord
Stockton
Tracy
Livermore
Modesto
Mammoth Lakes
Fremont
Turlock
Sunnyvale
San Jose
Merced
Los Banos
Gilroy
Santa Cruz
Watsonville
Madera
Clovis
Fresno
Salinas
Soledad
Visalia
Lemoore
Coalinga
Porterville
Delano
Bakersfield
San Luis Obispo
Tehachapi
Santa Maria
Lancaster
Lompoc
Palmdale
Santa Barbara
Santa Clarita

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Miles

Central Valley RWQCB Boundary
Bureau of Land Management
U.S. Forest Service
Airports*
Schools (K-12)**
Hazardous Waste and Clean-up Sites**

Figure 3.9-1
Schools, Airports, and Hazardous Materials Clean-up Sites

Sheet 2 of 2



*Within 2 miles of BLM and USFS lands.
**Within 0.25 miles of BLM and USFS lands.

Horizon WATER and ENVIRONMENT

Source: ESRI 2018; Caltrans 2014 and 2021; CDE 2021; SWRCB 2021; DTSC 2021

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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 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 reasonably foreseeable management measures and associated equipment and materials that may occur under the Federal NPS Permit. 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. These potential effects 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.

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 measures 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 3.9.2), The Proposed Project would be required to ensure that construction workers are not exposed to hazardous materials in excess of established limits. As required by OSHA and Cal/OSHA regulations, USFS/BLM 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 measures) for the Proposed Project that disturb greater than 1 acre of land may require enrollment in the Construction General Permit (see discussion in Section 3.10, "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.

The Proposed Project would not create any new land uses that would involve substantial routine transport, use, and disposal of hazardous materials. The USFS and BLM BMP manuals include measures that would serve to minimize potential impacts associated with the release of hazardous materials. These include, in particular, USFS BMPs Fac-2 (Facility Construction and Stormwater Control), Fac-6 (Hazardous Materials), Road-3 (Road Construction and Reconstruction), R5 Road-3 (Road Construction and Reconstruction), and Road-10 (Equipment Refueling and Servicing), and BLM BMPs AQ 01 through AQ 05, SP 01 through SP 08, RST 09, SC 11 through SC 13, R 01 to R 02, R 12, R 14 to R 15, R 20, RM 20 through 22, TM 14, and REC 01 to REC 02 (refer to Appendix B for the text of these BMPs). Additionally, adherence to the federal agencies' internal guidance documents (e.g., the USFS' Everyday Hazmat User's Training Guide [USFS No Date] and BLM's Manual 1703 – Hazard Management and Resource Protection [BLM 2009]) would serve to avoid or reduce potential impacts.

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 measures. 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)*

As described in Impact HAZ-1, construction/installation of certain reasonably foreseeable management measures under the Proposed Project 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 measures (i.e., those that would disturb greater than 1 acre of land), USFS/BLM may 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 measures that disturb greater than 1 acre of land.

Management measures that disturb less than 1 acre of land may not be subject to the Construction General Permit and thus USFS/BLM would not be required to implement a SWPPP. Although these activities would be smaller in scale/extent, they may still require hazardous materials use and storage, which could leak or spill and thereby expose the public or the environment to hazards. The potential for activities, such as construction/installation of management measures, to result in accidental releases of hazardous materials would be evaluated on a case-by-case basis by USFS and BLM, and site-specific prescriptions or mitigation measures may be included NEPA documents. Regardless, the level of risk would not be particularly high, especially in relation to the risk associated with the ongoing activities on federal lands (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration). These ongoing activities would involve substantially greater quantities of hazardous materials (e.g., in equipment and vehicles) and are part of the baseline.

Moreover, USFS and BLM would follow internal guidance and requirements with respect to hazardous materials management, such as utilizing secondary containment where appropriate, which would reduce the potential for significant impacts. As such, this impact would be **less than significant**.

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 3.9.3 and shown in Figure 3.9-1, numerous schools are within 0.25-mile of existing USFS/BLM managed land. Because management measures could reasonably be implemented on any portion of USFS/BLM managed land, activities under the Proposed Project could occur within 0.25-mile of a school. As discussed under Impact HAZ-1 and -2, construction/installation of certain management measures under the Proposed Project 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 measures may be implemented in which locations within the Central Valley 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 measure 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 the Proposed Project that may occur in proximity to schools also would not be substantially dissimilar from ongoing, existing activities that would typically occur on managed USFS/BLM lands, such as use of diesel equipment for routine land management activities.

Over the long term, the Proposed Project would not introduce any new land uses or activities that would involve substantial hazardous materials use or storage, and which could be located within 0.25-mile of a school. Pesticide use on USFS/BLM managed lands occurs under existing conditions and may occur within 0.25-mile of a school. Nothing in the Proposed Project would serve to substantially increase pesticide/herbicide use or increase the potential for accidental releases of hazardous chemicals from containment vessels on existing USFS or BLM managed lands, which could impact a school. 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. *(No Impact)*

Numerous hazardous materials contamination/cleanup sites exist in the Central Valley Region on or in close proximity to lands managed by USFS and BLM (see Figure 3.9-1). As such, it is possible that hazardous materials contamination associated with the recorded hazardous materials sites could be located on USFS/BLM managed lands in areas where management measures could be implemented under the Proposed Project. The federal agencies would review the potential for hazardous materials sites to be disturbed/affected on a case-by-case basis as part of NEPA evaluations and project planning. BLM maintains an inventory of hazardous materials on its lands using the Abandoned Mine and Site Cleanup Module in accordance with Manual 1703 – Hazard Management and Resource Protection (BLM 2009). To the extent that management measures were proposed on a hazardous materials

contamination/cleanup site, this would not be covered under the Federal NPS Permit. As such, **no impact** would occur.

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. *(Less than Significant)*

A number of public airports are located in the Central Valley Region, many of which are located within 2 miles of USFS/BLM managed lands (see Figure 3.9-1). 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. A number of reasonably foreseeable management measures may be implemented by USFS/BLM pursuant to the Proposed Project, but none of these management measures would permanently place people within an airport land use plan area or within 2 miles of a public airport. As required by OSHA and Cal/OSHA regulations, USFS/BLM or their contractors would need to provide workers with PPE to prevent potential exposure to excessive noise. None of the reasonably foreseeable management measures 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. Dust and smoke may occur from the ongoing, covered activities (e.g., prescribed burning, timber harvesting); however, these activities are part of the existing conditions and nothing in the proposed Federal NPS Permit would serve to increase the frequency/extent of the activities or increase the generation of dust or smoke.

Although management measures and/or CSDS treatment activities may be implemented within two miles of an airport, this would not result in substantial hazards to persons residing nearby or construction workers associated with management measure or CSDS treatment implementation. Management measure construction/installation and/or CSDS treatment activities would be temporary at any given location, and the odds of a plane crash or other adverse event affecting the construction workers would be extremely low. As such, this impact would be **less than significant**.

Impact HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. *(Less than Significant)*

As described in greater detail in Section 3.17, "Wildfire," several of the reasonably foreseeable management measures under the Proposed Project would have potential to impair emergency response and/or evacuation procedures during construction. In particular, management measures involving disturbance or repairs to existing roads (e.g., installation of water bars or rolling dips) could interfere with vehicle movement, including emergency vehicles. This could adversely affect the emergency response and evacuation procedures for a wildfire, as well as for other types of disasters or emergencies that could occur on or in close proximity to the USFS and BLM managed lands. Although unlikely, a disaster (e.g., hazardous materials spill, earthquake, extreme weather, etc.) could occur on the federal lands in the Central Valley Region at the same time that management measure construction/installation and/or CSDS treatment activities are taking place, potentially leading to conflicts with respect to mobility and access to affected areas.

The federal agencies review potential impacts to roadways and conflicts with emergency services/access on a case-by-case basis. The agencies also regularly conduct road work on their lands and post information online regarding roads that may be temporarily closed or only allowing one-way traffic. The Forest Service Specifications for Construction of Roads & Bridges (USFS 1996; see Section 3.14, "Transportation" for further discussion) includes guidance to main roads open to all traffic during road improvement work or to prepare and approve a traffic management plan prior to performing work that interferes or conflicts with traffic or existing access. In general, the potential impacts on roadway access from the Proposed Project's management measures would be less severe than those from the activities themselves (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration), which are ongoing on the federal lands and part of the baseline. As such, the impacts during construction/installation of management measures would be less than significant.

Once constructed/installed, the reasonably foreseeable management measures would not affect the functionality or capacity of roadways on the federal lands, nor affect the ability of emergency personnel to access areas within the federal lands or hinder emergency evacuation efforts. Monitoring and reporting activities would not adversely affect emergency response or evacuation and therefore impacts would be less than significant.

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 potential for the Proposed Project to exacerbate wildfire risks and expose people or structures to adverse effects from a wildfire is discussed in detail in Impact WF-2 in Section 3.17, "Wildfire." As described in Section 3.17, the reasonably foreseeable management measures associated with the Proposed Project generally would not substantially increase wildfire risks over the long-term relative to existing conditions; however, some management measures (e.g., slash packing a skid trail or fire line, adding woody material to disturbed soil or existing areas of erosion, adding straw mulch for ground cover, etc.) would add "fuel" to the landscape.

In general, any additional fuel from management measures would be marginal in the context of the vast USFS and BLM-managed lands. Also, the vegetative material used for erosion and sedimentation control may be repurposed from other areas of a site, and thus would not be "new." Therefore, this aspect of the Proposed Project would not substantially increase wildfire risk over existing, baseline conditions.

Construction/installation of certain management measures associated with the Proposed Project could provide a spark (e.g., from internal combustion engine equipment) and thereby increase the risk of ignition of a wildfire. The severity of the impact would depend on the specific location of the construction activities, including the vegetative cover at the site, as well as the weather conditions at the time. As above, any additional fire risk associated with management measure implementation would be incremental (and relatively minor) compared to the ongoing risk posed by the covered activities on the federal lands, which involve much greater levels of internal combustion engine equipment use. While the USFS and BLM, as federal entities, may not be required to follow California PRC requirements related to wildland fire

safety, the adherence to industry-standard levels of care should ensure that any ignition risk is minimized.

The Proposed Project would not create or establish any new developments or land uses that could be exposed to hazards involving wildfires. Additionally, the USFS and BLM managed lands in the Central Valley Region are generally sparsely inhabited and there are few existing structures on the lands. Once constructed/installed, the management measures and CSDS treatments would not substantially increase wildfire risk relative to baseline. The monitoring activities under the Proposed Project also would not increase or exacerbate wildfire risk.

Therefore, this impact would be **less than significant**.

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3.10 Hydrology and Water Quality

3.10.1 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, at least in part, by the activities covered by the Federal NPS Permit. The existing adverse impacts are intended to be ameliorated through the Proposed Project.

3.10.2 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, 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 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 USACE). USEPA also has the option to authorize implementation of certain programs by a state agency. In California, the State Water Board and its nine RWQCBs administer various sections of the CWA.

The discussion below specifies provisions of the CWA that may relate to activities conducted under the Federal NPS Permit. 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, the State Water Board and the RWQCBs issue water quality certifications. 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, as well as some wetlands adjacent to the aforementioned waters (33 CFR 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 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 State Water Board 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 beneficial uses of surface waters, such as recreation or supporting aquatic life.

General Permit for Construction Activities

Most construction projects that disturb one acre or more of land are required to obtain coverage under the State Water Board's NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Order 2022-0057-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 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 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 State Water Board and RWQCBs regulate stormwater discharges from municipal separate storm sewer systems (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, including identifying what BMPs will be used to address specific program areas. The State Water Board 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 stormwater runoff control measures.

Section 303

Section 303 of the federal CWA 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 two 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 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 State Water Board and RWQCBs for waste discharges into navigable waters, including any permits for activities that may be conducted in accordance with the Federal NPS Permit, 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 federal lands have potential to contain water quality constituents that are regulated under the SDWA, such as sediment and pesticides.

Forest Service Rules, Regulations, and Policies

National Best Management Practices Program

The USFS' National BMP Program was developed to improve management of water quality consistent with the federal CWA and State water quality programs (USFS 2023). As described by USFS, BMPs are specific practices or actions used to reduce or control impacts to water bodies from non-point sources of pollution, most commonly by reducing the loading of pollutants from such sources into storm water and waterways (USFS 2023). The National BMP Program consists of four main components: (1) The National Core BMP Technical Guide; (2) The National Core BMP Monitoring Technical Guide; (3) Revised National Direction, and (4) A national data

management and reporting system (USFS 2023). The USFS National BMP Program is described in Chapter 2, *Project Description* of this DEIR, and the National BMP Program documents are included in Appendix B.

The National Core BMP Technical Guide (USFS 2012) includes a wide range of BMPs for various USFS activities which would protect water quality. The BMPs typically take the form of an overall objective for the BMP; an explanation of the reasoning for the BMP and the potential impacts arising from the activities; and a set of practices and/or policy direction, from which site-specific BMP prescriptions would be developed for individual projects or activities. Many BMPs would serve to reduce erosion from ground-disturbing activities, as well as reduce potential for accidental releases and discharges of hazardous materials used during construction (USFS 2012).

Forest Service Manual 2500 – Watershed and Air Management

FSM 2500 provides policy direction regarding watershed and air management for USFS personnel. Different chapters/sections of the Manual address different topics or programs, such as Burned Area Emergency Response (BAER; Section 2523), water uses and development (Chapter 2540), water quality management (Section 2532), and soil management (Chapter 2550). The water quality management Manual section reiterates USFS policy to "Establish and apply the National [BMPs] Program to all land resource management activities" (USFS No Date). The Manual section provides other policy direction as well, such as to "Include a water quality evaluation for all environmental analyses" (USFS No Date).

Bureau of Land Management Rules, Regulations, and Policies

California Best Management Practices for Water Quality

The BLM has developed a standard set of BMPs for water quality protection in California (California BMP Manual) to enhance agency performance, consistency, and accountability in managing water quality within the State consistent with the CWA and Porter-Cologne Act (BLM 2022). This California BMP Manual arose in part out of the planning processes and negotiations for the Proposed Project, and the document is provided in Appendix B to this DEIR. Like the USFS approach with respect to its National BMP Program, the BLM typically develops site-specific prescriptions or BMPs as part of the NEPA process for specific projects, and it may utilize or tailor the more general BMPs from the BMP Manual. The BMPs are generally organized by types of activities or operations, and include an objective, explanation, and list of BMPs. Many of the BMPs included in the Manual serve to reduce erosion and sediment discharges from construction activities, as well as minimize potential for hazardous materials spills or releases (BLM 2022).

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 at the state level, establishing the State Water Board, 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 State Water Board 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 State Water Board and RWQCBs.

The Porter-Cologne Act requires the RWQCBs to adopt 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 State Water Board and RWQCBs to conditionally waive WDRs if this is in the public interest. The proposed Federal NPS Permit would, in part, establish WDRs for NPS discharges from certain activities conducted on federal lands by the USFS and BLM within the Central Valley Water Board's jurisdictional area.

Water Quality Control Plans for the Central Valley Region

The Central Valley Water Board oversees the Central Valley Region, which includes the Proposed Project area. The Central Valley Region is divided into three basins: the Sacramento River Basin, the San Joaquin River Basin, and the Tulare Lake Basin. The Central Valley Water Board has prepared separate water quality control plans/basin plans to cover the first two basins (Sacramento and San Joaquin River Basins; Central Valley Water Board 2018a) and the third basin (Tulare Lake Basin; Central Valley Water Board 2018b).

The two water quality control plans identify beneficial uses for surface waters and groundwater within the Central Valley Region, and they establish 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.

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

The Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy) was adopted in 2004 and requires the RWQCBs to regulate NPS pollution, using the administrative permitting authorities provided by the Porter-Cologne Act (State Water Board No Date). These permitting authorities include basin plan prohibitions, WDRs, and waivers of WDRs. The NPS Policy also stipulated that NPS pollution control programs must contain and meet five key elements, as follows:

- **Key Element 1:** A NPS control implementation program's ultimate purpose must be explicitly stated and at a minimum address NPS pollution control in a manner that achieves and maintains WQOs.
- **Key Element 2:** The NPS pollution control implementation program shall include a description of the management practices (MPs) and other program elements expected

to be implemented, along with an evaluation program that ensures proper implementation and verification.

- **Key Element 3:** The implementation program shall include a time schedule and quantifiable milestones, should the RWQCB so require.
- **Key Element 4:** The implementation program shall include sufficient feedback mechanisms so that the RWQCB, dischargers, and the public can determine if the implementation 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 implementation program's objectives, emphasizing that it is the responsibility of individual dischargers to take all necessary implementation actions to meet water quality requirements.

State Drinking Water Standards

California Code of Regulations, 22 CCR 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, State Water Board 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, the State Water Board 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 a 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

The State Water Board 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 CDPR and State Water Board's 2019 Statewide Implementation Plan is a joint effort between the CDPR, CACs, State Water Board, and the RWQCBs to protect water quality from pesticide pollution. CDPR and the State Water Board 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 State Water Board (CDPR and State Water Board 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.

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, State Water Board, and the RWQCBs (CDPR 2021).

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 State Water Board 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 State Water Board 2019).

State Water Rights System

The State Water Board 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, the State Water Board 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 (State Water Board 2020). 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 California 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.

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 was 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 California Statewide Groundwater Elevation Monitoring (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

Local and Regional Laws, Regulations, Policies, and Plans

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans.

3.10.3 Environmental Setting

Surface Water

Regional Topography, Hydrology, and Climate

The Central Valley Region includes about 40 percent of the land in California and stretches from the Oregon border to the Kern County/Los Angeles County line. The region covers the entire area included in the Sacramento and San Joaquin River Basins and the Tulare Lake Basin. The former two basins are bound by the crests of the Sierra Nevada on the east and the Coast Range and Klamath Mountains on the west (Central Valley Water Board 2018a). The Tulare Lake Basin is essentially a closed basin that is situated in the topographic horseshoe formed by the Diablo and Temblor Ranges on the west, by the San Emigdio and Tehachapi Mountains on the south, and the Sierra Nevada Mountains on the east and southeast (Central Valley Water Board 2018b). Surface water from the Tulare Lake Basin only drains north into the San Joaquin River in years of extreme rainfall.

The Sacramento and San Joaquin River Basins are two of the largest river basins in the State and collectively cover a total of 43,090 square miles. The principal streams in the Sacramento River Basin include the Sacramento River and its larger tributaries: the Pit, Feather, Yuba, Bear, and American Rivers to the east; and Cottonwood, Stony, Cache, and Putah Creeks to the west. Major reservoirs and lakes include Shasta, Oroville, Folsom, Clear Lake, and Lake Berryessa (Central Valley Water Board 2018a). The principal streams in the San Joaquin River Basin include the San Joaquin River and its larger tributaries: the Cosumnes, Mokelumne, Calaveras, Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers. Major reservoirs and lakes include Pardee, New Hogan, Millerton, McClure, Don Pedro, and New Melones (Central Valley Water Board 2018a).

The Sacramento and San Joaquin Rivers meet to form the Delta, which flows out to the San Francisco Bay. Through the Central Valley Project and State Water Project, the surface waters in the Sacramento and San Joaquin River Basins provide a large portion (roughly 51 percent) of the State's water supply (Central Valley Water Board 2018a).

The Tulare Lake Basin encompasses approximately 16,406 square miles, and is drained primarily by the Kings, Kaweah, Tule, and Kern Rivers (Central Valley Water Board 2018b). Buena Vista Lake and Tulare Lake, natural depressions on the valley floor, receive flood water from the major rivers during times of heavy runoff. During extremely heavy runoff, flood flows in the Kings River reach the San Joaquin River as surface outflow through the Fresno Slough. Besides the main rivers, the Tulare Lake Basin also contains numerous mountain streams. These mountain streams are administratively divided into eastside streams and westside streams (using Highway 58 from Bakersfield to Tehachapi). Eastside streams are fed by Sierra snowmelt and springs from granitic bedrock, while westside streams derive from marine sediments and are highly mineralized, and intermittent, with sustained flows only after extended wet periods (Central Valley Water Board 2018b).

The main rivers draining the Tulare Lake Basin provide water of excellent quality and provide the bulk of the surface water supply native to the Basin. Imported surface water supplies, also of

good quality, enter the Basin through the San Luis Canal/California Aqueduct System, Friant-Kern Canal, and the Delta-Mendota Canal (Central Valley Water Board 2018b).

Figure 3.10-1 shows the principal surface water bodies in the region in relation to lands managed by the USFS and BLM. In general, as shown in Figure 3.10-1, USFS managed lands tend to occur in the foothills and higher elevation areas in the region (i.e., generally not within the valley floor), which are also the headwater areas for many streams. By contrast, many BLM managed lands occur lower in the watershed.

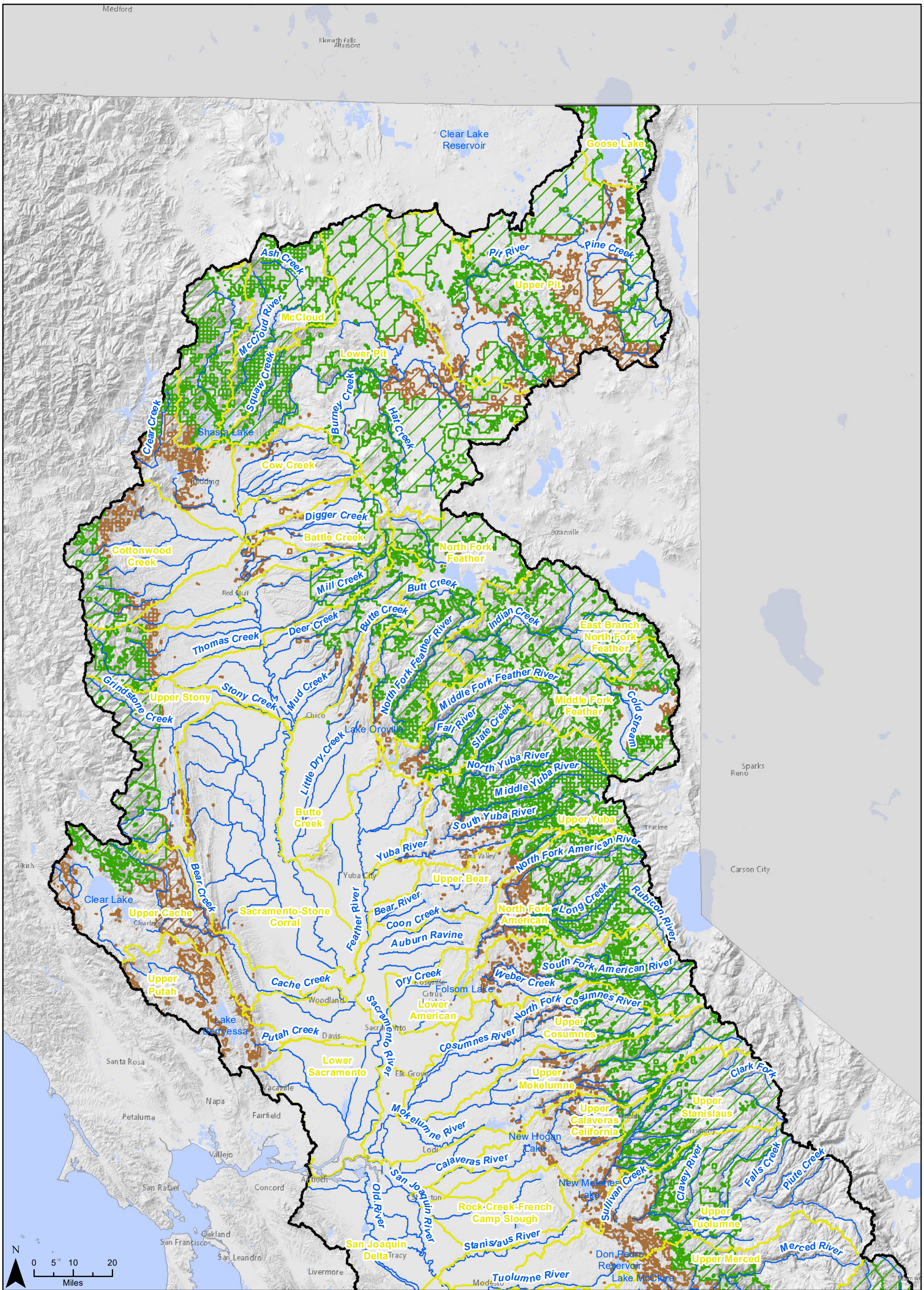


Figure 3.10-1
Watersheds and Surface Water Bodies

Central Valley RWQCB Boundary
Bureau of Land Management Lands
U.S. Forest Service Lands
Watersheds
Major Drainages

Sheet 1 of 2

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Source: ESRI 2018; CDWR 2021

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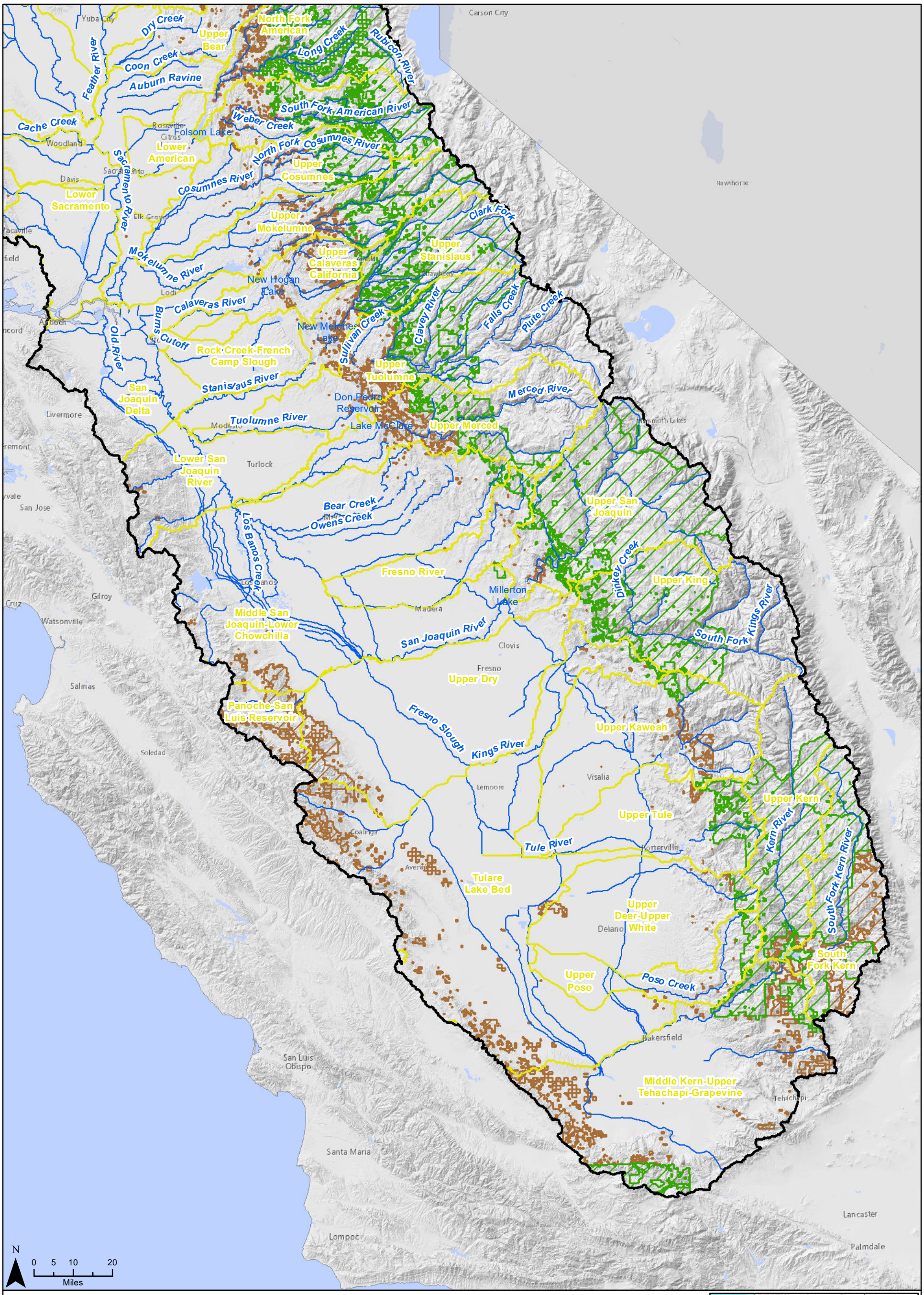


Figure 3.10-1
Watersheds and Surface Water Bodies

Sheet 2 of 2

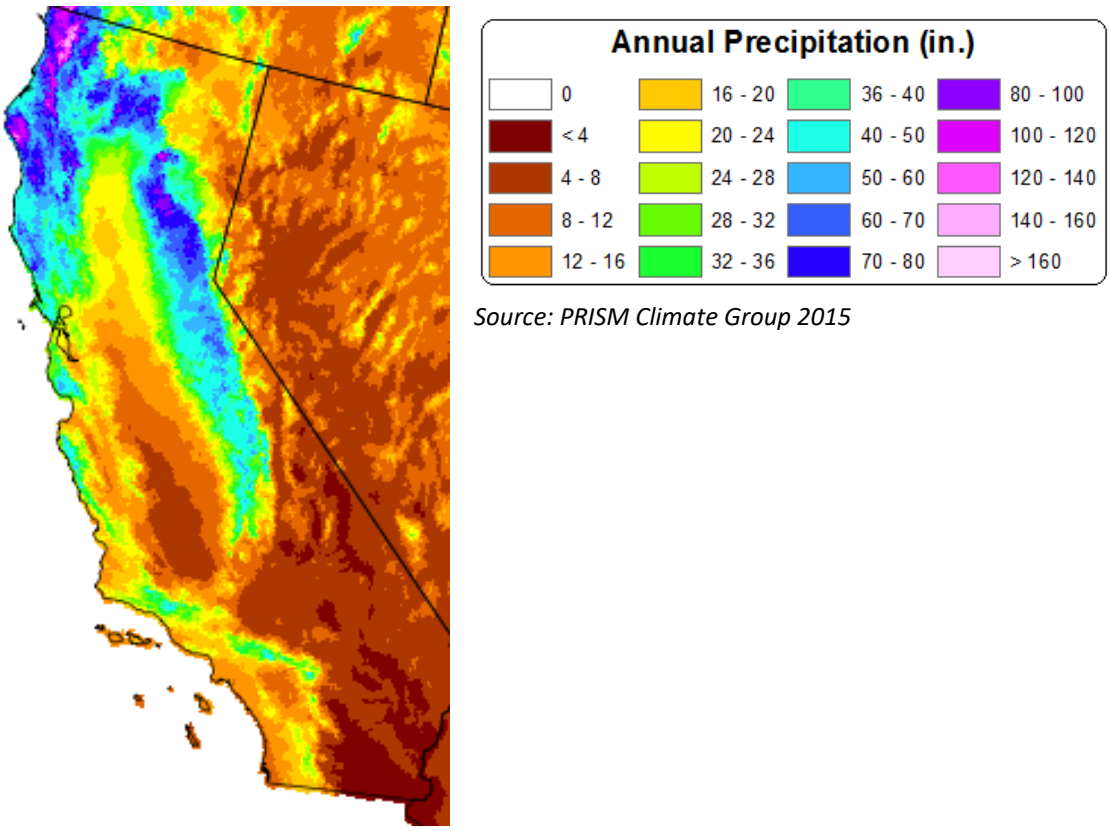
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The climate of the Central Valley Region varies greatly in accordance with elevation and its varied landscapes. The valley areas within the region typically have mild winters and hot, dry summers. In the foothills of the Sierra Nevada Mountains and at higher elevations, winters become colder and precipitation totals increase. **Figure 3.10-2** shows normal annual precipitation (over the period 1981-2010) in California.

Figure 3.10-2. 30-Year Normal Annual Precipitation



Source: PRISM Climate Group 2015

Water Quality

Water quality in the Central Valley Region is dictated in large measure by human activities and the intensity of key activities that have the potential to discharge pollutants to receiving waterbodies. In particular, agriculture, mines, urban areas and industries result in discharges that affect many of the major rivers in the region and the Delta (Central Valley Water Board 2018a). Upstream, small streams and tributaries to the rivers are impaired or threatened because of discharges from mines, silviculture activities, and urban development activities (Central Valley Water Board 2018a). A historical water quality problem in the Tulare Lake Basin is erosion (accelerated above natural background rates) associated with various uses, including logging, road building, off-highway vehicle use, and fires (Central Valley Water Board 2018b). The existing, on-going and potential impacts to water quality that occur as a result of activities covered by the proposed Federal NPS Permit are discussed further below.

As described in Section 3.10.2, waterbodies are identified as impaired pursuant to Section 303(d) of the CWA. In the Central Valley Region, there are currently 934 Section 303(d) listings[1] (water body/pollutant combinations) for a variety of pollutants (State Water Board 2018). In many instances, TMDLs are in place to correct these deficiencies.

Water Quality Impacts Associated with Certain Activities on Lands Managed by United States Forest Service and Bureau of Land Management

Vegetation Management

Forest management activities, principally timber harvesting and application of pesticides, as well as various other types of vegetation management activities, have the potential to impact beneficial uses. Timber harvest activities annually take place on tens of thousands of acres of private and federal land in the Central Valley Region and they may affect water quality throughout the area being harvested. Erosion can result from road construction, timber harvest and commercial thinning activities, fuels reduction, hazard tree removal, and other types of vegetation management activities. Logging or other vegetative debris may be deposited in streams. Landslides and other mass soil movements can also occur as a result of vegetation management operations (Central Valley Water Board 2018a).

Pesticides may be used in silviculture to reduce commercial timber competition from weeds, grasses, and other competing plants or to prepare a site for planting of commercial species by eliminating existing vegetation. Pesticides also may be used as part of fuel reduction or maintenance of a fuel break in non-timber areas, or potentially for invasive species eradication as part of restoration activities. Use of pesticides has caused concern among regulatory agencies and the public because of the possibility of transport from target sites to streams by wind and water runoff (Central Valley Water Board 2018a).

Transportation Management

As described in Weaver et al. (2015), roads are a major source of erosion and sedimentation on most managed forest and ranch lands. Compacted road surfaces increase the rate of runoff, and road cuts intercept and bring groundwater to the surface. Ditches concentrate storm runoff and can transport sediment to nearby stream channels. Culverted stream crossings can plug, causing erosion of the fill or gullies where the diverted streamflow runs down nearby roads and hillslopes (Weaver et al. 2015).

Roads built on steep or unstable slopes may trigger landsliding which deposits sediment in stream channels. Filling and sidecasting increases slope weight, road cuts, remove slope support, and construction can alter groundwater pressures, all of which may trigger landsliding (Weaver et al. 2015). Unstable road or landing sidecast materials can fail, often many years after the materials were put on steep hillslopes. Lack of inspection and maintenance of drainage structures and unstable road fills along old, abandoned roads (as well as on new and existing roads) can also result in soil movement and sediment delivery to stream channels (Weaver et al. 2015).

[1] Categories 4A, 4B, and 5.

Recreation Facilities Management

Recreational activity can cause water quality problems, ranging from increased bank erosion caused by waves from boating, to petroleum products from watercraft entering the water, human secretions and excretions, various waste disposal activities or cleaning fish and other activities (Central Valley Water Board 2018b). Off-highway vehicle (OHV) use can also cause erosion and other water quality issues. There are also issues on federal lands associated with OHV staging areas, high use campgrounds/events, parking lots, and trails (non-motorized) (Central Valley Water Board 2018b).

Post-Emergency Recovery

Following severe wildfire in forested landscapes, increased soil water repellency and other changes to soil properties can reduce infiltration rates and increase the rate and frequency of runoff (Martin and Moody 2001, Robichaud 2000, and Robichaud et al. 2016, cited in Central Valley Water Board 2017). Additionally, the loss of ground cover following severe wildfires is a dominant factor for increased soil erosion rates (Benavides-Solorio and MacDonald 2001, Delwiche 2009, Larsen et al. 2009, and Robichaud et al. 2016, cited in Central Valley Water Board 2017). Increased soil erosion rates and sediment delivery to downstream channel networks can pose a significant threat to aquatic resources and beneficial uses, particularly after high severity wildfires (Helvey 1980, Moody et al. 2013, Bladon et al. 2014, and Chappel 2014, cited in Central Valley Water Board 2017).

Soil erosion at its most basic form involves the detachment, breakdown, transport, and deposition of sediment, which in the context of post-wildfire effects, is dependent on multiple factors, including: fire severity, watershed area, topography, geology, vegetation, and precipitation intensity. The greatest erosion events typically occur before vegetation regrowth and recovery and often coincide with episodic, short-duration, high intensity rain storms immediately after severe wildfire (Moody and Martin 2001, cited in Central Valley Water Board 2017). Accelerated erosion, potential hydrophobic soils, reduced water infiltration rates, overland runoff, and mass soil hillslope failures can also produce catastrophic debris flows in some environments (Doerr et al. 2009, cited in Central Valley Water Board 2017), which pose a direct threat to water quality, beneficial uses, and human health and safety (Cannon et al. 2010, cited in Central Valley Water Board 2017).

In studies conducted in the Sierra Nevada, rates of post-wildfire surface erosion have been reported to be 2-239 times greater than pre-burn rates (Ahlgren and Ahlgren 1960, cited in Central Valley Water Board 2017). The amount of erosion and sedimentation depends on severity of the fire and post-wildfire storm events (number and intensity), especially the first two winters. The progressive decline in post-wildfire sediment yields over time is largely controlled by the regeneration of surface cover, primarily vegetation (MacDonald and Larsen 2009, Benavides-Solorio et al. 2001, and Larsen et al. 2009, cited in Central Valley Water Board 2017). With the return of vegetative growth and stabilization of easily mobilized soil material, hillslope erosion rates generally attenuate with time after the wildfire and return to background rates within 2-3 years (Heede et al. 1988 and Wohlgemuth et al. 1998, cited in Central Valley Water Board 2017) under natural conditions (Central Valley Water Board 2017).

As an extreme example of post-wildfire erosion, the 2012 Bagley Fire (46,011 acres) in Shasta County produced an estimated total hillslope erosion of 5.23 million tons (114 tons per acre)

during the first year post-fire. Two intense storms occurred a few months after the fire, with estimated return intervals of 25-50 years. Soil loss was estimated at 0.2 to 2.2 inches on virtually all hillslopes (USFS 2014, cited in Central Valley Water Board 2017). Measured sediment delivered to Squaw Creek during the first year post-fire resulted in sustained turbidity and significantly higher water temperatures, exceeding 70 degrees Fahrenheit; a temperature that can be lethal to cold water fish. Sediment produced during the first year post-fire and during subsequent years continue to be transported downstream to Lake Shasta, leading to reduced storage capacity and increased nutrient loads (Central Valley Water Board 2017).

Following wildfire, sediment discharge can lead to changes in turbidity, temperature, and stream chemistry. These changes may degrade water quality (i.e., taste, odor, color) and impair drinking-water treatment processes, along with negatively impacting aquatic life. Increases in sediment and turbidity can affect aquatic ecosystems by clogging streambed interstitial voids with fine sediments, reducing stream depth, increasing channel instability, altering stream temperatures, impairing fish feeding, and destabilizing stream channels (Goode et al. 2012, cited in Central Valley Water Board 2017). The growth and survival of aquatic plants, invertebrates, and fish are negatively affected by increases in sediment and turbidity (Wagner et al. 2014, cited in Central Valley Water Board 2017).

Wildfires such as the 2012 Bagley Fire can liberate accumulated metals, such as arsenic, aluminum, cadmium, iron, lead, and mercury. These metals have a strong affinity for ash and fine sediment, which are subsequently discharged to stream systems via elevated runoff and erosion (Bladon et al. 2014, cited in Central Valley Water Board 2017). Mercury's potential to bioaccumulate and biomagnify can result in health problems for consumers of fish. There are several streams, lakes, and reservoirs – including Lake Shasta – in the Central Valley Water Board region that are currently listed as 303(d) impaired by various metals, including mercury. Many of these waterbodies are located in watersheds subject to increased risk of large, severe wildfires (Central Valley Water Board 2017).

Nutrients such as nitrogen and phosphorous are often mobilized by fire, which results in increased loading to streams (Bixby et al. 2015, cited in Central Valley Water Board 2017). In addition, significant increases in specific conductance and turbidity, along with corresponding decreases in dissolved oxygen are documented (Sherson et al. 2015, cited in Central Valley Water Board 2017). Nutrients can contribute to and exacerbate Cyanobacteria (blue-green algae) blooms, such as those experienced during the summer of 2015 throughout much of the Central Valley Water Board region, including Lake Shasta (Central Valley Water Board 2017).

Although pesticide use is a concern on non-federal lands during post-wildfire salvage and replanting operations (e.g., to ensure conifer seedling survival and establish conifer plantations as quickly as possible), the USFS typically utilizes pesticides on a very limited basis in post-wildfire environments (Central Valley Water Board 2017). In most cases where pesticides are used on National Forest lands, spot spraying is used to control invasive plants and to help re-establish conifers (Central Valley Water Board 2017).

Restoration Activities

Restoration activities generally serve the purpose of improving ecological functions and hydrology/water quality; nevertheless, ground-disturbing activities associated with

implementation or construction of restoration projects have potential to impact beneficial uses (e.g., erosion and sedimentation).

Surface Water Flow and Use

In general, rivers and streams in the Central Valley 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. Waterbodies in the higher elevations may freeze during winter. As noted above, USFS managed lands are often higher in the watershed; as such, the streams and rivers within USFS managed lands in the Central Valley Region would typically be smaller in terms of flow volume and more seasonal/intermittent in nature compared to waterbodies lower in the watershed. By contrast, streams and rivers occurring within BLM managed lands may be larger in terms of flow volume due to these lands often occurring lower in the watershed.

Generally, water use on USFS and BLM managed lands within the Central Valley Region is limited to water needed to support the multiple uses on these lands (e.g., recreation, wildlife habitat, domestic intake, hydroelectric, etc.). Both federal agencies own multiple appropriative water rights within the Central Valley Region and exercise riparian water rights by filing statements of diversion and use with the State Water Board (State Water Board 2021). **Figure 3.10-3** shows points of diversion (PODs) associated with surface water rights held by USFS and BLM.

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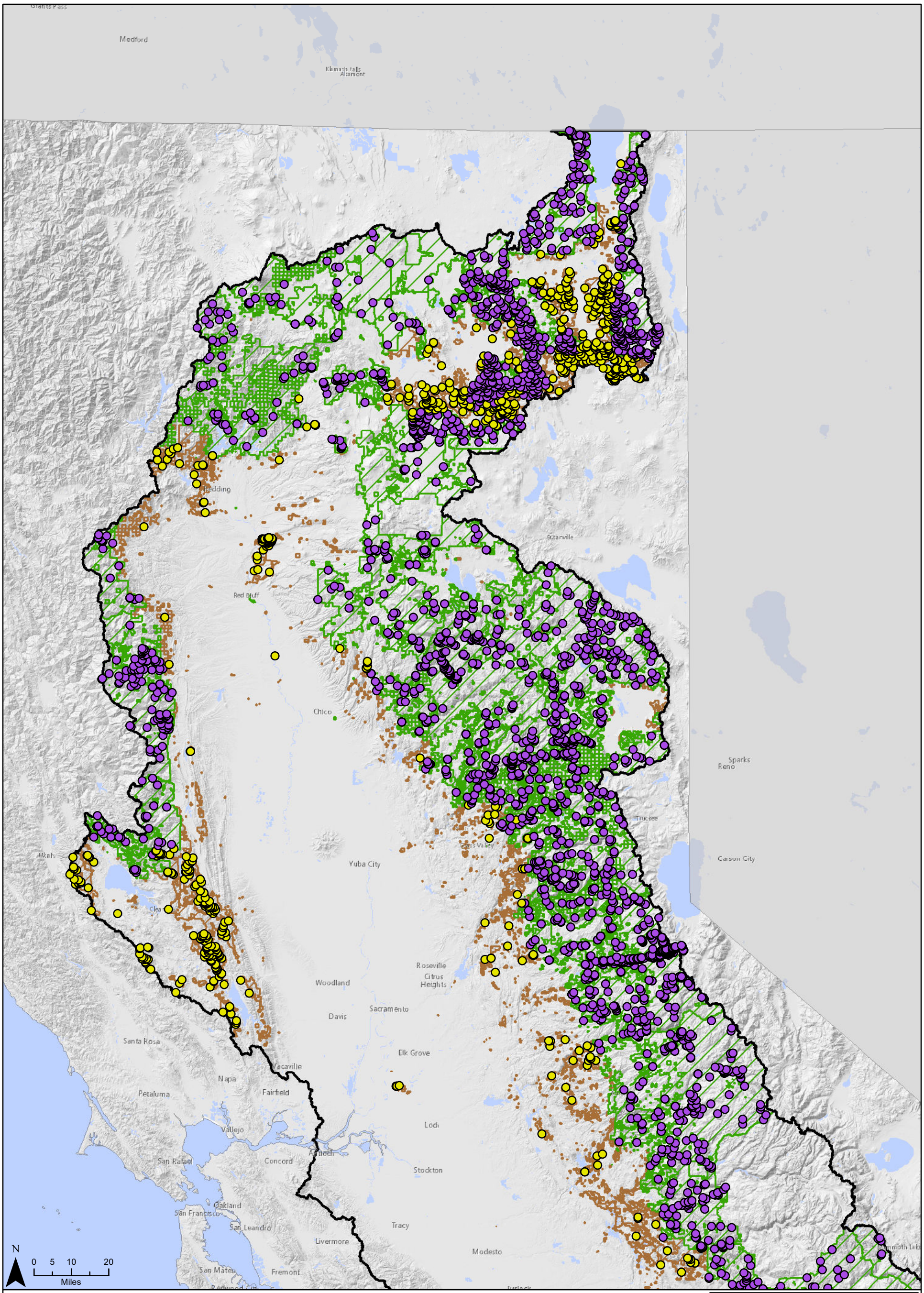


Figure 3.10-3
Surface Water Rights

Point of Diversion

- Central Valley RWQCB Boundary
- Bureau of Land Management Lands
- U.S. Forest Service Lands
- Bureau of Land Management
- U.S. Forest Service

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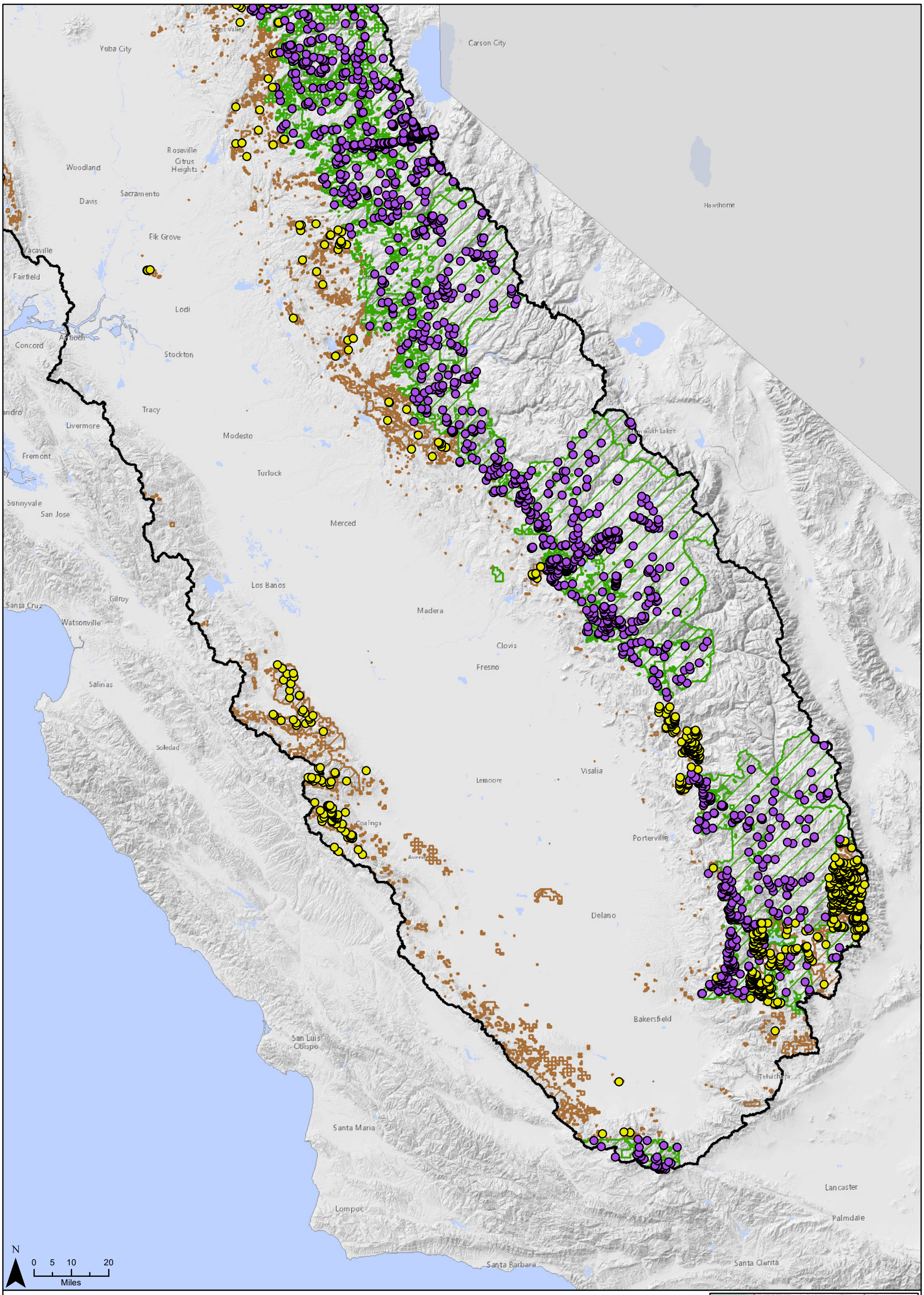
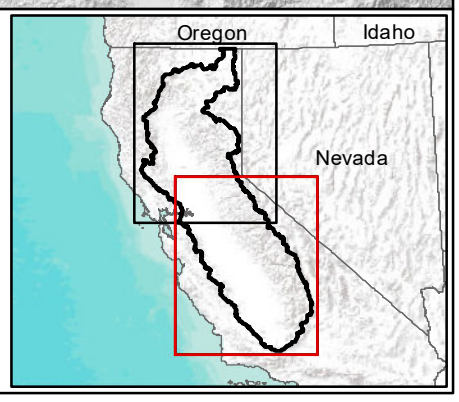


Figure 3.10-3
Surface Water Rights

Sheet 2 of 2

Point of Diversion

- Central Valley RWQCB Boundary
- Bureau of Land Management Lands
- U.S. Forest Service Lands
- Bureau of Land Management
- U.S. Forest Service



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Flooding

The Central Valley Region has a long history of flooding, with devastating effects on life and property in the Central Valley. According to the USACE, the most recent major floods in the Central Valley, which occurred in 1986 and 1997, together caused over $1 billion in damage (DWR 2017). Lower-lying lands along the Sacramento and San Joaquin rivers were floodplains that were regularly inundated for long periods during large seasonal flood events before land reclamation (DWR 2017). Catastrophic floods in the Central Valley have been documented since the mid-1800s Gold Rush era, when hydraulic mining in the Sierra Nevada Mountains sent large amounts of sediment downstream, choking the channels of rivers and increasing flooding by raising channel beds above their natural levels and surrounding lands (DWR 2017). The Central Valley now includes a complex system of levees that evolved through an incremental construction process by landowners and the State and federal governments.

In general, as noted above, USFS managed lands tend to occur higher in the watershed and thus are less susceptible to flooding compared to the lower-lying valley areas. BLM managed lands, by virtue of being often lower in the watershed, may be somewhat more prone to flooding.

Tsunami, Seiche

The Central Valley Region is located in the inland portion of California, with the majority of the region at least 40 miles inland from the coast. As such, the region is not subject to tsunamis and is outside of any mapped tsunami hazard zones.

A seiche is a standing wave oscillating in a 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 [NOAA] 2021). Enclosed waterbodies in the Central Valley Region include numerous large reservoirs and lakes, such as Shasta, Oroville, Folsom, Clear Lake, and Lake Berryessa, Pardee, New Hogan, Millerton, McClure, Don Pedro, New Melones, Buena Vista Lake, and Tulare Lake. There are also many smaller lakes in the higher elevations in the Sierra Nevada and Cascade Mountains.

Groundwater

Concepts and Regional Overview

Groundwater is defined as subsurface water that occurs beneath the ground surface in fully saturated zones within soils and other geologic formations. Where groundwater occurs in a saturated geologic unit that contains sufficient permeability and thickness to yield sufficient water to sustain a well or spring, it can be defined as an aquifer (USGS, Water Supply Paper 1988, 1972, cited in Central Valley Water Board 2018b). A groundwater basin is defined as a hydrogeologic unit containing one large aquifer or several connected and interrelated aquifers (Todd 1980, cited in Central Valley Water Board 2018a).

Major groundwater basins underlie the valley floors in all three basins (Sacramento and San Joaquin River basins, and the Tulare Lake basin), while there are scattered smaller basins in the foothill areas and mountain valleys (Central Valley Water Board 2018a, 2018b). **Figure 3.10-4**

shows groundwater basins in the Central Valley Region. As shown in Figure 3.10-4, and based on the general distribution of USFS and BLM managed lands in the region, much of the federal land area within the Central Valley Region does not overlie mapped groundwater basins and aquifers.

The dimensions, subsurface characteristics, storage capacity, recharge rates, and flow patterns in individual basins within the Central Valley Region vary by geographic location, topography, and other factors. In general, recharge would typically occur through infiltration of precipitation and irrigation, seepage from rivers and streams, and subsurface inflow from adjacent basins, among other sources. However, because of the closed nature of the Tulare Lake Basin, there is little subsurface outflow, which results in issues with salt accumulation (Central Valley Water Board 2018b).

In general, groundwater use in the Central Valley Region is very high, as groundwater is a major source of supply for the region's irrigated agricultural land and increasing urban population. This is reflected in the fact that nearly all of the region's groundwater basins are designated as High or Medium priority (and/or Critically Overdrafted), based on the CASGEM Basin Prioritization (DWR 2020a, b). Again, however, these existing adverse conditions are typically in areas not managed by USFS or BLM. **Figure 3.10-5** shows the current basin prioritization in California, including the Central Valley Region.

Groundwater Quality

Groundwater quality conditions vary across the Central Valley Region. As noted above, salinity is a concern particularly for groundwater within the Tulare Lake Basin, but is also an issue in the San Joaquin River Basin. Irrigated agriculture is a major contributor to the accelerated build-up of salts in groundwater in these basins. Nitrate, metals, and various other contaminants (e.g., pesticides, polychlorinated biphenyl [PCB], etc.) are also, at times, measured at levels that exceed the Maximum Contaminant Level (MCL) for that constituent in various locations throughout the region. **Table 3.10-1** shows water quality data and analysis for groundwater basins within the Central Valley Region, as identified in DWR's Basin Prioritization process.

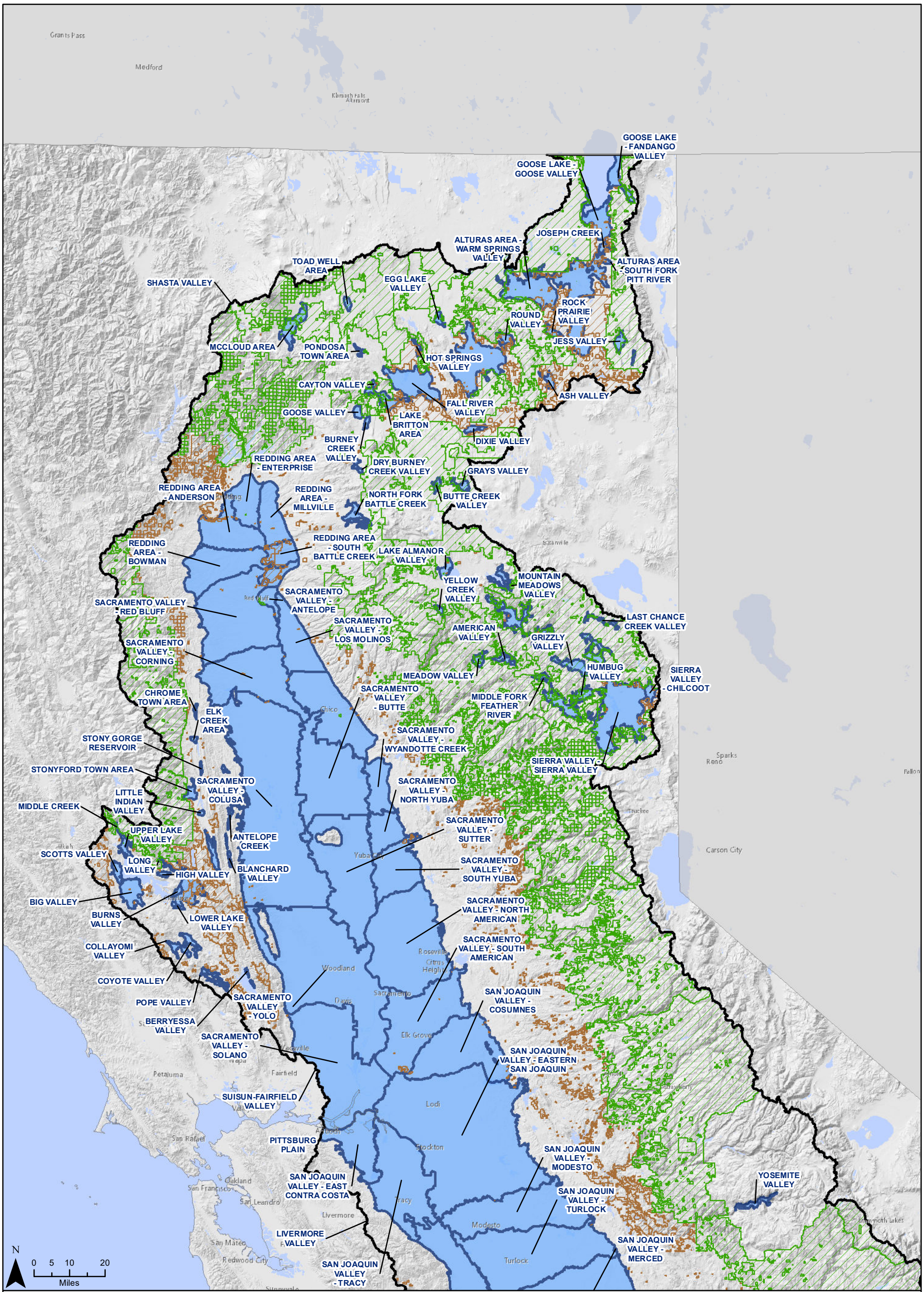


Figure 3.10-4
Groundwater Basins

Central Valley RWQCB Boundary
Groundwater Basin
Bureau of Land Management Lands
U.S. Forest Service Lands

Sheet 1 of 2

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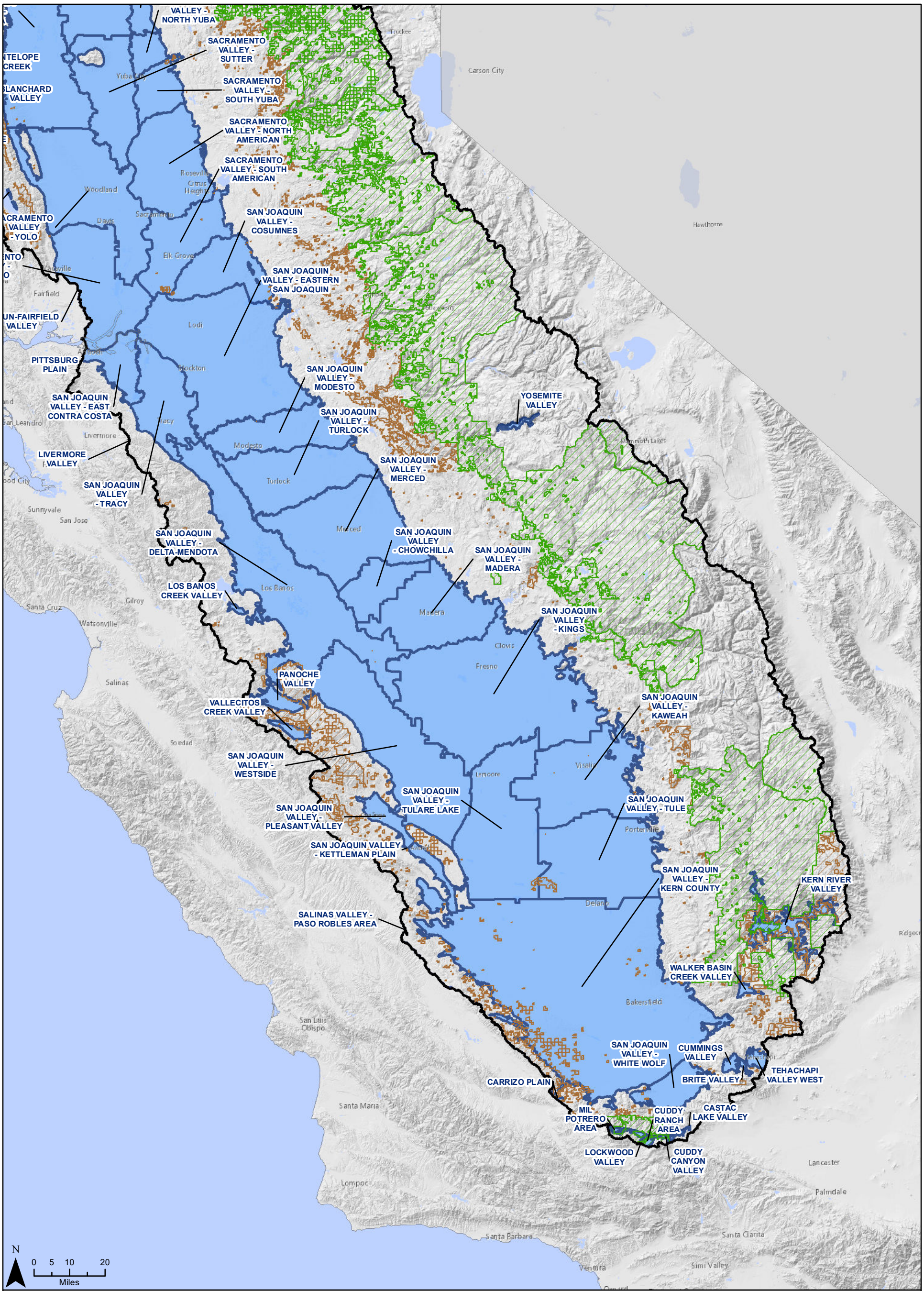


Figure 3.10-4
Groundwater Basins

Sheet 2 of 2

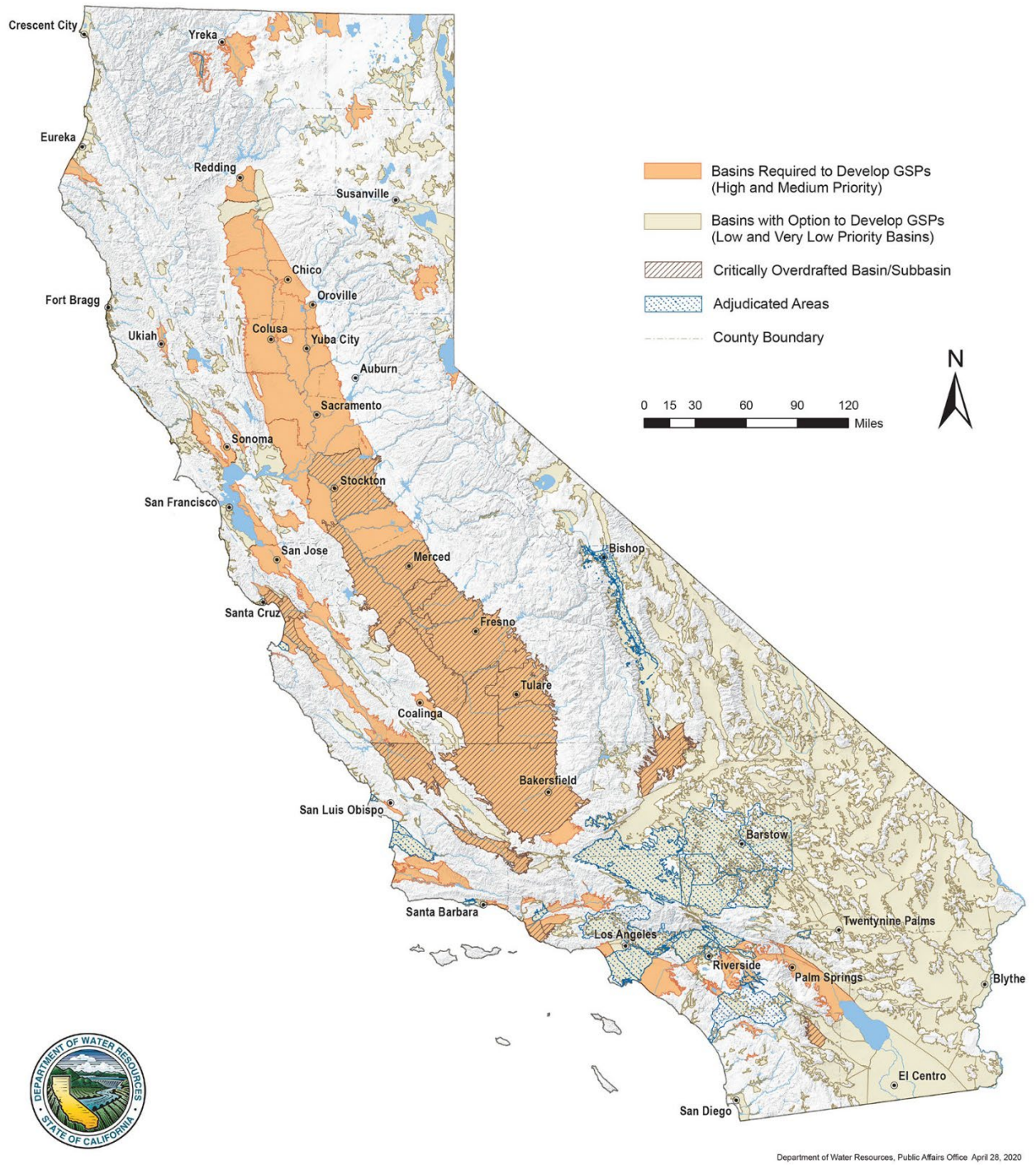
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Figure 3.10-5. California Statewide Groundwater Elevation Monitoring System – Basin Prioritization



Source: DWR 2020a

Table 3.10-1. Water Quality Data and Analysis for Central Valley Region Groundwater Basins Designated as High or Medium Priority – Basin Prioritization

Basin ID	Basin Name	Subbasin Name	Number of Detects Used in Analysis	Number of MCL Exceedances Used in Analysis	Average Relative MCL Exceedance	Total Number of Unique Wells with an MCL Exceedance (1/1/2000 to 4/1/2017)	Number of Wells with Exceedance per Active Public Supply Well
5-004	Big Valley	-	146	14	5.73	3	0.75
5-006.03	Redding Area	Anderson	1358	31	6.51	13	0.2
5-006.04	Redding Area	Enterprise	1078	205	2.4	16	0.46
5-012.01	Sierra Valley	Sierra Valley	106	2	3.83	1	0.1
5-015	Big Valley	-	148	13	6.47	4	0.5
5-021.50	Sacramento Valley	Red Bluff	1788	75	3.35	10	0.18
5-021.51	Sacramento Valley	Corning	994	12	2.47	3	0.11
5-021.52	Sacramento Valley	Colusa	3902	343	2.22	35	0.4
5-021.54	Sacramento Valley	Antelope	853	42	6.54	9	0.38
5-021.56	Sacramento Valley	Los Molinos	798	161	1.86	7	0.39
5-021.57	Sacramento Valley	Vina	6627	519	5.25	18	0.19
5-021.60	Sacramento Valley	North Yuba	2428	376	3.63	9	0.5
5-021.61	Sacramento Valley	South Yuba	1574	275	6.16	38	0.9
5-021.62	Sacramento Valley	Sutter	4228	1757	4.85	67	1.86
5-021.64	Sacramento Valley	North American	15696	629	5.37	143	0.49
5-021.65	Sacramento Valley	South American	12890	1982	5.43	130	0.49
5-021.66	Sacramento Valley	Solano	8991	1694	3.18	77	0.59
5-021.67	Sacramento Valley	Yolo	8858	471	3.32	68	0.36
5-021.69	Sacramento Valley	Wyandotte Creek	1163	130	4.02	7	0.3

Basin ID	Basin Name	Subbasin Name	Number of Detects Used in Analysis	Number of MCL Exceedances Used in Analysis	Average Relative MCL Exceedance	Total Number of Unique Wells with an MCL Exceedance (1/1/2000 to 4/1/2017)	Number of Wells with Exceedance per Active Public Supply Well
5-021.70	Sacramento Valley	Butte	668	82	3.04	16	0.73
5-022.01	San Joaquin Valley	Eastern San Joaquin	33085	4910	2.93	277	0.67
5-022.02	San Joaquin Valley	Modesto	16565	1149	1.82	111	0.57
5-022.03	San Joaquin Valley	Turlock	13191	2370	1.65	123	0.7
5-022.04	San Joaquin Valley	Merced	8974	884	1.85	60	0.43
5-022.05	San Joaquin Valley	Chowchilla	914	53	1.76	14	0.88
5-022.06	San Joaquin Valley	Madera	4762	599	3.38	54	0.46
5-022.09	San Joaquin Valley	Westside	410	66	2.32	11	1.22
5-022.10	San Joaquin Valley	Pleasant Valley	0	0	0	0	0
5-022.11	San Joaquin Valley	Kaweah	16870	2634	3.16	118	0.53
5-022.12	San Joaquin Valley	Tulare Lake	5142	2277	6.66	73	0.97
5-022.15	San Joaquin Valley	Tracy	8090	1474	7.15	78	0.81
5-022.16	San Joaquin Valley	Cosumnes	1495	508	2.95	15	0.45
5-022.18	San Joaquin Valley	White Wolf	276	56	1.55	7	1.75
5-022.19	San Joaquin Valley	East Contra Costa	3603	554	2.32	52	0.49

Source: DWR 2020b

3.10.4 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 used 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 the Federal NPS Permit (e.g., construction/implementation of reasonably foreseeable on-the-ground prescriptions for water quality protection and NPS discharge control) are not known and cannot be known at this time. Additionally, it is not known which on-the-ground prescriptions might be implemented by the USFS and BLM on which lands. Therefore, the analysis considers generally the impacts to hydrology and water resources that could potentially occur in the Central Valley Region based on the reasonably foreseeable on-the-ground prescriptions and monitoring activities associated with the activity types covered by the Federal NPS Permit, as 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.

Overall, the purpose of the Proposed Project is to benefit water quality and ensure protection of beneficial uses (see Section 2.4 in Chapter 2, *Project Description*). Thus, the overall effects of the Proposed Project on hydrology and water quality are likely to be positive (i.e., improvement in water quality conditions relative to baseline and/or reduction in ongoing impacts to water quality from federal activities); while this is noted in the impacts analysis, consistent with CEQA, the analysis focuses on the potential adverse effects from implementation 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 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 objectives or waste discharge requirements, or otherwise substantially degrade surface water or groundwater quality. *(Less than Significant)*

As noted above, the purpose of the Proposed Project is to ensure implementation of appropriate management measures for water quality protection during covered activities (vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities). As described in Section 3.10.3, the covered activities are on-going and are causing adverse impacts to water quality under existing conditions. While BMPs for water quality protection are currently implemented by the USFS through its National BMP Program, these BMPs are not always implemented effectively and there is a lack of effective monitoring and correction of defective BMPs or on-the-ground prescriptions. The BLM has only recently adopted a formalized BMP program.

Thus, it is expected that implementation of the Proposed Project, including the enforceable permit conditions and mechanisms for tracking and monitoring management measure implementation, will improve water quality on USFS and BLM lands and in the Central Valley Region generally over the long term. The mechanisms included in the Proposed Project would lead to more effective management measure implementation, and treatment of CSDS, thereby reducing NPS discharges (primarily sediment) relative to the baseline. However, it is possible that implementation of certain management measures (e.g., those measures involving ground-disturbance and use of equipment containing hazardous materials) could adversely impact water quality over the short term.

Construction

Construction or implementation of certain types of management measures would have the potential to adversely affect water quality, potentially resulting in violations of water quality objectives, such as beneficial uses. Planning or design considerations[2] that may be more

[2] For example, limiting designated skid trails to ≤ 15 percent of the harvest unit area, limiting the width of skid trails to single width of what is operationally necessary for the approved equipment, using Integrated Pest Management (IPM) as the basis for all pesticide-use prescriptions, selecting chemical products suitable for use on

rigorously considered as a result of the Proposed Project would have no potential to adversely affect water quality. Implementation of management measures such as slash packing a skid trail no longer in use or adding woody material to disturbed soil or existing areas of erosion may require use of heavy, mechanical equipment (e.g., to collect and place limbs or woody material), which could loosen soils and thereby increase their susceptibility to erosive forces. Similarly, installation of water bars to skid trails or landings, or to other types of roads or fire lines, would involve grading or other ground-disturbing activities that could lead to erosion and sedimentation.

Hydrologic disconnection is very important for minimizing erosion and sedimentation from USFS and BLM managed roadways over the long term; however, installation of road drainage features (e.g., rolling dips, water bars, outsloping, cross drains, etc.) could provide a pathway for erosion and sedimentation to occur over the short term (construction-related effects). The potential for impacts would be heightened due to such drainage features often needing to be installed or repaired/maintained at locations close to, or within, riparian areas, or where water is already prone to collection. The equipment needed to construct/install these features as well as for implementation of other management measures (e.g., adding rock armoring to road infill, culvert inlets or outlets, or other facilities) also would contain hazardous materials (e.g., fuel, oil, etc.) that could adversely affect surface or ground water quality if they were to spill or otherwise be released into the environment.

The USFS and BLM BMP manuals include measures that would serve to minimize potential impacts associated with erosion and sedimentation, and release of hazardous materials. These include, in particular, USFS BMPs Fac-2 (Facility Construction and Stormwater Control), R5 Erosion Control Plan, Fac-6 (Hazardous Materials), Road-3 (Road Construction and Reconstruction), R5 Road-3 (Road Construction and Reconstruction), Road-10 (Equipment Refueling and Servicing), and Veg-3 (Erosion Prevention and Control), and BLM BMPs AQ 01 through AQ 05, SP 01 through SP 08, RST 09, SC 11 through SC 13, R 01 to R 02, R 12, R 14 to R 15, R 20, RM 20 through 22, TM 14, and REC 01 to REC 02 (refer to Appendix B for the text of these BMPs).

As discussed in Chapter 2, *Project Description,* the federal agency BMPs have not historically been completely effective in reducing adverse water quality effects on federal lands; however, in the context of the reasonably foreseeable management measures that may be constructed/installed under the Proposed Project, the BMPs would be expected to avoid or reduce most impacts. The proposed Federal NPS Permit itself would provide additional monitoring and oversight relative to the current or historical situation. Additionally, the potential water quality impacts from construction/installation of management measures would be relatively minor compared to those associated with the federal activities themselves (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration), which involve far greater amounts of ground disturbance and hazardous materials use. As discussed throughout this DEIR, the covered federal activities are part of the baseline and not the subject of the impact analysis.

the target species or that meet project objectives, delineating the Aquatic Management Zone (AMZ) locations and boundaries in the project area, etc.

In some cases, where federal projects or activities (including ground-disturbing management measures implemented pursuant to the Proposed Project) would disturb greater than one acre of land, the federal agencies may be subject to the Construction General Permit. Although the Construction General Permit is issued by a State agency (State Water Board), it is issued pursuant to the federal CWA and USFS/BLM are required to comply with State water quality standards and permits. Indeed, USFS BMP Fac-2 directs the USFS to "obtain Clean Water Act 402 stormwater discharge permit coverage from the appropriate State agency or the [USEPA] when more than 1 acre of land will be disturbed through construction activities" (USFS 2012). As described in Section 3.10.2, the Construction General Permit would require preparation and implementation of a SWPPP, including 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 and groundwater quality from occurring, including the potential impacts from the management measures themselves.

Whether through implementation of their BMP manuals or via compliance with the Construction General Permit, the USFS and BLM would implement water quality protection BMPs when constructing/installing management measures pursuant to the Proposed Project. This would include a variety of measures to minimize erosion and prevent sediments from moving off-site, as well as measures to reduce potential for accidental hazardous materials releases. Given these protective measures, and considering the relatively minor, incremental risk of impacts above baseline, the impact would be **less than significant**.

Operation

Once constructed/installed, the management measures that may be required through the Proposed Project would be expected to perform their intended purposes by reducing erosion and sedimentation and any other NPS discharges associated with the covered activities. For example, water bars, rolling dips, and other drainage features would minimize the amount of sediment being discharged from roads in the federal agencies' jurisdiction. Similarly, erosion and sediment control measures (e.g., adding ground cover on exposed soils for wildland fire recovery) would function to minimize discharges. As such, the management measures would benefit water quality over the long term. For any management measures that are not performing adequately and/or require continued maintenance to perform adequately over a number of years, the Proposed Project's monitoring and reporting provisions would provide a mechanism for identifying and correcting deficiencies.

The monitoring activities under the Proposed Project would be limited to visual inspections or evaluations by USFS and BLM personnel. Given the Proposed Project's robust monitoring requirements, it is likely to result in increased numbers of vehicle trips to project sites by the federal personnel to perform monitoring evaluations. These trips would presumably occur via existing roads and would not be expected to result in substantial water quality effects. Therefore, impacts during the operation phase would be **less than significant.**

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)*

As described in Section 3.10.3, much of the federal agency-managed land area within the Central Valley Region does not overlie mapped groundwater basins. That is to say, much of the USFS managed land area in particular occurs in the foothills or higher in the mountains, while many of the mapped groundwater basins occur in the Central Valley floor (see Figure 3.10-4). Nevertheless, some federal lands within the region (particularly BLM-managed lands, which tend to occur lower in the watershed than USFS managed lands) do overlie mapped groundwater basins.

Both USFS and BLM use water for various purposes under existing conditions and both may utilize groundwater to meet water supply needs. To the extent that the Proposed Project would increase management measure implementation, this could result in some increase in water use, some of which may be obtained from groundwater. While many management measures would not involve use of water (e.g., planning and design considerations), other management measures would require at least some water to construct or install. For example, installation of water bars or rolling dips may require water for dust control and/or for conditioning road substrate or surface materials. Likewise, with respect to other management measures (e.g., tilling compacted soil surfaces, slash packing skid trails, adding/placing rock armor, removal of outside berms on road surfaces, adding ground cover such as mulch, straw, and wood chips, etc.), the equipment required for implementation of these measures may need to be washed down. Small amounts of water also may be required for construction workers (drinking, sanitation) involved in constructing or installing the water quality protection measures.

All of these would be relatively minor uses of water, and much of the water may be obtained from surface water sources rather than groundwater. The use of water related to management measures would also likely pale in comparison to water use associated with the federal covered activities themselves. As such, even assuming all water attributable to the Proposed Project (i.e., management measures for water quality protection) came from groundwater, the Proposed Project would not substantially decrease groundwater supplies.

The reasonably foreseeable management measures that could be implemented in accordance with the Proposed Project would generally not require or result in installation of new impervious surfaces. However, hardened surfaces may be added to parking areas, watercraft launch sites, and staging areas to reduce potential for erosion – in some cases, such hardened surfaces may be impervious. Generally, there is very minimal impervious surface on USFS and BLM managed lands and thus there are few impediments to soil infiltration of water falling on the lands. Any additional impervious surfaces created by the Proposed Project would be *de minimis* in the context of the vast undeveloped lands managed by the USFS and BLM. Hardened surfaces associated with recreational facilities would be relatively small in area and water running off these semi-pervious or impervious areas would be able to infiltrate into the soil and groundwater via adjacent pervious surfaces.

As such, the Proposed Project would not substantially interfere with groundwater recharge on USFS and BLM managed lands. As noted above, the majority of USFS and BLM managed land area in the Central Valley Region does not overlie a mapped groundwater basin. Additionally,

the USFS and BLM would presumably not be subject to SGMA, which is a California law with no federal basis or counterpart. Thus, any sustainable groundwater management plans associated with groundwater basins underlying USFS and/or BLM managed lands are presumed not to be applicable to, or binding upon, the federal agencies. However, even if this assumption is incorrect, any groundwater use or changes in groundwater recharge due to implementation/installation of management measures pursuant to the Proposed Project would not be of a magnitude to substantially affect the sustainable management of the basin(s).

Overall, 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)*

As discussed in Impact HWQ-1 above, construction/installation of certain management measures pursuant to the Proposed Project would involve ground-disturbance, grading, and/or operation of heavy equipment, all of which could result in erosion and sedimentation/siltation if proper precautions are not followed. Management measures such as water bars, rolling dips, and other drainage features would improve the drainage pattern of a given site over the short term (during construction) and long term. Graded or excavated areas would have different contours compared to the original ground surface and the loosened soils may be more susceptible to erosion and off-site transport. Additionally, tire tracks from heavy equipment could temporarily alter drainage patterns, potentially leading to erosion and siltation.

As discussed in Impact HWQ-1, the federal agencies' BMP manuals include numerous BMPs to address erosion and siltation, which would be largely effective in avoiding or reducing erosion and siltation impacts during construction activities. The potential impacts also may be addressed through compliance with the Construction General Permit (for federal projects, activities, or individual management measures that disturb greater than one acre or land), which would require implementation of a SWPPP including BMPs for erosion and siltation control. Whether via implementation of the USFS or BLM BMP manuals or compliance with the Construction General Permit, the protective measures for water quality that would be implemented by the federal agencies during management measure construction/installation would prevent significant impacts from occurring.

As noted under the Impact HWQ-2 discussion, implementation of the Proposed Project could lead to small areas of new impervious surface (e.g., hardened surfaces at parking lots, watercraft launch sites, and staging areas). These surfaces could change the drainage patterns at certain sites, but the changes would likely be modest. Nevertheless, if implemented improperly, hardened/impervious surfaces could increase runoff velocity and volume such as to result in erosion and siltation.

Several of the BMPs in the federal agencies' manuals require consideration of potential stormwater runoff impacts from impervious surfaces, in particular related to recreational facilities. For example, USFS's BMP Fac-2 (Facility Construction and Stormwater Control) requires that USFS "Calculate the expected runoff generated using a suitable design storm to

determine necessary stormwater drainage capacity" and to "Refer to State or local construction and stormwater BMP manuals, guidebooks, and trade publications for effective techniques to… Control, collect, detain, treat, and disperse stormwater runoff from the site" (USFS 2012). Additionally, the supplemental USFS BMP R5 (Erosion Control Plan) would require that "The erosion control plan shall describe the storm water control structures and management practices that will be implemented to minimize pollutants in storm water discharges after project activity phases have been completed at the site." Similarly, BLM BMP REC-32 states: "…Use permeable pavements where possible and integrate vegetative islands to trap and filter runoff. Infiltrate as much of the runoff as possible using permeable surfaces and infiltration ditches or basins in areas where groundwater contamination risk is low."

Implementation of these BMPs would avoid or substantially reduce potential effects associated with new impervious surfaces causing erosion and siltation resulting from the Proposed Project. Particularly given the relatively minor, incremental effects that would be attributed to the Proposed Project (e.g., new/additional impervious surface associated with management measure implementation), the impact would be less than significant with implementation of the federal agency BMPs.

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

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding *(Less than Significant)*

As discussed above under Impact HWQ-3, subsection i., implementation of the Proposed Project may result in some areas of new impervious surface. While impervious surfaces increase the rate and quantity of surface runoff, the potential impacts associated with stormwater runoff (including potential flooding) would be reduced through implementation of applicable federal agency BMPs (e.g., USFS BMP Fac-2 and R5 and BLM BMP REC-32), which require consideration and minimization of stormwater effects.

Generally, any new impervious surfaces associated with the Proposed Project would likely be relatively small (e.g., hardened surfaces at parking lots and watercraft launch sites). These surfaces would also be located/installed in the context of the vast, largely undeveloped federal lands in the Central Valley Region. Any potential for flooding would thus be relatively minor and localized. As such, this impact would be **less than significant.**

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)*

As discussed in Section 3.16, "Utilities and Service Systems," USFS and BLM managed lands do not include centralized or municipal stormwater collection and management systems on account of their typically remote locations. Individual facilities (e.g., campgrounds, parking lots, roads, etc.) may have stormwater management features (e.g., swales, ditches, etc.) incorporated, but generally these are limited in scale and not connected to a centralized system. Thus, while implementation of the Proposed Project may lead to creation of some new impervious surfaces (see discussions above), this would not lead to effects upon centralized, municipal stormwater systems. The new impervious surfaces could generate increased volumes of surface runoff and at higher velocities, which could affect the stormwater management

systems at individual sites; however, implementation of applicable USFS and/or BLM BMPs would minimize these potential effects.

Hardening of surfaces and/or creation of new impervious surfaces could also lead to generation of polluted runoff. For example, automotive or boating fluids (oil, antifreeze, etc.) could leak on the hardened surfaces and then be washed off-site by stormwater. These effects would be minimized through implementation of applicable federal agency BMPs (e.g., USFS BMP R5 [Erosion Control Plan] and BLM BMP REC-32). Conversely, other management measures that may be implemented through the Proposed Project (e.g., developing campsites away from surface waters or riparian areas; having designated fueling locations for OHV use; having regularly maintained and contained waste management facilities; providing signage for authorized parking and camping areas, etc.) serve to reduce potential for generation and transport of polluted runoff.

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

iv. Impede or redirect flows *(Less than Significant)*

The Proposed Project would not result in the addition of large above-ground structures that could substantially impede or redirect flows so as to result in substantial adverse effects. As noted in Section 3.10.3 above, while the Central Valley Region has been subject to devastating flooding in the past, this is typically associated with the low-lying areas on the valley floor. USFS managed lands in the Central Valley Region tend to occur higher in the watershed and thus are less prone to flooding. BLM-managed lands, by contrast, often occur lower in the watershed and may be more prone to flooding. Both types of federal lands, however, are generally sparsely inhabited or uninhabited and have relatively few built structures. As such, if flooding were to occur on USFS and BLM managed lands, it would be less destructive than in more populated and developed areas.

Several of the reasonably foreseeable management measures would slow runoff, in particular from exposed areas that may be subject to erosion. For example, seeding disturbed bare soil, adding straw mulch for ground cover, and slash packing fire lines or skid trails would all serve to slow runoff and reduce erosion from these areas. This would reduce flooding risk/potential by encouraging more water to infiltrate into the soil and groundwater and by reducing the rates and velocities of runoff to downstream areas. Other management measures (e.g., those related to transportation management) would serve to improve drainage from roads and thus reduce the potential for localized flooding (e.g., at the location of undersized, damaged, or blocked culverts).

The new above-ground structures (vehicle access barriers, signage, etc.) that could result from implementation of the Proposed Project would all be small and *de minimis* in terms of their potential to substantially impede or redirect flood flows. Rock armor placed on unstable slopes or at culvert inlets/outlets would not substantially change flow velocity or direction (the large rock/boulders that would typically be used in these applications would have interstitial spaces that would allow water to freely pass through) but would rather reduce potential for erosion in these locations. As such, 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)*

As described in Section 3.10.3, there are innumerable rivers and streams in the Central Valley Region, many of which occur within or cross the federal lands. With large, sustained storms, these waterbodies could flood their banks and affect the surrounding areas. Given their generally higher position in the watershed, the USFS managed lands may be less susceptible to flooding than the BLM-managed lands and other low-lying areas in the region.

Activities related to management measure construction/implementation pursuant to the Proposed Project could occur within riparian and floodplain areas that could be subject to inundation during a large storm event. Given that construction/installation of certain management measures would require mechanical equipment that use hazardous materials (e.g., fuel, oil, antifreeze, etc.) in their operation, these materials could potentially be released during an inundation event. Generally, it would be expected that most construction activities related to management measure implementation would occur during the dry season when the risk of a flooding event would be very low. For any work during the wet season (e.g., November to April), the risk of inundation leading to a release of pollutants would be higher. Nevertheless, the probability of such flooding events occurring while construction equipment/materials are present within inundation areas would be low. USFS/BLM personnel or contractors would also have the practical ability to move such equipment and materials from hazardous areas when substantial rains are forecasted. Thus, the impact would be less than significant.

Once constructed/installed, none of the reasonably foreseeable management measures would include, or involve storage of, hazardous materials or other pollutants that could be released due to inundation from flooding. Thus, there would be minimal potential for such impacts to occur during the operation phase.

As described in Section 3.10.3, the Central Valley Region is located well inland from the coast and is outside of any mapped tsunami hazard areas. Thus, there would be no potential for Proposed Project activities to result in releases of pollutants from inundation by tsunami. Although there are numerous large, enclosed bodies of water (primarily reservoirs) in the region, many of which occur in proximity to USFS and BLM managed lands, the probability of a significant seiche event occurring at the same time that Proposed Project-related activities (e.g., construction/installation of management measures) are taking place near the shoreline is considered low. Therefore, this impact would be less than significant.

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

Impact HWQ-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. *(Less than Significant)*

The purpose of the Proposed Project is to improve implementation of management measures for water quality protection during certain activities on federal lands, such as to reduce NPS discharges (primarily sediment) associated with these activities. Additionally, the Proposed Project would establish a Controllable Sediment Source Reduction Program, which would serve to promote treatment of CSDS in priority watersheds. As such, the purpose of the Proposed Project would be to protect water quality during future activities and restore/correct conditions that are contributing to adverse water quality impacts. The Central Valley Water Board would be

implementing the Proposed Project pursuant to its authority under the Porter-Cologne Act and in accordance with the CWA, NPS Policy, and Antidegradation Policy.

The Proposed Project would serve to implement the Basin Plans for the Central Valley Region by protecting beneficial uses in waterbodies within or downstream of lands managed by the USFS and BLM, in particular those beneficial uses sensitive to sediment pollution. Although there is potential for construction/installation of some reasonably foreseeable management measures (i.e., generally those involving ground disturbance) to result in adverse effects to water quality over the short-term, these effects would be minimized through compliance with the Construction General Permit and/or implementation of the USFS' and BLM's own BMP manuals. As indicated above, over the long term, the management measures are expected to improve water quality by minimizing NPS discharges from the federally managed lands.

As federal agencies, USFS and BLM presumably would not be subject to SGMA, which is a California law with no federal counterpart. Additionally, although some federal lands (in particular those managed by BLM) in the Central Valley Region overlie mapped groundwater basins, the majority of the lands do not overlie such basins (see Figure 3.10-4). Construction/installation of some of the reasonably foreseeable management measures pursuant to the Proposed Project may require water for dust control, soil conditioning, or related purposes, some of which may be obtained from groundwater sources. However, the amounts of water needed for these purposes, even if sourced entirely from groundwater, would not substantially affect total groundwater supplies and the sustainable management of the basin. Additionally, although implementation of the Proposed Project could lead to relatively small areas of new impervious surface, this would not substantially affect groundwater recharge (recharge would still be possible via adjacent pervious surfaces). As such, the Proposed Project would not conflict with or obstruct implementation of a sustainable groundwater management plan.

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

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3.11 Mineral Resources

3.11.1 Introduction

This section presents the regulatory and environmental setting and potential impacts of the Proposed Project related to mineral resources. Mineral resources include rock aggregate, oil and gas deposits, iron ore, and other materials used in industry or construction.

3.11.2 Regulatory Setting

Federal Laws, Regulations, and Policies

Federal Land Policy and Management Act

The Federal Land Policy and Management Act (FLPMA) of 1976 provides that the public lands remain under the stewardship of the Federal Government, unless disposal is in the national interest and consistent with publicly approved land use plans, and that their resources be managed under a multiple use concept that will best meet the present and future needs of the American people. Mining is considered one of the multiple uses of USFS and BLM managed lands.

Mining Law of 1872

The Mining Law of 1872, as amended (30 USC Sections 22-54 and 611-615), allows citizens of the United States the opportunity to explore for, discover, develop, and purchase certain valuable mineral deposits on those federal lands that are open for mining claim location and patent ("open to mineral entry"). The law sets general standards and guidelines for claiming the possessory right to a valuable mineral deposit discovered during exploration, as well as establishing the right to develop and extract the mineral deposit. These "locatable" mineral deposits include most metallic mineral deposits and certain nonmetallic and industrial minerals.

Mining claims located or perfected after the enactment of the Surface Resources Act on July 23, 1955 (30 USC Section 612) are subject to use for certain purposes by the United States or its permittees or licensees, provided that such use does not materially interfere with mining or processing operations. All mining claims must comply with all applicable laws and regulations, such as the BLM's surface management regulations at 43 CFR 3809. These regulations were issued pursuant to Section 302(b) of the FLPMA, 43 USC Section 1732(b), which specifically amended the Mining Law (BLM 2021a).

The Mining Law allows for the enactment of state laws governing location and recording of mining claims and sites that are consistent with federal law. The federal regulations implementing the Mining Law are found at 43 CFR Group 3700 and Part 3800 (BLM 2021a).

State Laws, Regulations, Policies, or Programs

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act (SMARA) requires that the State Mining and Geology Board identify, map, and classify aggregate resources throughout California that contain regionally significant mineral resources. Designations of land areas are assigned by the CDOC and CGS following analysis of geologic reports and maps, field investigations, and using information about the locations of active sand and gravel mining operations. The objective of the designation process is to ensure, through appropriate local lead agency policies and procedures, that mineral materials would be available when needed and do not become inaccessible as a result of inadequate information during the land use decision-making process. Mineral land classification reports are produced by the State Geologist as specified by SMARA.

Local jurisdictions are required to enact planning procedures to guide mineral conservation and extraction at particular sites and to incorporate mineral resource management policies into their general plans. The four Mineral Resource Zone (MRZ) classifications used in the SMARA classification-designation process are defined below (CDOC No Date):

MRZ-1: Areas where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.

MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based upon economic-geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.

MRZ-3: Areas containing known or inferred aggregate resources of undetermined significance.

MRZ-4: Areas where available information is inadequate for assignment to any other zone.

Local Laws, Plans, Policies, and Regulations

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans.

Nevertheless, local county general plans, or long-range comprehensive plans, developed to govern growth and development, exist for many local jurisdictions within the Central Valley Region. General plans include goals and policies that address a range of natural resource preservation issues, including those related to mineral and extracted resources.

3.11.3 Environmental Setting

The Proposed Project would be implemented throughout USFS and BLM lands within the Central Valley Region, which includes about 40 percent of the land in California and stretches from the Oregon border to the Kern County/Los Angeles County line, as shown in Figure 2-1 in Chapter 2, *Project Description*. Mining claims or sites may be located on both BLM and USFS lands within California. While the BLM and USFS manage the surface of public lands within their respective territories; the BLM is responsible for subsurface minerals on both its public lands and USFS lands (BLM 2021a).

Surface Mines and Quarries

National Forests and BLM public lands in California provide opportunities for the exploration, development, and production of mineral resources. National Forests contain much of the country's remaining stores of mineral – some examples being the National Forests of the Basin and Range Province and the Cascade-Sierra Nevada Ranges (USFS 2021). With California's high population and large wildland urban interface, mineral materials such as sand, gravel, and crushed stone are extracted from BLM administered public lands and used for ready-mixed concrete, asphalt, and many other building materials (BLM 2021b). Presently, in California, there are more than 5,000 mining claims on public lands, where rockhounders (i.e., collectors of rocks, fossils, or minerals) search for rocks, minerals, and gemstones (BLM 2021b).

Figure 3.11-1 shows the locations of all open pit mines and quarries within the Proposed Project area.

Oil, Gas, and Geothermal Resources

Geologically, USFS lands contain some of the most favorable host rocks for mineral deposits. Approximately 6.5 million acres are known to be underlain by coal. Approximately 45 million acres, or one-quarter of National Forest System lands, have potential for oil and gas, while about 300,000 acres within the Pacific Coast and Great Basin States have potential for geothermal resource development (USFS 2021).

Similarly, BLM California is responsible for managing one of the most productive individual onshore leases in the lower 48 states. Four of the nation's top seven producing oil fields are located in Kern County, California; where more than 95 percent of all Federal drilling occurs in established fields. As a general rule, California's Federal production totals average approximately 8 to 10 percent of California's total oil and natural gas production (BLM 2021c). BLM California manages nearly 600 producing oil and gas leases covering more than 200,000 acres. Between 80 percent and 90 percent of all surface-disturbing activities related to oil and gas activities occur in the San Joaquin Valley on public lands administered by the BLM's Central California District, Bakersfield Field Office.

The California Division of Oil, Gas, and Geothermal Resources (DOGGR) oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells in California, and tracks every known oil, gas, and geothermal well and oil and gas field in the state. **Figure 3.11-2** depicts data obtained from DOGGR of known geothermal wells and plugged oil and gas dry holes located within the vicinity of the Proposed Project.

Locally Extractive Resource Areas

As discussed above, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations, including those regulating locally extractive resource areas. While cities and counties in the Central Valley Region may have ordinances for regulation of development for the protection of mineral resources, none of these would be applicable to projects within USFS and BLM managed lands.

Other Mineral Resources

Prospecting, mining and claim staking activities for other significant resources (i.e., gold or other valuable metals, magnesium-rich serpentine, or bentonite) are permitted on BLM and USFS unappropriated land.

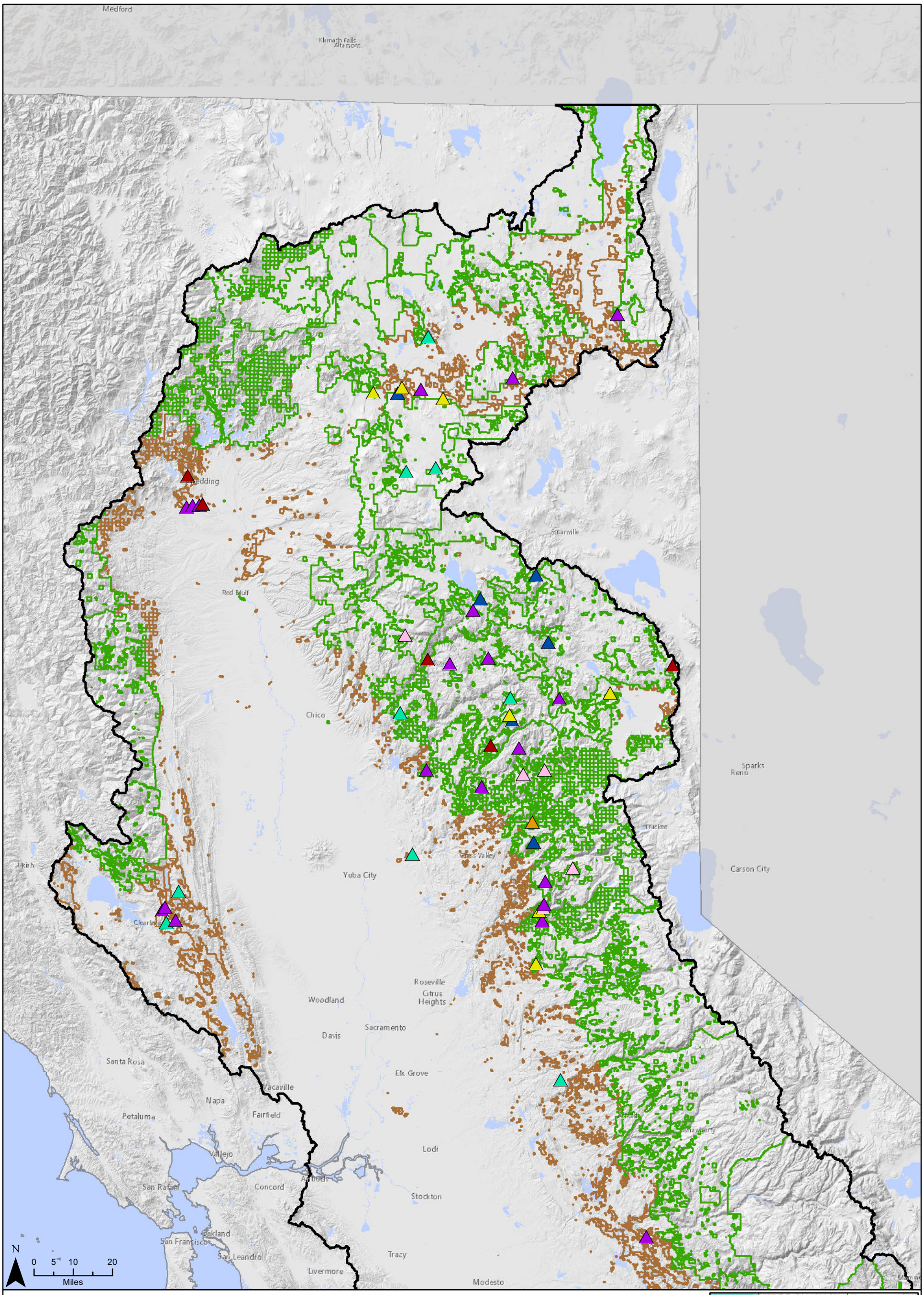


Figure 3.11-1
Surface Mines and Quarries

Sheet 1 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, CDC 2020

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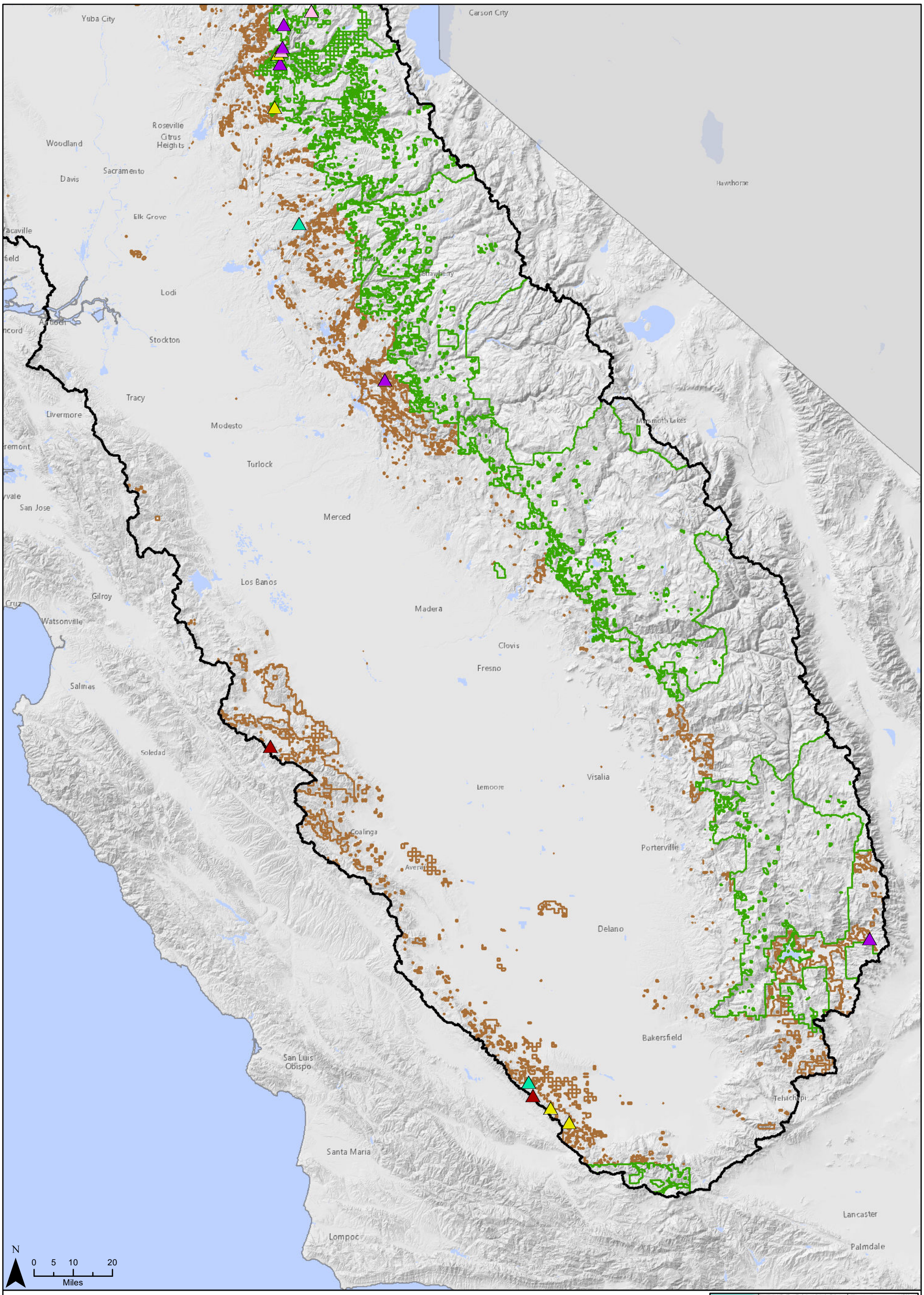


Figure 3.11-1
Surface Mines and Quarries

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, CDC 2020

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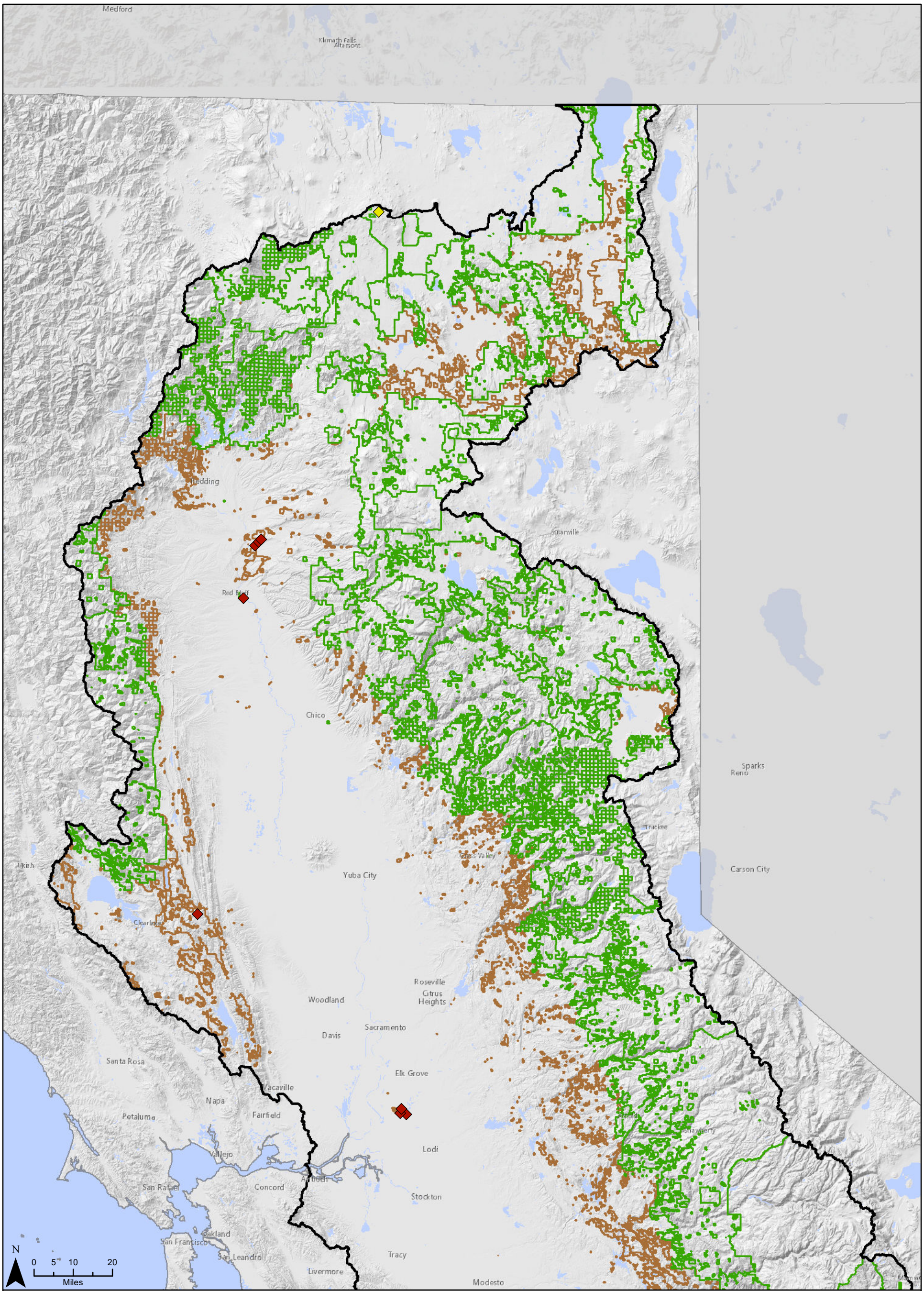


Figure 3.11-2
Oil, Gas, and Geothermal Resources

Sheet 1 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, CDC 2020

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Yuba City
Carson City
Roseville
Citrus Heights
Woodland
Sacramento
Davis
Hawthorne
Elk Grove
Vacaville
Lodi
Stockton
Tracy
Livermore
Modesto
Mammoth Lakes
Turlock
San Jose
Merced
Los Banos
Gilroy
Watsonville
Madera
Clovis
Fresno
Salinas
Soledad
Visalia
Lemoore
Porterville
Delano
Bakersfield
San Luis Obispo
Tehachapi
Santa Maria
Lancaster
Lompoc
Palmdale
N
0 5 10 20
Miles

Resource Type

- Central Valley RWQCB Boundary
- Bureau of Land Management Lands
- U.S. Forest Service Lands
- Cyclic Steam
- Dry Hole
- Multi-Purpose
- Observation
- Oil & Gas
- Steamflood
- Waterflood

Figure 3.11-2
Oil, Gas, and Geothermal Resources

Sheet 2 of 2



Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, CDC 2020

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3.11.4 Impact Analysis

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

Methodology

The impact analysis considers the extent to which implementation of the reasonably foreseeable management measures that would occur as a result of the Proposed Project would result in the loss of known mineral resources. As discussed above, the proposed WDRs would apply to NPS discharges related to vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities. The scope of the environmental analysis in this DEIR does not include the effects of the activities themselves. Rather, the focus is on the potential impacts from implementing reasonably foreseeable management measures, which may be required by the proposed Federal NPS Permit. Effects were evaluated qualitatively in accordance with the significance criteria 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 on mineral resources if it would:

A. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State.

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

Environmental Impacts of the Proposed Project

Impact MR-1: Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State. *(Less than Significant)*

As described in Section 3.11.3, much of the federal agency-managed land area within the Central Valley Region provides for opportunities for the exploration, development, and production of known mineral resources, as well as providing opportunities for prospecting, mining, and claim staking activities for other significant resources. USFS- and BLM-managed lands contain many known surface mines and quarries (see Figure 3.11-1), as well as geothermal wells and plugged oil and gas dry holes (see Figure 3.11-2) located within the vicinity of the Proposed Project. Mineral resources development by USFS and BLM is not a covered activity under the Proposed Project; thus, the BMPs in the federal agency manuals related to mineral resources are not applicable.

Common management measures for water quality protection (see Section 2.6.4 in Chapter 2, *Project Description*) would have limited potential to result in impacts to mineral resources. For example, measures such as maintaining watercourse protection buffers and following application requirements for pesticide use would have limited to no potential for impacts. Construction activities associated with certain management measures could potentially hinder

mineral resource accessibility temporarily during the construction period. Depending on the site-specific location, the presence of construction work areas or staging areas could prevent the development of a mine in the immediate area. However, these effects would be short-lived; once constructed/installed, the management measures would not be anticipated to hinder mineral resources development. Many of the measures would be modifications to existing facilities (e.g., roadways, recreation facilities), while other measures would be temporary in nature and/or would not inhibit subsurface exploration or development (e.g., erosion control treatments, mulching, etc.).

Monitoring and reporting activities pursuant to the Proposed Project would likely involve additional vehicle trips to monitoring locations by USFS and BLM field staff relative to existing conditions, but this would have no potential to adversely affect mineral resources availability. Given the temporary nature of the impacts described above, these impacts would not be significant and would not result in the loss of availability of known mineral resources that would be of value to residents of the region or the state. The Proposed Project would not include any new developments or land uses that could permanently limit the access to or availability of subsurface minerals. Therefore, this impact would be **less than significant.**

Impact MR-2: Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. *(No Impact)*

As discussed above, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations, including local general plans, specific plans, or other land use plans that might delineate locally-important mineral resources and recovery sites. Locally-important mineral resources would not be recognized within the Proposed Project boundaries. Therefore, the Proposed Project could not result in the loss of locally-important mineral resources. For these reasons, **no impact** would occur.

3.12 Noise

3.12.1 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.

3.12.2 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 **Table 3.12-1.**

Table 3.12-1. 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) 2013

3.12.3 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 vibration velocity in decibels (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.

3.12.4 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, FTA guidelines state 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).

The USFS does have some noise prohibitions contained in 36 CFR Part 261. These prohibitions state that causing pubic inconvenience, annoyance, or alarm by making unreasonably loud noises is prohibited. Operating or using in or near a campsite, developed recreation site, or over an adjacent body of water without a permit, any device which produces noise, such as a radio, television, musical instrument, motor or engine in such a manner and at such a time so as to unreasonably disturb any person is prohibited. Use of off-road vehicles in violation of any applicable noise emission standard established by any Federal or State agency is prohibited. This would include things such as off-highway vehicles (OHVs) and other vehicles with federal noise limits.

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 3.12-2**.

Table 3.12-2. State Land Use Compatibility Standards for Community Noise Environment

Land Use Category	Community Noise Exposure - L_{dn} or CNEL (dB)						
	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							

Normally Acceptable:	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable:	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.
	Normally Unacceptable:	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.
	Clearly Unacceptable:	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 (see Table 3.12-2). However, these plans would not be applicable to activities conducted by federal agencies on federal lands; therefore, no discussion of local general plans is included here.

3.12.5 Environmental Setting

Existing Noise Environment

Activities associated with the Proposed Project could occur on BLM and USFS managed lands throughout the Central Valley Region, primarily in rural 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 areas where Proposed Project activities may occur is expected to be relatively low. Potential noise sources would include operation of off-road equipment and vehicle traffic along local roads and highways. Multiple interstates, highways, and railroads pass through or near BLM and USFS managed lands in the region. Some BLM and USFS managed lands abut populated areas and major noise sources such as airports, railroads, mining, and industrial operations.

Sensitive Receptors

As noted above, activities associated with the Proposed Project would mostly occur in rural environments. As a result, sensitive receptors are likely to be relatively few and far between in these areas. However, in many locations, single-family homes, campsites, and educational centers are present within USFS and BLM managed lands. Additionally, there are situations where parks, recreational trails, schools, hospitals, or other sensitive land uses are located nearby USFS and BLM managed lands where management measures may take place.

3.12.6 Impact Analysis

This section describes the methodology and significance criteria that were used to analyze impacts of the Proposed Project related to noise and vibration. It also presents the analysis of the potential environmental impacts of the Proposed Project.

Methodology

As the proposed Federal NPS Permit would not specify or prescribe a specific manner of compliance, and it is unknown where specific BLM and USFS activities subject to permit compliance will occur in the future. Accordingly, it was not possible to perform a detailed quantitative analysis of the potential impacts of the Proposed Project related to noise and vibration. Instead, a general quantitative assessment of the equipment types most likely to be associated with implementation of management measures 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 implementation of management measures, the existing noise conditions throughout the Proposed Project area, and the additional noise that reasonably could occur due to management measures and monitoring 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 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)*

Implementation of certain management measures (e.g., creating vehicle access barriers, placing rock armoring, repairing roads, spreading mulch or straw to cover bare soil, etc.) pursuant to the Proposed Project would require the use of noise-generating equipment, such as excavators, bulldozers, grinders, chainsaws, dump trucks, loaders, etc. **Table 3.12-3** lists these types of equipment and their associated noise levels. Using the two loudest pieces of equipment from Table 3.12-3 and assuming they are operating in close proximity to each other at the same time, **Table 3.12-4** lists the combined estimated noise levels at various distances from receptors.

Table 3.12-3. Typical Construction Equipment Associated with Reasonably Foreseeable Management Practices

Equipment Type	Noise Level at 50 Feet (dBA)
Backhoe	80
Bulldozer	85
Cement Mixer	85
Chainsaw	85
Chipper	85
Crusher/Rock Crusher	87
Dump trucks	84
Excavator	85
Feller/Feller Buncher	80
Grader	85
Loaders	80
Masticator	81
Paver	85
Pumps	81
Ripper	85
Roller	85
Scrapers	85
Skidder	84
Tractor	84
Truck	84

Source: FTA 2018, FHWA 2017, Seixas et al. 1999

Table 3.12-4. Estimated Noise Levels at Various Distances

Distance to Receptor (feet)	Noise Level (dBA)
50	89.1
100	83.1
200	77.1
400	71.1
500	69.1
1,000	63.1

Distance to Receptor (feet)	Noise Level (dBA)
1,500	59.6
2,000	57.1
2,500	55.1
3,000	53.6

Note: Noise levels in this table are based on the combined noise from the two loudest noise sources in Table 3.12-3: a rock crusher with a reference noise level of 87 dBA at 50 feet and several equipment with a noise level of 85 dB at 50 feet.

As shown in Table 3.12-3 and Table 3.12-4, equipment used for certain management measures could be quite loud, although noise would dissipate at greater distances from the activities. The precise locations where these measures will be implemented is not known. As discussed in Section 3.12-5, sensitive receptors (e.g., single-family homes, campsites, and educational centers) could be located within or adjacent to USFS and BLM managed lands where implementation of management measures is taking place. As such, these receptors could potentially be subjected to elevated noise levels due to the implementation of management measures. The severity of this impact would depend on the specific locations of management measures and their relation to nearby existing land uses, which cannot be known at this time. Even at close distances (e.g., 50 feet), however, the noise generated by equipment used for installation of management measures would not exceed the daytime construction noise thresholds contained in the FTA guidelines, which are 90 dBA L_{eq} and 100 dBA L_{eq} for residential and commercial/industrial areas, respectively (FTA 2018).

Local plans and ordinances would not be applicable to work conducted by federal agencies on federal lands. Additionally, as discussed in Section 3.12.4, the USFS has noise prohibitions stating that causing public inconvenience, annoyance, or alarm by making unreasonably loud noises is prohibited. Use of off-road vehicles in violation of any applicable noise emission standard established by any Federal or State agency is prohibited. This would include things such as OHVs and other vehicles with federal noise limits.

Due to the fact that noise from management measure implementation at a given site would (1) be temporary and infrequent; (2) occur on USFS or BLM managed lands typically in rural/sparsely populated areas; and (3) need to comply with federal laws and regulations, this impact would be **less than significant.**

Impact NOI-2: Generation of excessive ground-borne vibration or ground-borne noise levels. *(Less than Significant)*

Earthmoving equipment (e.g., rollers, bulldozers, dump trucks, etc.) used for implementing certain management measures 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 Valley Region. Management measures for the Proposed Project are 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 measures 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 rural, sparsely populated areas largely separated from sensitive land uses. If management measures 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 activities would be sufficient to damage any buildings or structures, regardless of their proximity. As actions performed by federal agencies on federal lands, management measures would be exempt from local noise regulations.

Given that any potential ground-borne vibration or noise impacts from management measures would be temporary in nature and largely take place in rural, sparsely populated areas, 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 Valley Region, and some are on, close, or adjacent, to BLM or USFS managed lands (see Figure 3.9-1 in Section 3.9, “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.

Management measures may be implemented within 2 miles of an airstrip or airport, but at any specific location these activities would be infrequent and temporary and would not generate any new permanent sources of noise. Therefore, this impact would be **less than significant**.

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3.13 Public Services

3.13.1 Introduction

This chapter describes the setting and potential impacts on public services, specifically fire protection services[1], from the Proposed Project on USFS and BLM managed lands within the Central Valley Water Board's jurisdictional area (Central Valley Region). This chapter also summarizes regulations and policies related to fire protection services and evaluates the potential impacts of the Proposed Project on fire protection services.

3.13.2 Regulatory Setting

Federal Laws, Regulations, Policies, or Programs

Refer to Section 3.17, "Wildfire," for discussion of federal laws, regulations, policies, and programs related to wildfire management and suppression activities and the Proposed Project.

State Laws, Regulations, Policies, or Programs

California Master Cooperative Wildland Fire Management and Stafford Act Response Agreement

The 2018-2023 California Cooperative Wildland Fire Management and Stafford Act Response Agreement (CFMA) provides for the coordination and exchange of personnel, equipment, supplies, services, information and funds by and between the participating agencies, which are as follows:

- CAL FIRE
- USFS
- National Park Service
- USFWS
- Bureau of Indian Affairs
- BLM

The CFMA acknowledges that lands for which the state and federal agencies are responsible for wildland fire protection are intermingled and/or adjacent in some areas, and wildland fires on these lands may present a threat to the lands of the other. Thus, it is to the mutual advantage of

[1] As discussed in Section 3.15.4, the Proposed Project was determined to have no potential to substantially affect police protection services, schools, parks, or any other types of public services (besides fire protection services). Therefore, these topics were scoped out from detailed consideration in the EIR and are, therefore, not discussed in the chapter.

the agencies to the CFMA to coordinate efforts in the investigation, prevention, detection and response to wildland fire, and projects related to fuels management including prescribed fire in and adjacent to their areas of responsibility (BLM et al. No Date).

The CFMA states that the California Wildland Fire Coordinating Group (CWCG) shall provide coordination and recommendations for all interagency wildland fire management activities in California. The agencies to the CFMA also agree to adopt the "Closest Forces Concept" for initial attack, meaning that the closest available appropriate resources, regardless of jurisdictional responsibility, shall be utilized (BLM et al. No Date).

Local Laws, Plans, Policies, and Regulations

The Proposed Project would take place on federal lands, which are not subject to local laws, plans, policies and regulations. Nevertheless, there are 38 counties within the Central Valley Region, each with local county general plans, or long-range comprehensive plans, developed to govern growth and development within their local jurisdiction. Applicable policies and strategies from these general plans may generally include requirements to ensure adequate public services are available. Although these plans would not apply to federal lands, there could be policies or goals that discuss joint efforts to provide public services, such as fire protection on federal lands.

3.13.3 Environmental Setting

Fire Protection and Emergency Services

The Proposed Project would take place on USFS and BLM lands within the Central Valley Region, which are considered Federal Responsibility Area (FRA) lands (i.e., lands that are federally owned and for which Federal Agencies are responsible for wildland fire protection) (BLM et al. No Date).

United States Forest Service

The USFS has more than 10,000 professional firefighters that respond to thousands of wildfires each year on National Forest System land, as well as on land under the jurisdiction of other Federal, tribal, state, and local agencies (USFS 2021a). These include the following types of crews (USFS 2021a):

- Handcrews – These teams construct firelines around wildfires to control them, burn out fire areas, and mop up after fires. These teams can range from as few as 7 to 20 individuals.

- Hotshots – These are highly skilled 20 person team handcrews that are typically assigned to work on the most challenging parts of wildfires. They are known to be the most efficient with established handline rates that exceed other teams.

- Engine crews – These teams of two to five firefighters per engine work with specialized wildland fire engines that carry special equipment to spray water and foam. Engines often form strike teams which consist of five engines (10 to 25 crew members).

- Smokejumpers – These highly trained, experienced firefighters parachute from airplanes to provide quick initial attack on wildland fires in remote areas. USFS has about 320 smokejumpers that work from seven bases located in the following areas (USFS 2021b): Grangeville, Idaho; McCall, Idaho; Missoula, Montana; Redding, California; Redmond, Oregon; West Yellowstone, Montana; and Winthrop, Washington.

- *Helitack crews* – These firefighters are transported by helicopters to wildfires and may land near them or, if equipped and trained, may rappel from a hovering helicopter. Four of the USFS helitack crews are also trained and equipped to perform Emergency Medical Short-haul, which is used to remove a critically injured party out of an area and transport them to definitive medical care (USFS 2021c).

USFS firefighting crews use a variety of equipment, including several different types of fire engines (generally, Type 3; however Type 4, 5, 6, and 7s are used when more specialized equipment is needed), water tenders, 10-person crew carriers, superintendent vehicles, and optional utility vehicles (USFS 2021d, 2021e).

Bureau of Land Management

The BLM has 11 interagency hotshot crews stationed in Alaska, California, Colorado, Idaho, Mississippi, Nevada, Oregon, and Utah (National Interagency Fire Center [NIFC] 2021a). A hotshot crew consists of 20 specially-trained firefighters. They provide an organized, mobile, and skilled workforce for all phases of wildland fire management (NIFC 2021a). BLM also employs Veterans crews, which are hand crews specifically comprised of all military veterans.

The BLM Office of Fire and Aviation is responsible for aircraft operation support for wildfire and resource management missions within BLM. Aircraft are BLM-owned, contracted and/or obtained as Call-When-Needed or Aircraft Rental Agreement to fill the mission requirements to meet BLM management objectives (NIFC 2021b). Types of aircraft include helicopters, Single Engine Air Tankers (SEATS), air tactical aircraft, utility aircraft, Aerial Supervision Modules (ASM1), heavy air tankers smokejumper aircraft and large transport aircraft (NIFC 2021b).

3.13.4 Impact Analysis

Methodology

Potential impacts on public services were evaluated qualitatively by considering aspects of the Proposed Project in light of the CEQA Guidelines Appendix G significance criteria (see below) and the existing regulatory and environmental settings.

Significance Criteria

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on public services if it would:

A. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental

impacts, in order to maintain acceptable service ratios, response times or other performance objectives for:

i. Fire protection

ii. Police protection

iii. Schools

iv. Parks

v. Other public facilities

The Proposed Project has been determined to have no potential to significantly adversely affect police protection, schools, parks, or other public facilities (significance criteria "A, ii-v"), as described further in Appendix C. Therefore, these topics/criteria have been eliminated from detailed analysis in the EIR and are not discussed further in this section.

Environmental Impacts of the Proposed Project

Impact PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for:

i. Fire protection *(Less that Significant)*

The purpose of the Proposed Project is to ensure implementation of appropriate management measures for water quality protection during covered activities (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities) by USFS and BLM. This analysis focuses on whether the implementation of these management measures would require the need for additional public service facilities with relation to fire protection.

Relevant activities for which management measures would be required under the Proposed Project include various vegetative management activities (e.g., prescribed burns) that may serve to reduce fuel loads on the federal lands, as well as post-emergency recovery activities, such as rehabilitation of fire and suppression damage and reforestation. As described in Section 2.6.4 in Chapter 2, *Project Description,* common management measures that may be implemented related to covered activities associated with wildland fire management/fire protection include seeding disturbed bare soil, adding straw mulch for ground cover, installing water bars on fire lines, slash packing fire lines, repairing or replacing damaged or at-risk infrastructure such as culverts and watercourse crossings, etc.

Generally, all of these measures would be implemented either before (e.g., minimizing the effects of vegetation management activities) or after a wildfire and thus would not interfere with active fire suppression/protection operations. While management measures exist to

protect soil, water quality, and riparian resources during wildfire suppression activities, these must not compromise public or firefighter safety. As described in Section 2.6.4, the most common strategy used for resource protection during wildland fire suppression is the implementation of MIST, which utilizes the minimum amount of forces necessary to effectively achieve the wildfire suppression objectives. Examples include using water as a fire line instead of handline or dozer line construction, or the use of rubber wheeled vehicles instead of tracked equipment or letting the fire burn to natural fire breaks. While MIST may be implemented, which could potentially change the tactics of fire protection forces on a given wildfire, it would not affect fire protection agencies' ability or effectiveness in protecting life and property.

In addition to the management measures that may be implemented to reduce the water quality effects of wildfire suppression and other covered activities, the Proposed Project would require monitoring of management measures and potential discharge incidents. Again, these activities would not be conducted during active wildfire suppression operations, and thus would not take away resources from fire protection objectives. Like the management measures, it is expected that monitoring activities would be performed by USFS and BLM field staff and not firefighters or other fire protection personnel. Further, it is anticipated that existing USFS and BLM staffing levels would be adequate to implement the Proposed Project – or, if not, a relatively minor number of new staff would need to be added. As such, neither implementation of the Proposed Project's management measures nor monitoring requirements would require a significant increase in personnel or facilities from the existing fire protections services.

As described in Section 3.17, "Wildfire," certain reasonably foreseeable management measures under the Proposed Project could add "fuel" (i.e., combustible vegetated or woody material) to the landscape. For example, slash packing a skid trail or fire line, adding woody material to disturbed soil or existing areas of erosion, and adding straw mulch for ground cover could all add some amount of combustible material to the treatment area. However, in the context of the vast National Forests and BLM-managed lands, any additional fuel created through implementation of reasonably foreseeable management practices would be marginal. Additionally, often, the areas being treated would be post-wildfire landscapes, and thus these areas would already be largely devoid of flammable material (due to the recent burn), thereby minimizing the risk of re-ignition. Thus, there would be no potential for implementation of management practices to substantially increase fuel materials, such as to substantially increase the risk, frequency or severity of wildfires, potentially resulting in the need for additional fire protection facilities.

Construction/installation of certain management measures associated with the Proposed Project (e.g., those involving operation of combustion-engine equipment) also could potentially increase the risk of ignition of a wildfire. Management measures such as water bars, rolling dips, slash packing, rock armor, straw wattles, etc. all may require combustion-engine equipment to construct or install. Particularly when implemented in dry, vegetated areas, this could increase the risk of wildfire. As described in Section 3.9, "Hazards and Hazardous Materials," however, any additional fire risk associated with management measure construction/installation would be incremental (and relatively minor) compared to the ongoing risk posed by the covered activities. The ongoing activities (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration), which are part of the baseline and not the subject of the impact analysis, involve much greater levels of internal combustion engine equipment use, with its attendant fire risks. While the USFS and BLM, as

federal entities, may not be required to follow California PRC requirements related to wildland fire safety, adherence to industry-standard levels of care should ensure that any ignition risk is minimized.

Furthermore, the Proposed Project would streamline the permitting process for wildfire hazard reduction activities (e.g., controlled burning, hazard tree removal, etc.) conducted by USFS/BLM, which could lead to more/better fuel reduction activities by the federal agencies. Independent from the Proposed Project, USFS and BLM have pledged to increase fuel reduction efforts through California's Wildfire and Forest Resilience Action Plan (State of California 2021); however, to the extent that the Proposed Project could lead to more efficient permitting of these activities, it would be beneficial for wildfire hazard in the Central Valley Region over the long term. This includes lowering the risk of unplanned large-scale wildfires. Unplanned large-scale wildfires require substantial fire protection services, including outsourcing services from other public fire protection service providers; therefore, reducing this threat is a benefit and has a positive impact on public services with regards to fire protection.

Therefore, the Proposed Project would not require or result in the need for additional public services with respect to fire protection; therefore impacts would be **less than significant**.

3.14 Transportation

3.14.1 Introduction

This section evaluates the Proposed Project's potential transportation-related impacts. The section first describes the transportation regulatory setting, which identifies federal, state, and local laws, regulations, and policies applicable to transportation. The environmental setting describes the location of the Proposed Project and relevant transportation-related features within the Central Valley Water Board's jurisdiction. Finally, the Proposed Project's potential transportation impacts are evaluated. The impact evaluation begins by describing the significance criteria and the methods used to evaluate significance, and then presents the impact evaluation.

3.14.2 Regulatory Setting

Federal Laws, Regulations, Policies, or Programs

Federal Highway Administration

FHWA, an agency of the U.S. Department of Transportation, provides stewardship over the construction and preservation of the nation's highways, bridges, and tunnels (FHWA 2021a). FHWA also supports State and local governments in the design, construction, and maintenance of the nation's highway system (Federal Aid Highway Program) and various federal- and tribal-owned lands (Federal Lands Highway Program) (FHWA 2021b).

Forest Service Rules, Regulations, and Policies

Transportation Management Rule

In 2005, the USFS developed a roads management strategy when the Travel Management Rule (36 CFR part 212) was published. The USFS's goal is to identify a transportation system that is environmentally and financially sustainable while meeting public needs (USFS 2022). Under the Travel Management Rule, each unit of the National Forest System (NFS) is required to identify the minimum road system (MRS) needed for safe and efficient travel and for administration, utilization, and protection of NFS lands. In determining the MRS, the NFS unit must incorporate a science-based roads analysis at the appropriate scale to identify NFS roads that are no longer needed to meet forest resource management objectives.

Long-Range Transportation Plan

The Volpe Center of the U.S. Department of Transportation is developing a National Long-Range Transportation Plan (LRTP) for the USFS. The LRTP provides a guiding vision and set of goals and objectives for the USFS transportation program (U.S. Department of Transportation 2021). At the time of writing this DEIR, the final National LRTP has not been completed, although an LRTP has been developed for the USFS Alaska Region.

Forest Service Specifications for Construction of Roads & Bridges

The USFS implements the Forest Service Specifications for Construction of Roads & Bridges (EM-7720-100) (USFS 1996), which include specifications for all aspects of road construction and improvement. Section 104 of the Specifications includes guidance regarding maintenance of roadways for traffic during improvements, including the following (USFS 1996):

> Unless otherwise shown on the drawings or described in the special project specifications, keep existing roads open to all traffic during road improvement work, and maintain them in a condition that will adequately accommodate traffic. Perform no work that interferes or conflicts with traffic or existing access to the roadway surface until a plan for the satisfactory handling of traffic has been approved… Post construction signs and traffic control devices in conformance with the "Manual on Uniform Traffic Control Devices" (MUTCD). Do not proceed with work on the project until all required signs are in place and approved.

Bureau of Land Management Rules, Regulations, and Policies

Comprehensive Travel and Transportation Management Program

The BLM manages its extensive road network through its Comprehensive Travel and Transportation Management (CTTM) program, which aims to provide reasonable and varied transportation routes for access to the public lands, and also provide areas for a wide variety of both motorized and non-motorized recreational activities (BLM 2022). TTM plans are completed on a five-year cycle. The BLM has identified the following goals for TTM plans (BLM 2018):

- Establish a long-term, sustainable, multimodal transportation system for public, commercial, and administrative access to and across BLM lands.
- Support the agency's mission and planning goals, including resource management.
- Manage transportation on BLM lands in accordance with laws, regulations, and policies.
- Work collaboratively with federal land management agencies and state and local transportation agencies, gateway communities, and special interest groups to plan for connected transportation systems.

State Laws, Regulations, Policies, or Programs

California Department of Transportation

The California Department of Transportation (Caltrans) manages the state highway system and ramp interchange intersections. Caltrans is also responsible for highway, bridge, and rail transportation planning, construction, and maintenance. Caltrans requires transportation permits for the movement of vehicles or loads exceeding the limitations on the size and weight contained in Division 15, Chapter 5, Article 1, Section 35551, of the California Vehicle Code.

The California Transportation Plan 2050 (Caltrans 2021) identifies eight transportation priorities and provides recommendations for accomplishing objectives under each priority, including the following:

ENVIRONMENT: Enhance environmental health and reduce negative transportation impacts

2. **Protect and enhance California's natural resources and ecosystems.** Through thoughtful planning and implementing context-sensitive design, California's multimodal transportation system can incorporate materials, technologies, and design features that protect and enhance natural resources and ecosystems.

Legislation and Guidance Documents Applicable to Vehicle Miles Traveled Impact Analysis

The State of California has enacted several pieces of legislation that outline the state's commitment to encourage land use and transportation planning decisions and investments that reduce vehicle miles traveled (VMT) and contribute to reductions in GHG emissions in line with state climate goals. Legislation that is potentially applicable to the VMT impact analysis for the Proposed Project is described below.

Assembly Bill 32

AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also requires that: (a) the statewide GHG emissions limit shall remain in effect unless otherwise amended or repealed; (b) the statewide GHG emissions limit continues in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020; (c) CARB shall make recommendations to the Governor and the Legislature on how to continue reductions of GHG emissions beyond 2020.

Senate Bill 375

SB 375 requires metropolitan planning organizations (MPOs) to prepare a sustainable communities strategy (SCS) as part of their regional transportation plans (RTPs). The SCS demonstrates how the region will meet its GHG reduction targets through integrated land use, housing, and transportation planning. Specifically, the SCS must identify a transportation network that is integrated with the forecasted development pattern for the plan area and will reduce GHG emissions from automobiles and light trucks in accordance with targets set by CARB.

In 2017, the California State Legislature passed SB 150, which requires CARB to prepare a report beginning in 2018 and every 4 years thereafter analyzing the progress made by each MPO in meeting regional GHG emission reduction targets.

Senate Bill 743

SB 743 mandated several statewide changes to the evaluation of transportation and traffic impacts under CEQA. It directed the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allowed OPR to extend use of the new metrics beyond TPAs. In the amended CEQA Guidelines, OPR selected VMT as the preferred transportation impact metric and applied their discretion to recommend its use statewide. The California Natural Resources Agency certified and adopted the amended CEQA Guidelines in December 2018.

The amended CEQA Guidelines contain the following relevant expectations for VMT impact analysis.

- Generally, VMT is the most appropriate measure of transportation impacts.
- Projects that decrease VMT in the project area compared to existing conditions should be presumed to have a less-than-significant transportation impact.
- A lead agency has discretion to choose the most appropriate methodology to evaluate a project's VMT, including whether to express the change in absolute terms, per capita, per household, or in any other measure.

SB 743 also added Section 21099 to the Public Resources Code, which states that automobile delay, as described by level of service (LOS) or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment upon certification of the CEQA Guidelines by the California Natural Resources Agency. Since the amended CEQA Guidelines were certified in December 2018, LOS or similar measures of vehicular capacity and traffic congestion are not considered a significant impact on the environment.

To aid in SB 743 implementation, OPR released a Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory) (OPR 2018). The Technical Advisory provides advice and recommendations to lead agencies on how to implement SB 743 changes. This includes technical recommendations regarding the assessment of VMT, thresholds of significance, VMT mitigation measures, and screening thresholds for certain land use projects. Lead agencies may consider and use these recommendations at their discretion.

The Technical Advisory contains the following recommendation related to assessing VMT impacts.

> **Screening Threshold for Small Projects:** Many local agencies have developed screening thresholds to indicate when detailed analysis is needed. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a SCS or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.
>
> **RTP/SCS Consistency (All Land Use Projects):** Section 15125, subdivision (d), of the CEQA Guidelines provides that lead agencies should analyze impacts resulting from inconsistencies with regional plans, including RTPs. For this reason, if a project is inconsistent with the RTP/SCS, the lead agency should evaluate whether that inconsistency indicates a significant impact on transportation. For example, a development may be inconsistent with an RTP/SCS if the development is outside the footprint of development or within an area specified as open space as shown in the SCS.

Caltrans Vehicle Miles Traveled – Focused Transportation Impact Study Guide

The Caltrans Vehicle Miles Traveled – Focused Transportation Impact Study Guide (TISG) (Caltrans 2020a) was prepared to provide guidance to Caltrans districts, lead agencies, tribal governments, developers, and consultants regarding Caltrans' review of VMT impact analysis for

land use projects and land use plans. Caltrans seeks to reduce single occupancy vehicle trips, provide a safe transportation system, reduce per capita VMT, increase accessibility to destinations via cycling, walking, carpooling, and transit, and reduce GHG emissions. The TISG notes that, for land use projects and plans, automobile delay is no longer considered a significant impact on the environment under CEQA. Caltrans' primary review focus for a land use project's transportation impact is now VMT. The TISG generally endorses the OPR Technical Advisory, including the thresholds in that document. Caltrans may review VMT thresholds, methodology, and mitigations.

Local Laws, Plans, Policies, and Regulations

In general, city and county general plans contain circulation elements that include goals and policies related to transportation. As discussed above, MPOs are required to prepare RTPs. Many jurisdictions and regional transportation agencies also produce congestion management plans. The standards set by local plans are highly variable with respect to acceptable traffic conditions. Conditions that are considered acceptable in a dense urban environment may not be acceptable in a rural environment.

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans.

3.14.3 Environmental Setting

The Proposed Project would be implemented throughout USFS and BLM managed lands within the Central Valley Region. Existing transportation conditions within the Central Valley Region vary on a regional, local, and (in many cases) site-specific basis. In general, areas that experience high levels of traffic are major metropolitan areas where population and commercial centers are located, such as the Sacramento, Stockton, Fresno, and Bakersfield areas; however, these areas would not be included within the Proposed Project area. Portions of the heavily forested Sierra Nevada, its foothills, the arid southern Central Valley, the Cascades, the Coast Range, and the Modoc Plateau (i.e., where BLM and USFS managed lands are generally located) are more sparsely populated and, therefore, have fewer ongoing traffic issues. However, these areas may also be more prone to disruptions of the transportation network because topographic and geographic barriers limit the availability and capacity of available travel routes.

A total of 1,270.61 miles of federal and state highways cross USFS and BLM managed lands within the Central Valley Region (**Table 3.14-1**). The largest amounts of highway miles are found in Shasta County (approximately 204 miles), Kern County (approximately 120 miles), and Fresno County (approximately 106 miles). **Figure 3.14-1** shows federal and state highways within the Central Valley Region in relation to the federal lands.

Table 3.14-1. Federal and State Highways in Central Valley Water Board Jurisdiction that Cross[1] United States Forest Service and Bureau of Land Management Lands by County

County	Routes	Total by County (miles)
Alpine	SR 88, SR 207	66.85
Amador	SR 26	6.18
Butte	SR 32, SR 162	4.18
Calaveras	SR 4	74.35
Colusa	SR 16, SR 20	23.60
El Dorado	SR 193, US 50	51.42
Fresno	SR 168, SR 180, SR 198, SR 245	105.97
Kern	SR 33, SR 65, SR 119, SR 155, SR 166, SR 178	119.75
Kings	SR 41, SR 269, I-5	1.81
Lake	SR 175	1.15
Lassen	SR 36, 139	37.16
Madera	SR 41	20.35
Mariposa	SR 49, SR 120, SR 132, SR 140	94.01
Modoc	SR 139, SR 299, US 395	90.73
Nevada	SR 20, I-80	35.46
Placer	SR 174, I-80	2.30
Plumas	SR 70, SR 147, SR 284	86.47
San Luis Obispo	SR 58	2.04
Shasta	SR 36, SR 44, SR 89, SR 151, I-5	203.69
Sierra	SR 49	79.53
Tehama	SR 32, SR 172	38.53
Tulare	SR 190	34.50
Tuolumne	SR 108, SR 120	90.57
Total		1,270.61

Notes: I = Interstate; SR = State Route; US = U.S. Highway

1. GIS analysis conducted for any highway route that intersected USFS and/or BLM managed lands.

Source: Caltrans 2020b

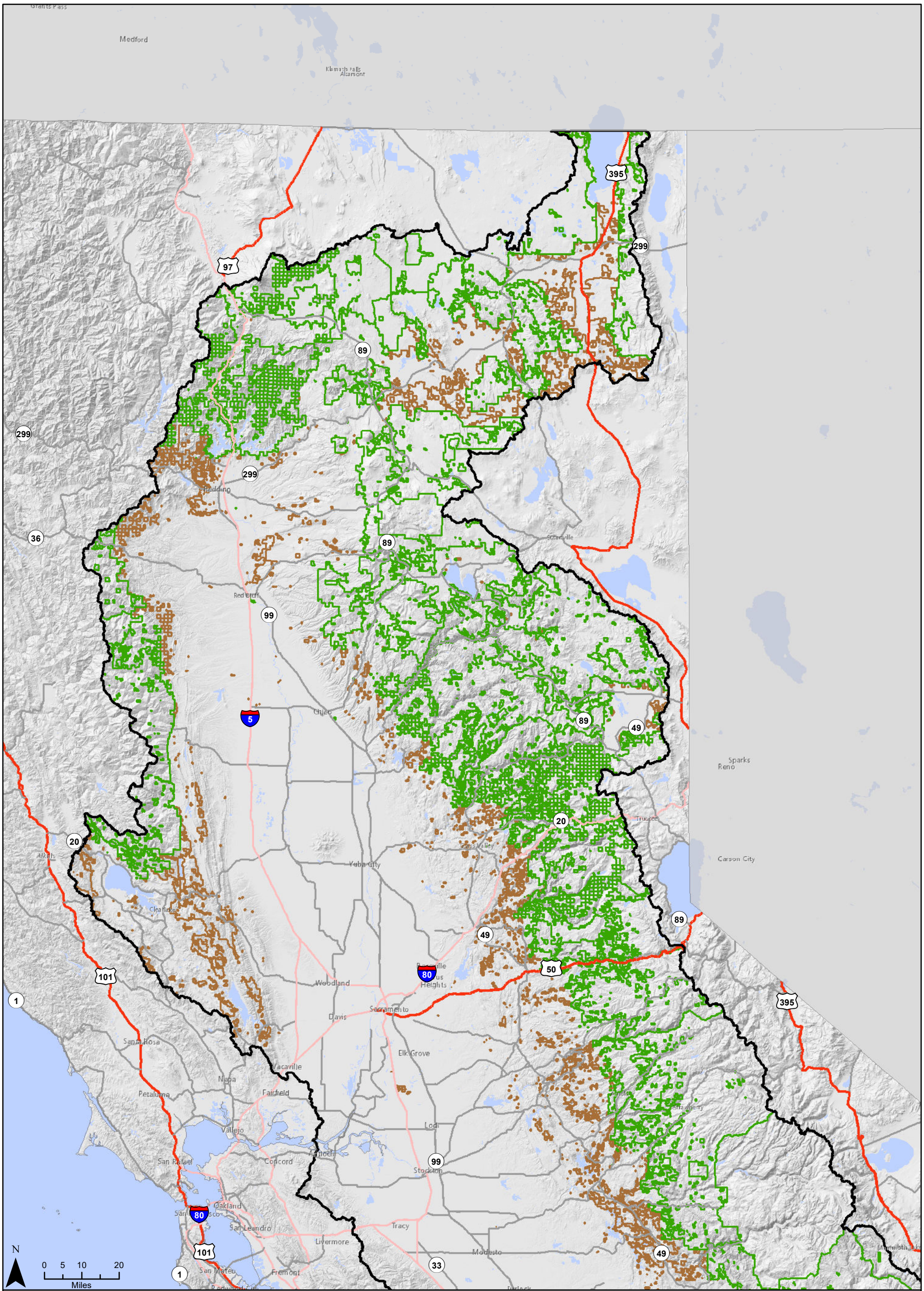


Figure 3.14-1
Transportation Network

Sheet 1 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, Caltrans 2020

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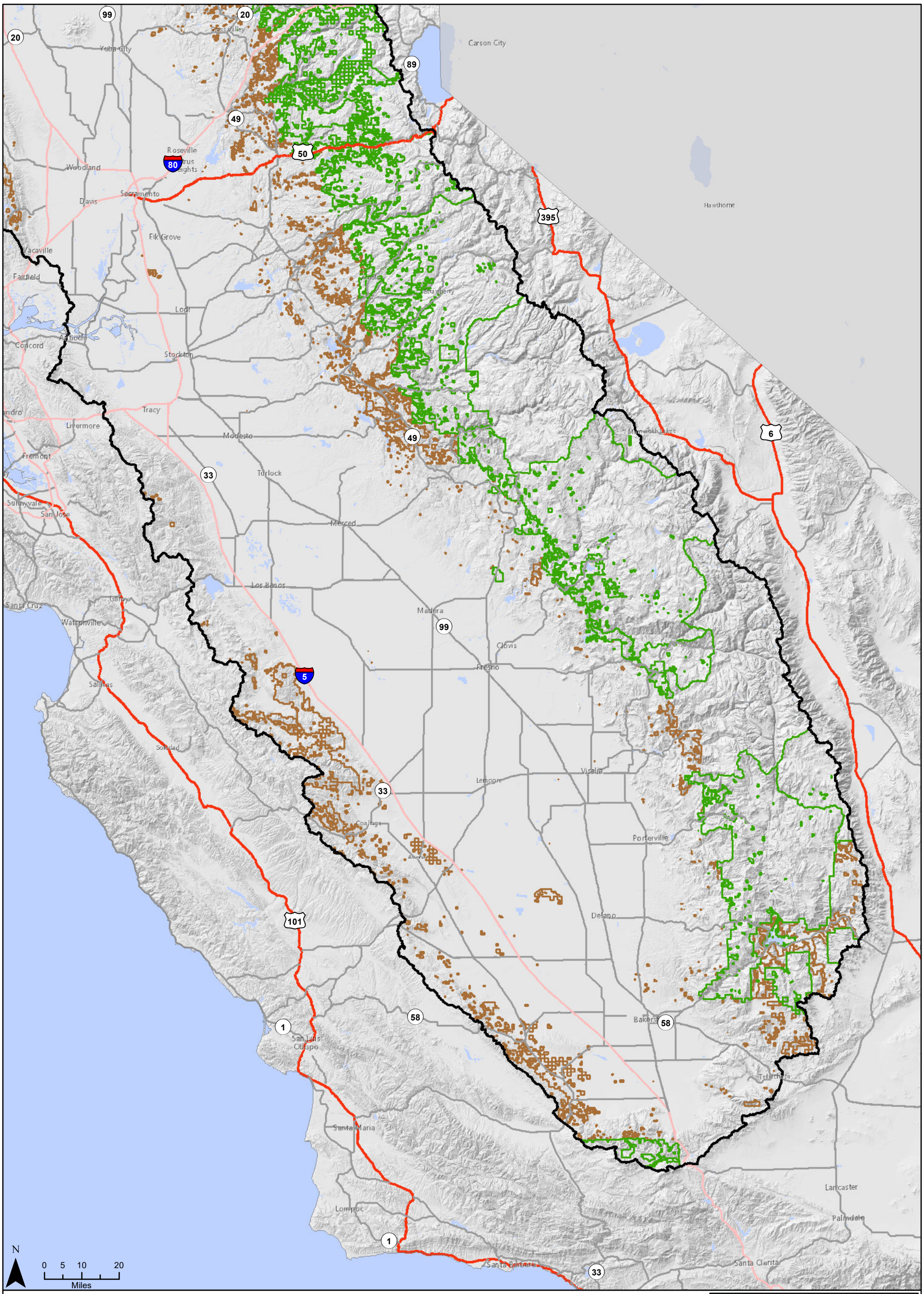


Figure 3.14-1
Transportation Network

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Source: ESRI 2018, Caltrans 2020

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3.14.4 Impact Analysis

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

Methodology

Traffic impacts that would result from the Proposed Project were identified by evaluating Proposed Project activities in the context of regional circulation patterns, impacts on existing roadway configurations, and relevance to standard traffic control plan requirements and strategies. The criteria for determining the significance of potential impacts are outlined below.

Because the specific locations where implementation of management measures and monitoring pursuant to the Proposed Project would take place are unknown, it is not possible to determine impacts at specific sites. Potential impacts are instead discussed generally, based on implementation of the reasonably foreseeable management measures. As described in Section 2.6 of Chapter 2, *Project Description*, the scope of the environmental analysis in this DEIR does not include the effects of the covered activities themselves. Rather, the focus is on the potential impacts from implementing reasonably foreseeable management measures that may be required by the proposed Federal NPS Permit (especially those measures involving ground disturbance), as well as the potential effects from monitoring activities (e.g., emissions from traveling to monitoring sites, etc.).

Significance Criteria

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on transportation if it would:

A. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;

B. Conflict or be inconsistent with CEQA Guidelines section 15604.3, subdivision (b);

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

D. Result in inadequate emergency access.

Environmental Impacts of the Proposed Project

Impact TR-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. *(Less than Significant)*

The USFS and BLM manage extensive road and trail networks serving multiple uses across federal lands. As described in Chapter 2, *Project Description,* all phases of road and trail management – including construction, road and trail use, maintenance, reconstruction, upgrades, and decommissioning – can lead to erosion and sediment-related NPS pollution, as well as impacts on stream morphology (i.e., bed, bank, channel). Roads and trails can cause

disruptions in hillslope drainage patterns, slope instability, and soil erosion. These impacts are on-going under existing conditions and are meant to be ameliorated through implementation of the Proposed Project.

As described in Section 3.14.2 above, the lands managed by USFS and BLM are not subject to local land use laws or regulations, including the circulation elements of any city or county general plans, transportation plans or programs of a regional transportation agency, or related local or regional plans. The transportation plans and programs of the federal agencies (USFS and BLM) are generally focused on identifying essential vs. non-essential roadways within the federal lands, managing the roadway systems for the multiple uses and transportation modes, and minimizing the impacts of travel on natural resources. Owing to the largely rural nature of the USFS and BLM managed lands within the Central Valley Region, the existing level/volume of traffic on most roadways within the USFS and BLM managed lands is generally low. Motorists may be passing through these areas on the various highways that cross federal lands (see Table 3.14-1) or may utilize the smaller paved and unpaved roads on the USFS and BLM managed lands.

Construction/installation of certain management measures under the Proposed Project would generate small numbers of vehicle trips in the short-term. In particular, the management measures involving ground-disturbance (e.g., water bars, rolling dips, drainage infrastructure, etc.) would require that equipment and materials be delivered to the site(s), and construction workers would need to commute to the site(s) during the construction/installation period. Many of the management measures would involve relatively small numbers of vehicle trips from USFS or BLM workers traveling to sites to implement the measures; although some measures that involve purely planning considerations (e.g., maintaining watercourse protection buffers and following application requirements for herbicide/pesticide use) would not directly generate any vehicle trips. The increasing monitoring requirements of the Proposed Project also would generate some increased vehicle trips relative to baseline, although in many cases it is anticipated that monitoring trips could be combined with other routine trips conducted by USFS and BLM staff and/or consolidated with other monitoring programs.

While some of the reasonably foreseeable management measures would change the character of existing roadways to some degree (e.g., water bars and rolling dips would change the surface or grade of roads in the immediate area), these changes would be modest and would not substantially affect any alternative modes of transportation or otherwise adversely affect circulation on the USFS and BLM roadways. Once constructed/installed, the management measures would not inhibit or substantially alter vehicle, bicyclist or pedestrian movement. Given that the federal lands are not subject to local or regional transportation plans, programs, or policies, there would be no potential for the Proposed Project to conflict with these types of plans, programs, or policies. The Proposed Project also would not conflict with any of the federal agencies' existing plans or policies. Therefore, the impact would be **less than significant.** No mitigation is required.

Impact TR-2: Conflict or be inconsistent with CEQA Guidelines Section 15604.3(b). *(Less than Significant)*

As described in Chapter 2, *Project Description,* the Proposed Project would result in construction/installation of a number of management measures for water quality protection,

many of which would directly or indirectly affect roadways (albeit largely over the short-term). For example, management measures commonly applied to transportation management system activities would include hydrologic disconnection (i.e., disconnecting road surface runoff from entering directly into watercourses or other surface waters), rock armoring the road fill below a road drainage feature, adding rock below a culvert outlet to dissipate concentrated flows to protect against scour, adding armor/hardened surface to the inlet or outlet of a culverted watercourse crossing, adding road surface material such as rock to native surface roads to protect against erosion and sediment transport, adding straw or other organic materials within or at the head cut of gullies and rills to minimize further migration and scour, removal of outside berms on road surfaces created by side cast materials from grading operations, and installing road drainage features (e.g., rolling dips, ditches, and leadoff ditches).

Many of these measures would result in impacts associated with transporting materials and equipment to the applicable site(s). The number of vehicle or truck trips associated with construction/installation of the management measures would depend on the type of management measure, the location of specific site(s), and the source location of the materials and equipment; this would vary on a case-by-case basis.

Approximately 8,106,400 acres of National Forest land are located within the Central Valley Region. Table 2-6 in Chapter 2 indicates that the amount of new high clearance and passenger car road construction each year is very small (0.367 and 0.147 mile per year, respectively). Improvement of high clearance and passenger car road is more common (137.18 and 63.64 miles per year, respectively). On average over the period 2015-2020, USFS completed maintenance on 1,526.79 miles of high clearance roads and 1,869.62 miles of passenger car roads.

Table 2-8 indicates that the number/extent of BLM capital improvements remained substantially unchanged during 2015-2020. The miles of roads and number of bridges on BLM-managed lands in California have both decreased slightly, while the number of recreation sites and miles of trails have increased slightly since 2015. Road repair projects in the Central Valley Region during that period consisted of fire emergency stabilization, rehabilitation, route realignment, bridge replacement, and culvert repair. Thus, transportation system management activities – particularly the higher impact (Category B) activities, road construction and improvement – undertaken by BLM are infrequent and limited in size. Again, this would translate to relatively infrequent and limited implementation of management measures for these activities (which are the focus of the environmental analysis).

The Technical Advisory recommends that, "[a]bsent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact." Although it would be speculative to provide detailed calculations, the size and nature of the reasonably foreseeable management measures under the Proposed Project make it unlikely that any individual activity site would experience more than 110 construction trips per day. Operational and maintenance trips would be limited to monitoring, which would be carried out by a small number of USFS, BLM, and/or Water Board staff on a periodic basis. Therefore, the impact of the Proposed Project related to VMT would be **less than significant**. No mitigation is required.

Impact TR-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). *(Less than Significant)*

Reasonably foreseeable management measures pursuant to the Proposed Project could adversely impact the circulation system through operation of heavy equipment and trucks on public roadways (thereby causing delays and potentially resulting in safety hazards) and temporary lane or road closures that may be necessary during construction. Construction truck traffic accessing work area sites may have adverse effects on traffic flow due to the slower travel speeds and larger turning radii of trucks. Movement of construction equipment within public roadways would similarly affect traffic, in particular in areas where it may be necessary to conduct work from road shoulders adjacent to roadways. In addition, temporary lane or road closures may be required for brief periods during construction. These closures could result in substantial delays and potential safety hazards for local motorists and pedestrians.

As described in Section 3.14.2, the USFS implements its Forest Service Specifications for Construction of Roads & Bridges (EM-7720-100) (USFS 1996), which include guidance for maintenance of roadways during traffic improvements. Specifically, these Specifications require that USFS "perform no work that interferes or conflicts with traffic or existing access to the roadway surface until a plan for the satisfactory handling of traffic has been approved" (USFS 1996). Further, the Specifications direct USFS to post construction signs and traffic control devices in conformance with the MUTCD. Both USFS and BLM regularly conduct roadway improvement work and have processes in place to evaluate and prevent/minimize impacts on a case-by-case basis. BLM posts information on its website regarding roads that are to be temporarily closed or limited to one way traffic. As such, given the measures and procedures that would be implemented during activities affecting roads on USFS/BLM lands, construction/installation activities under the Proposed Project would not result in substantial delays or pose a hazard to motorists. Monitoring activities under the Proposed Project (consisting primarily of vehicle trips to monitoring sites and visual observations) would not substantially affect roadways or create hazards.

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

Impact TR-4: Result in inadequate emergency access. *(Less than Significant)*

During construction/installation of certain reasonably foreseeable management measures, emergency access on nearby local roads could be restricted by the presence of slow-moving trucks on local roads and/or work occurring within the public right-of-way. However, as discussed in Impact TR-3, the federal agencies have procedures in place to minimize transportation impacts. At the least, this would include public posting regarding road or lane closures and may include preparation and implementation of a traffic control plan, based on case-by-case consideration/evaluation. Especially given the relatively minor nature of the activities attributable to the Proposed Project (i.e., water quality management measure construction/installation within or adjacent to roadways), as well as the rural and undeveloped nature of most USFS and BLM-managed lands, the potential impacts on emergency access would be less severe. Additionally, while construction activities could result in temporary lane or road closures, the activities would be temporary. Monitoring activities under the Proposed Project would have no potential to substantially affect emergency access. Overall, the impact would be **less than significant.**

3.15 Tribal Cultural Resources

3.15.1 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.

3.15.2 Regulatory Setting

Federal Laws, Regulations, and Policies

Federal law does not address TCRs, specifically, although Traditional Cultural Properties (TCPs) are a subset of historic properties that are addressed by Section 106 of the NHPA (see Section 3.5, "Cultural Resources"). TCPs are locations of cultural value that meet the eligibility criteria for historic properties pursuant to 36 CFR Section 60.4. A place of cultural value is eligible as a TCP "because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1990, rev. 1998). A TCP must be a tangible property, meaning that it must be a place with a referenced location, and it must have been continually a part of the community's cultural practices and beliefs for the past 50 years or more. Although many TCPs reflect Native American communities, these historic properties can reflect any viable community, such as a Hispanic neighborhood or Quaker village.

The federal government also has a number of laws and implementing regulations that pertain to Native American religious and cultural rights. In addition, the federal government has issued executive orders that (a) focus on consultation with Native American tribes to ensure that tribes have access to sacred sites on federal lands and that impacts to such sites shall be avoided (Executive Order 13007 – Indian Sacred Sites) for cultural and spiritual purposes, and (b) ensure that the federal government fosters a government to government relationship with tribes by consulting with Native American tribes on any action that could impact tribal interests (Executive Order 13175 - Consultation and Coordination with Indian Tribal Governments).

American Indian Religious Freedom Act

The American Indian Religious Freedom Act (AIRFA) of 1978 (42 USC 1996 and 1996a) affirms the right of Native Americans to have access to their sacred places. If a place of religious importance to American Indians may be affected by an undertaking, AIRFA promotes consultation with Indian religious practitioners (this may be done in coordination with Section 106 consultation). Amendments to Section 101 of the NHPA in 1992 strengthened the interface between AIRFA and NHPA by clarifying the following: (1) properties of traditional religious and cultural importance to an Indian Tribe or Native Hawaiian organization may be determined to be eligible for inclusion in the NRHP, and (2) in carrying out its responsibilities under Section 106, a Federal agency shall consult with any American Indian Tribe or Native Hawaiian organization that attaches religious and cultural significance to properties described under (1).

Native American Graves Protection and Repatriation Act Act

The Native American Graves Protection and Repatriation Act (NAGPRA), and the implementing regulations at 43 CFR Part 10, provides a process for museums and federal agencies to return certain Native American "cultural items" (i.e., human remains, funerary objects, sacred objects, and objects of cultural patrimony) to lineal descendants, culturally affiliated Native American tribes (i.e., tribes recognized by the Secretary of the Interior), and Native Hawaiian organizations, if the legitimate cultural affiliation of the cultural items can be determined according to the law. Museums, as defined under the statute, are required to inventory cultural items in their possession and determine which items can be repatriated to the appropriate party. Cultural items intentionally or unintentionally excavated and removed from federal lands may be subject to NAGPRA. Under the NAGPRA regulations, a federal agency must prepare, approve, and sign a Plan of Action if the agency intends to excavate or remove, or leave in place NAGPRA cultural items when these cultural items are exposed or are found already exposed, and does not wish for activity to halt.

Bureau of Land Management Policy Documents

In addition to the above listed laws, regulations, and executive orders that are applicable to all federal agencies, the BLM has worked directly with Native American tribes to develop a *Tribal Relations Manual* (BLM 2016a) and a *Tribal Relations Handbook* (BLM 2016b).

United States Forest Service Policy Documents

The USFS produced the Forest Service National Resource Guide to American Indian and Alaska Native Relations in 1997, after a Presidential Tribal Summit in 1994, with the intention to improve the implementation of the USFS' coordination and communication with tribes about ecosystem knowledge and traditional beliefs and practices, and emphasizing a government-to-government relationship. Many years later, in 2010, then-Secretary of Agriculture Thomas J. Vilsack directed the USDA's Office of Tribal Relations and the USDA's USFS "to engage in dialogue with American Indian and Alaska Native (AI/AN) Tribal leaders to find out how USDA can do a better job of accommodating and protecting AI/AN sacred sites while simultaneously pursuing the Forest Service's multiple-use mission. Secretary Vilsack requested information about unintended consequences of land management decisions affecting sacred sites and AI/AN communities whose cultural survival is often deeply rooted in these sites" (USDA 2012). This team effort between agency officials and tribal leaders resulted in the *USDA Office of Tribal Relations and Forest Service Policy and Procedures Review Indian Sacred Sites* (USDA 2012). The report demonstrated the commitment of the USDA, including the USFS, to protecting and accessing Native American sacred sites, and working toward a better understanding of Native American values. The results of the 2012 document ultimately resulted in an update USFS' manual for tribal relations in 2016 (USFS 2016), which details protocols for tribal consultation on a wide variety of issues, including sacred sites.

State Laws, Regulations, and Policies

Assembly Bill 52

AB 52 (Statutes of 2014, Chapter 532) 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 TCR 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.

Executive Order B-10-11

Executive Order B-10-11, which was published on September 19, 2011, preceded AB 52. This executive order expressed a commitment by the State of California to strengthen the government-to-government relationship between the State and California tribes. It also directed State agencies and departments to consult.

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.

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans.

3.15.3 Environmental Setting

Tribal History in California

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 3.5.3 of Section 3.5, "Cultural Resources," BLM and USFS managed lands currently under the jurisdiction of the Central Valley Water Board were occupied by at least 30 autonomous tribes prior to the arrival of colonists.

Native American Consultation Conducted for the Proposed Project

The State Water Board has a Tribal Liaison office that oversees tribal coordination throughout the state. Each RWQCB also has a regional tribal coordinator to help strengthen the government-to-government relationship between the tribes and the regional offices. The State Water Board's Tribal Liaison office maintains the list of tribes that have formally requested notification of projects pursuant to PRC Section 21080.3.1(b)(1). Eight tribes within the Proposed Project area have formally requested project notification. The Tribal Liaison office also coordinates with the Native American Heritage Commission (NAHC) to maintain a list of tribes and contacts in areas under the State Water Board's jurisdiction throughout the state. In addition to the eight tribes referenced above, through use of the Tribal Liaison office's state-wide list, the Central Valley Water Board identified another 49 tribes within the Proposed Project area.

The Central Valley Water Board conducted consultation with Native American tribes pursuant to PRC Section 21080.3.1, sending project notification letters to those eight tribes who formally requested notification. Letters, pursuant to Executive Order B-10-11, were also sent to the other 49 tribes that have ancestral lands within the Proposed Project area. Letters were sent via U.S. Postal Service to all tribes on May 21, 2020, providing a brief Project description and notification, and the opportunity for tribes to consult on the Project under PRC Section 21080.3.1 or Executive Order B-10-11, as appropriate. The letter was also emailed to all tribes with viable email addresses on the same day. A list of all tribes contacted, and the responses

received by the Central Valley Water Board from the tribes, is presented in **Table 3.15-1**. Tribal consultation materials, to date, are presented in Appendix E.

Table 3.15-1. Tribal Consultation

Tribe	AB 52 or B-10-11	Date Sent	Notes
Buena Vista Rancheria of Me-Wuk Indians	AB 52	5/21/2020	No response.
Middletown Rancheria	AB 52	5/21/2020	No response.
Pit River Tribe of California	AB 52	5/21/2020	No response.
Santa Rosa Rancheria Tachi Yokut Tribe	AB 52	5/21/2020	No response.
United Auburn Indian Community of the Auburn Rancheria	AB 52	5/21/2020	No response.
Wilton Rancheria	AB 52	5/21/2020	A letter was sent on 11/5/2021, offering to meet with the tribe, due to expressed interest in a similar project by the tribe. No response received.
Shasta Indian Nation	AB 52	5/21/2020	No response.
Winnemem Wintu Tribe	AB 52	5/21/2020	No response.
Alturas Rancheria of Pit River Indians (a.k.a Alturas Indian Rancheria)	B-10-11	5/21/2020	No response.
Berry Creek Rancheria of Maidu Indians	B-10-11	5/21/2020	No response.
Big Sandy Rancheria of Western Mono Indians	B-10-11	5/21/2020	No response.
Big Valley Band of Pomo Indians	B-10-11	5/21/2020	No response.
Cachil DeHe Band of Wintun Indian (a.k.a Colusa Indian Community)	B-10-11	5/21/2020	No response.
California Valley Miwok Tribe (a.k.a Sheep Rancheria of Me-Wuk Indians of CA)	B-10-11	5/21/2020	No response.
Chicken Ranch Rancheria of Me-Wuk Indians	B-10-11	5/21/2020	No response.
Cold Springs Rancheria	B-10-11	5/21/2020	No response.

Tribe	AB 52 or B-10-11	Date Sent	Notes
Cortina Rancheria - Kletsel Dehe Band of Wintun Indians	B-10-11	5/21/2020	No response.
Elem Indian Colony Pomo Tribe	B-10-11	5/21/2020	No response.
Estom Yumeka Maidu Tribe of the Enterprise Rancheria	B-10-11	5/21/2020	No response.
Greenville Rancheria	B-10-11	5/21/2020	No response.
Grindstone Indian Rancheria of Wintun-Wailaki	B-10-11	5/21/2020	No response.
Habematolel Pomo of Upper Lake	B-10-11	5/21/2020	No response.
Ione Band of Miwok Indians	B-10-11	5/21/2020	No response.
Jackson Rancheria Band of Me-Wuk Indians	B-10-11	5/21/2020	Consultation requested, via voicemail. Tribe primarily concerned with grazing, but interested in keeping in touch on the project. February 17, 2021 – CVWB sent email to touch base on the project, provide notification of the upcoming CEQA scoping meeting, and to offer to schedule a time for further discussion. The tribe responded, asking for a reminder of the project. CVWB responded with information and a link to the project webpage. No further response received. A follow up letter was sent on 11/5/2021, offering to meet with the tribe. No response received.
Mechoopda Indian Tribe	B-10-11	5/21/2020	No response.

Tribe	AB 52 or B-10-11	Date Sent	Notes
Mooretown Rancheria of Maidu Indians	B-10-11	5/21/2020	Consultation not requested; however, the tribe indicated the tribe would like to be privy to more information, but had no further comment at the time (July 2020). July 23, 2020 – CVWB followed up with a phone call, during which the tribe stated that they are interested in the project, wish to stay in touch through development, and are interested in attending workshops, etc. February 2021 - CVWB sent email to touch base on the project, notify the tribe of the upcoming CEQA scoping meetings, and offer to schedule a time for further discussion. No response received. A follow up letter was sent on 11/5/2021, offering to meet with the tribe. No response received.
North Fork Rancheria of Mono Indians	B-10-11	5/21/2020	No response.
Paskenta Band of Nomlaki Indians	B-10-11	5/21/2020	No response.
Picayune Rancheria of Chukchansi Indians	B-10-11	5/21/2020	No response.
Redding Rancheria	B-10-11	5/21/2020	No response.
Robinson Rancheria Band of Pomo Indians	B-10-11	5/21/2020	No response.
Scotts Valley Band of Pomo Indians	B-10-11	5/21/2020	No response.
Shingle Springs Band of Miwok Indians	B-10-11	5/21/2020	No response.
Table Mountain Rancheria	B-10-11	5/21/2020	No response.
Tejon Indian Tribe	B-10-11	5/21/2020	No response.
Tule River Indian Tribe	B-10-11	5/21/2020	No response.
Tuolumne Band of Me-Wuk Indians	B-10-11	5/21/2020	No response.

Tribe	AB 52 or B-10-11	Date Sent	Notes
Yocha Dehe Wintun Nation	B-10-11	5/21/2020	Consultation requested. Scheduling emails exchanged in February 2021. March 9, 2021 – CVWB met with tribal representatives. This tribe only has overlap with BLM lands and is interested in encouraging consultation and sensitivity training. May 5, 2021 - Second meeting with tribal representatives. The tribe continues to be interested in sensitivity training and consultation for BLM and USFS projects. A follow up letter was sent on 11/5/2021, offering to meet with the tribe. Yocha Dehe sent a letter asking to continue receiving updates on the project. A second letter was sent on 11/18/2021, offering to meet with the tribe. No response received.
Amah Mutsun Tribal Band	B-10-11	5/21/2020	No response.
Calaveras Band of Mi-Wuk Indians (Grimes)	B-10-11	5/21/2020	No response.
Calaveras Band of Mi-Wuk Indians (Wilson)	B-10-11	5/21/2020	No response.
Colfax-Todds Valley Consolidated Tribe	B-10-11	5/21/2020	No response.
Dunlap Band of Mono Indians	B-10-11	5/21/2020	No response.
Kern Valley Indian Community	B-10-11	5/21/2020	No response.
Kings River Choinumni Farm Tribe	B-10-11	5/21/2020	No response.
Kitanemuk & Yowlumne Tejon Indians	B-10-11	5/21/2020	No response.

Tribe	AB 52 or B-10-11	Date Sent	Notes
Konkau Valley Band of Maidu	B-10-11	5/21/2020	Consultation requested. February 16, 2021 – CVWB met with tribal representatives. The tribe is interested in erosion and sediment controls, pesticide use and impacts to water, encouraging meadow restoration, and encouraging use of prescribed fire. Tribe does its own water quality sampling. A follow up letter was sent on 11/5/2021, offering to meet with the tribe. No response received.
Nashville-Enterprise Miwok-Maidu-Nishinam Tribe	B-10-11	5/21/2020	No response.
North Fork Mono Tribe	B-10-11	5/21/2020	No response.
North Valley Yokuts Tribe	B-10-11	5/21/2020	No response.
Southern Sierra Miwuk Nation	B-10-11	5/21/2020	No response.
Strawberry Valley Rancheria	B-10-11	5/21/2020	No response.
Traditional Choinumni Tribe	B-10-11	5/21/2020	No response.
Tsi Akim Maidu	B-10-11	5/21/2020	No response.
Tubatulabals of Kern Valley	B-10-11	5/21/2020	No response.
Wintu Tribe of Northern California	B-10-11	5/21/2020	No response.
Dunma Wo-Wah Tribal Government	B-10-11	5/21/2020	No response.

AB 52 = Assembly Bill 52; B-10-11 = Executive Order B-10-11; BLM = Bureau of Land Management; CEQA = California Environmental Quality Act; CVWB = Central Valley Water Board; USFS = United States Forest Service

As indicated in Table 3.15-1, four of the 57 tribes contacted have requested either consultation or to be kept informed about the project. These are the Jackson Rancheria Band of Me-Wuk Indians, Mooretown Rancheria of Maidu Indians, Yocha Dehe Wintun Nation, and Konkau Valley Band of Maidu. A fifth tribe, the Wilton Rancheria, had expressed interest in a similar project, and has been included in additional outreach. The Central Valley Water Board will continue to reach out and meet with these tribes as Project information is developed.

3.15.4 Impact Analysis

This section evaluates potential impacts to TCRs that may result from implementation of management measures that could occur under the Proposed Project. Potential impacts are compared against the thresholds of significance discussed below.

Methodology

The analysis was qualitative in nature and involved analyzing the management measures that could be implemented/installed under the proposed Federal NPS Permit, in the context of known or potential TCRs that may be located within the Proposed Project area.

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 TCR, 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 TCR. *(Less than Significant)*

TCRs that are eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k) have not been identified within the project area through tribal consultation; nor has the Central Valley Water Board determined that specific resources qualify as TCRs. However, given the vast region encompassed by the Proposed Project, it is likely that resources significant to tribes with a traditional cultural affiliation to areas included within the Proposed Project area exist.

The BLM and USFS have both developed extensive and detailed policies and procedures for consulting with tribes about significant and sacred sites within the various agency districts/regions, and for individual projects under the implementing regulations of Section 106 of the NHPA (at 36 CFR 800.2(c)(2) for federally recognized tribes and 800.2(d) for tribes who are not federally recognized) and the federal laws, regulations, and policies listed above in Section 3.15.2. Both the BLM and USFS recognize that members of non-federally recognized

tribes are in the possession of tribal knowledge equal to that of federally recognized tribes and are, therefore, included in consultations pursuant to the regulations listed above. Compliance with these regulations ensures that significant cultural sites, including TCPs, are identified and impacts to the sites are avoided or mitigation measures are developed to lessen impacts.

Given the robust nature of the protocols followed by the BLM and USFS for the identification and treatment of tribal sacred sites/TCPs on federal lands, TCRs would be addressed during implementation of these procedures. As a result, impacts to TCRs as the result of the Proposed Project would be **less than significant**.

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3.16 Utilities and Service Systems

3.16.1 Introduction

This section describes the setting and potential impacts on utilities and service systems that could occur from the Proposed Project. Impacts to utilities and service systems under CEQA are generally related to increased demand for, or use of, utilities and service systems (e.g., water, wastewater, solid waste disposal, etc.), such as to require construction of new or expanded facilities. The CEQA Guidelines also have significance criteria for utilities and service systems related to non-compliance with existing solid waste laws and regulations.

3.16.2 Regulatory Setting

Federal Laws, Regulations, Policies, or Programs

Federal Safe Drinking Water Act

SDWA was enacted in 1974 to ensure the safe quality of drinking water to the public. It is administered by the USEPA; therefore, the USEPA is authorized to set national standards for drinking water quality, called the National Primary Drinking Water Regulations, to protect against both naturally occurring and man-made contaminants. The USEPA oversees the states, localities, and water suppliers who implement those standards.

Resource Conservation and Recovery Act (Amended 1986)

RCRA is a federal act regulating the potential health and environmental problems associated with solid waste disposal and hazardous wastes. RCRA gives USEPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. To achieve this, USEPA develops regulations, guidance and policies that ensure the safe management and cleanup of solid and hazardous waste, and programs that encourage source reduction and beneficial reuse. Specific regulations addressing solid waste issues are contained in Title 40 of the CFR.

Energy Policy Act of 2005

The Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. This act included establishing energy-related tax incentives for energy efficiency and conservation; renewable energy; oil and gas production; and electricity generation and transmission. The act also established increased amounts of renewable fuel (e.g., ethanol or biodiesel) to be used in gasoline sold in the U.S., provisions to increase oil and natural gas production on federally owned lands, and federal reliability standards regulating the electrical grid. Furthermore, the Act declared it national policy to enhance and, to the extent possible, increase the coordination and communication among Federal agencies with authority to site electric transmission facilities (Office of Electricity 2021).

Forest Service National Best Management Practices Program

The USFS' National BMP Program was developed to improve management of water quality consistent with the federal CWA and State water quality programs (USFS 2023). As described in Chapter 2, *Project Description,* the National BMP Program consists of four main components: (1) The National Core BMP Technical Guide; (2) The National Core BMP Monitoring Technical Guide; (3) Revised National Direction, and (4) A national data management and reporting system (USFS 2023). The National Core BMP Technical Guide (USFS 2012; see Appendix B of this DEIR) includes a wide range of BMPs for various USFS activities which would protect water quality. The Guide also contains BMPs for solid waste management, which encourage recycling of materials where practicable (USFS 2012).

State Laws, Regulations, Policies, or Programs

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act (CIWMA) of 1989 (PRC Division 30), enacted through AB 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by 2000 (PRC Section 41780). Later legislation mandated the 50 percent diversion requirement be achieved every year. A jurisdiction's diversion rate is the percentage of its total waste that a jurisdiction diverts from disposal through reduction, reuse, and recycling programs. The state, acting through the California Integrated Waste Management Board (CIWMB), determines compliance with this mandate. Per capita disposal rates are used to determine if a jurisdiction's efforts are meeting the intent of the act.

Assembly Bill 341 (Statutes of 2012), Solid Waste Diversion

Effective July 1, 2012, California's Commercial Recycling Bill (AB 341) establishes a policy goal for California that at least 75 percent of the solid waste generated be source-reduced, recycled, or composted by 2020. The bill is intended to: (1) reduce GHG emissions by diverting recyclable materials, and (2) expand the opportunity for increased economic activity and green industry job creation. AB 341 is a statewide policy goal rather than a city or county jurisdictional mandate.

California Integrated Energy Policy

Senate Bill 1389, passed in 2002, requires the California Energy Commission (CEC) to prepare an Integrated Energy Policy Report (IEPR) for the governor and legislature every 2 years. 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.

California Code of Regulations, Title 8, Section 1541: Excavations

Section 1541 of the CCR requires excavators to determine the approximate locations of subsurface installations, such as sewer, telephone, fuel, electric, and water lines, before opening an excavation, and avoid impacts to subsurface installations.

Local Laws, Plans, Policies, and Regulations

The Proposed Project would be implemented on lands managed by USFS and BLM; thus, these lands are under federal jurisdiction and are not subject to local laws, plans, regulations, and policies. Nevertheless, numerous local jurisdictions are located within the Central Valley Region. Most, if not all, of these jurisdictions have adopted general plans, or long-range comprehensive plans, that were developed to govern growth and development. General plans include goals and policies that address a range of issues, including those related to utilities. Applicable policies and strategies from these general plans generally include requirements to ensure adequate public utilities are available.

3.16.3 Environmental Setting

Wastewater Collection and Treatment Services

USFS and BLM provide restroom facilities (toilets and sometimes showers) on some lands under their management, associated primarily with recreational facilities. Due to the remote nature of the majority of USFS and BLM managed lands, there are no conventional wastewater collection or treatment services on or within these lands. Restrooms on USFS and BLM land are typically outhouses or vault style toilets at camp sites and/or trail heads; therefore, many sanitation facilities are not connected to a waste water system (USFS 1995). These facilities may use septic systems or may be periodically serviced to clear out accumulated waste and transport it to a disposal facility. Both USFS and BLM over the last 20 years have made a concerted effort as funds allow to convert all recreation toilets to vault style and hire companies to pump and remove waste (Hemphill, pers. comm., 2021). Oftentimes partners help with pumping due to the decline in funding for recreation in recent years.

In many instances' restrooms are not available to recreationalists on USFS and BLM land and people are advised to follow "leave no trace" principals. These principles say that all human waste should be disposed of in holes dug 8 inches deep that are at least 200 feet from water, camp, and trails. The holes should then be covered and disguised when finished (USFS 2021). Some areas have regulations on human waste and require that all waste be packed out and properly disposed of.

Water Supply

As indicated above, the lands managed by the USFS and BLM within the Central Valley Region are remote and generally do not include centralized systems for wastewater management or water supply. That said, water infrastructure (e.g., pipelines, reservoirs, etc.) may be located on USFS and BLM managed lands, as authorized through special use permits. USFS and BLM both use some quantities of water to support the multiple uses on the public lands (e.g., recreation, rangeland management, etc.). USFS and BLM may also draw water from various sources to support fire suppression activities, road construction and maintenance, and necessary dust abatement for various activities such as logging haul routes. As shown in Figure 3.10-3 in Section 3.10, "Hydrology and Water Quality," USFS and BLM hold or exercise numerous water rights on lands under their management/jurisdiction. Often, this takes the form of drafting water directly from surface waters within USFS and BLM managed lands. USFS and BLM also utilize both shallow and deeper groundwater wells for a variety of wildlife, cattle, mining, renewable energy, and recreation uses (Hemphill, pers. comm., 2021).

Stormwater Management

Due to their remote locations, lands under USFS and BLM management do not include centralized or municipal stormwater collection and management systems. Individual facilities (e.g., campgrounds, parking lots, roads, etc.) may have stormwater management features (e.g., swales, ditches, etc.) incorporated, but generally these are limited in scale and not connected to a centralized system. In general, USFS and BLM managed lands have very minimal, if any, impervious surfaces that would generate substantial runoff compared to the natural ground surface. USFS and BLM mainly rely on BMPs and other agency permit compliance to address stormwater runoff at sites under construction or that have active operations on them. (BLM 2015).

Solid Waste Disposal

There are hundreds of solid waste disposal facilities in the Central Valley Region, many of which are located in proximity to lands managed by USFS and BLM. **Figure 3.16-1** shows landfills and other solid waste disposal facilities (e.g., composting) within 25 miles of lands managed by USFS and BLM.

Electricity and Natural Gas

BLM administers nearly 17,000 rights-of-way for electric transmission and distribution lines across public lands in the eleven western states and Alaska (BLM 2022). As shown in **Figure 3.16-2**, many electrical utility transmission lines cross BLM lands within the Central Valley Region. USFS similarly administers rights-of-way for electric transmission and distribution facilities. There are currently more than 3,000 electric transmission and distribution lines authorized on 18,000 miles of USFS-managed land through special-use permits (USFS 2020), many of which are located in California and within the Central Valley Region.

Additionally, BLM manages nearly 600 producing oil and gas leases covering more than 200,000 acres in California (BLM 2021a). Between 80 to 90 percent of all surface-disturbing activities related to oil and gas activities occur in the San Joaquin Valley on public lands administered by the BLM's Central California District, Bakersfield Field Office (BLM 2021a). As such, buried natural gas pipelines and other gas-related infrastructure may be present on BLM-managed lands within the Central Valley Region. USFS similarly may authorize underground natural gas pipeline facilities through special-use permits.

Communications

The USFS and BLM do not ensure communication services for their visitors, however, they do both provide land for multiple communication sites and play an integral part of the nation's telecommunication infrastructure. BLM administers more than 1,500 communications sites on Federal public lands in the eleven Western states and Alaska. Most BLM communications sites have one or more facilities, ranging from radio and television transmitters to cellular and wireless broadband towers, that are owned by private or governmental entities. The local BLM Field Office manages activities at each site under a land use plan and a site-specific management plan. (BLM 2021b)

USFS authorizes communications facilities (e.g., buildings, cabinets, towers) and equipment, which supports over 10,000 wireless uses, including federal, state and local governments for communications, emergency services, railroads, utility companies, and private communications companies for personal communications, and television and radio broadcast uses. (USFS 2021) **Figure 3.16-3** shows these telecommunication sites within the Central Valley Region.

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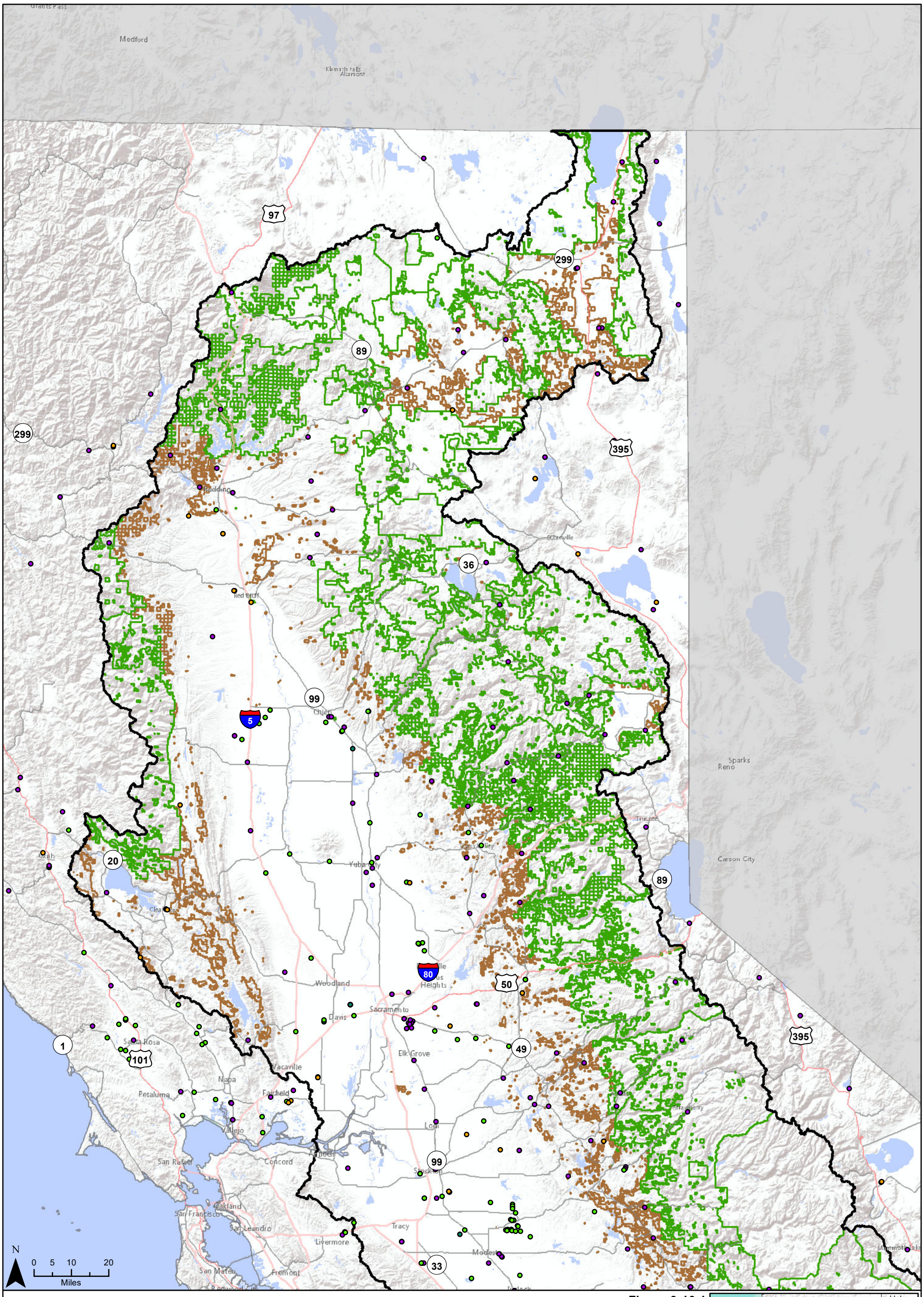


Figure 3.16-1
Solid Waste Disposal Facilities

Sheet 1 of 2

Horizon WATER and ENVIRONMENT

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Source: ESRI 2018, Cal Trans 2014

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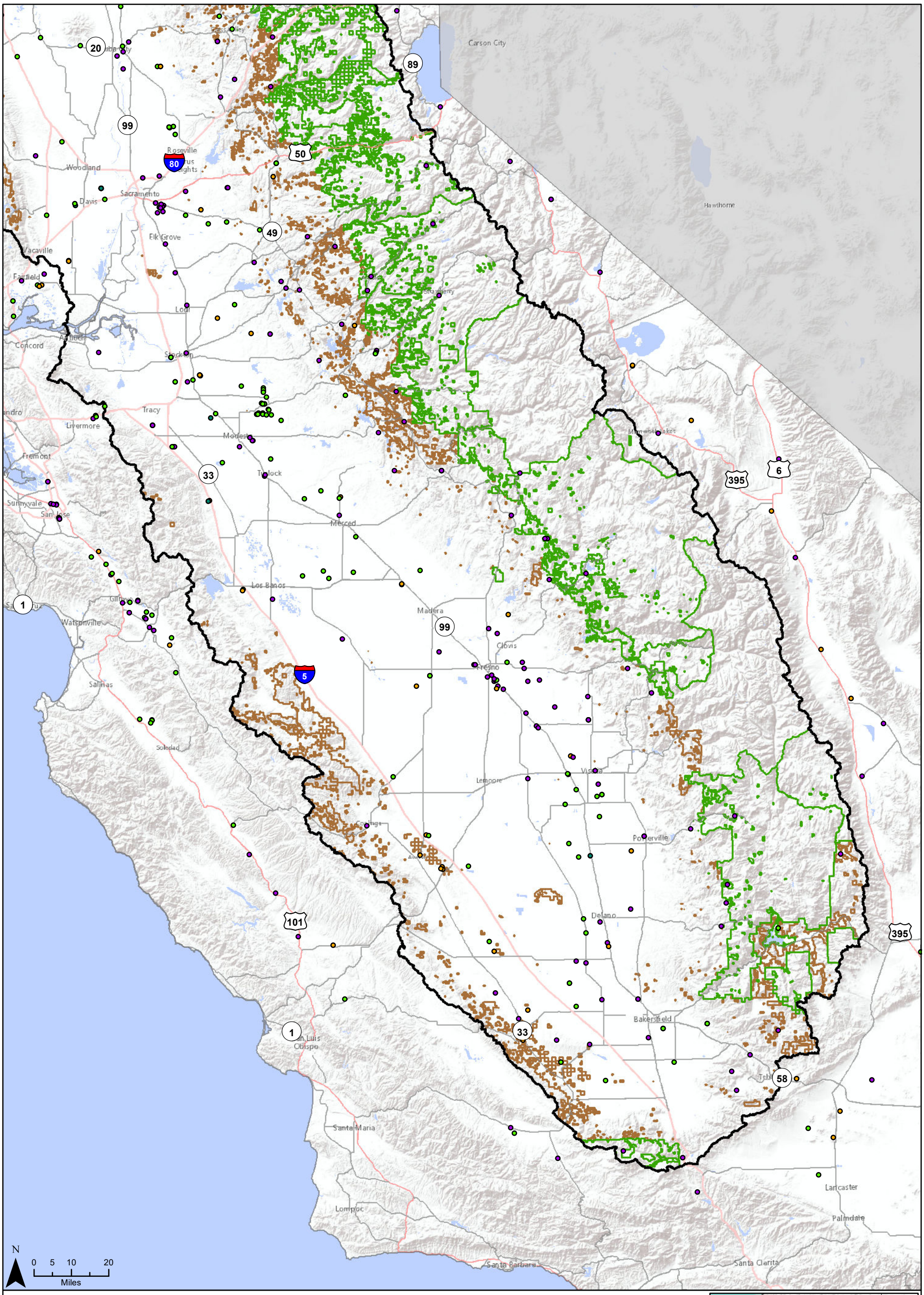


Figure 3.16-1
Solid Waste Disposal Facilities

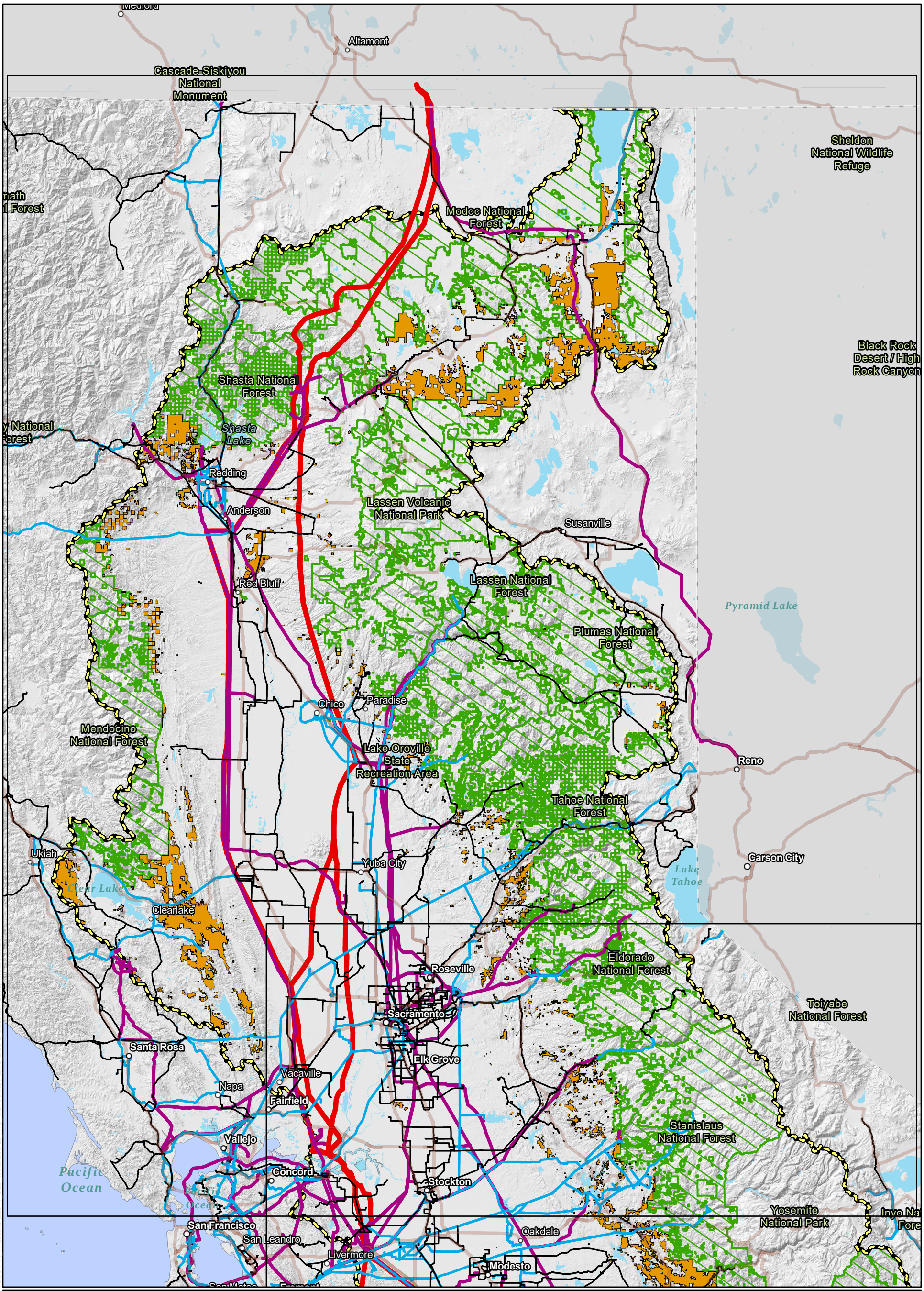
Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Horizon WATER and ENVIRONMENT

Source: ESRI 2018, Cal Trans 2014

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Medford
Alturas
Cascade-Siskiyou National Monument
Sheldon National Wildlife Refuge
Modoc National Forest
Black Rock Desert / High Rock Canyon
Shasta National Forest
Shasta Lake
Redding
Anderson
Lassen Volcanic National Park
Susanville
Red Bluff
Lassen National Forest
Pyramid Lake
Plumas National Forest
Chico
Paradise
Mendocino National Forest
Lake Oroville State Recreation Area
Reno
Tahoe National Forest
Ukiah
Yuba City
Carson City
Lake Tahoe
Clear Lake
Clearlake
Eldorado National Forest
Roseville
Sacramento
Toiyabe National Forest
Santa Rosa
Elk Grove
Vacaville
Napa
Fairfield
Stanislaus National Forest
Vallejo
Pacific Ocean
Concord
Stockton
Yosemite National Park
San Francisco
San Leandro
Oakdale
Livermore
Modesto
Source: California Energy Commission (CEC) Electric Transmission Lines, 2021.
N
0
50
Miles
Electrical Transmission Lines
kV (Sort)
33kV-70kV
70kV-161kV
161kV-345kV
345kV-500kV
Federak Agency Lands
U.S. Forest Service Lands
Bureau of Land Management Lands
Central Valley RWQCB Boundary
Map Index
Figure 3.16-2
Electrical Utility Transmission Infrastructure
Sheet 1 of 2
Oregon
Idaho
Nevada
Horizon WATER and ENVIRONMENT
Federal Nonpoint Source Permit
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Source: California Energy Commission (CEC) Electric Transmission Lines, 2021.

Figure 3.16-2
Electrical Utility Transmission Infrastructure

Sheet 2 of 2

Electrical Transmission Lines
kV (Sort)
- 33kV-70kV
- 70kV-161kV
- 161kV-345kV
- 345kV-500kV

Federak Agency Lands
- U.S. Forest Service Lands
- Bureau of Land Management Lands

- Central Valley RWQCB Boundary
- Map Index

N

0 50
Miles

Horizon WATER and ENVIRONMENT

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Central Valley RWQCB Boundary

Bureau of Land Management Lands

U.S. Forest Service Lands

USFS Communiccation Sites

DOI Communication Sites

BLM Communication Sites

Figure 3.16-3
Communication Sites

Sheet 1 of 2



Federal Nonpoint Source Permit
Draft Environmental Impact Report

Source: ESRI 2018, Cal Trans 2014

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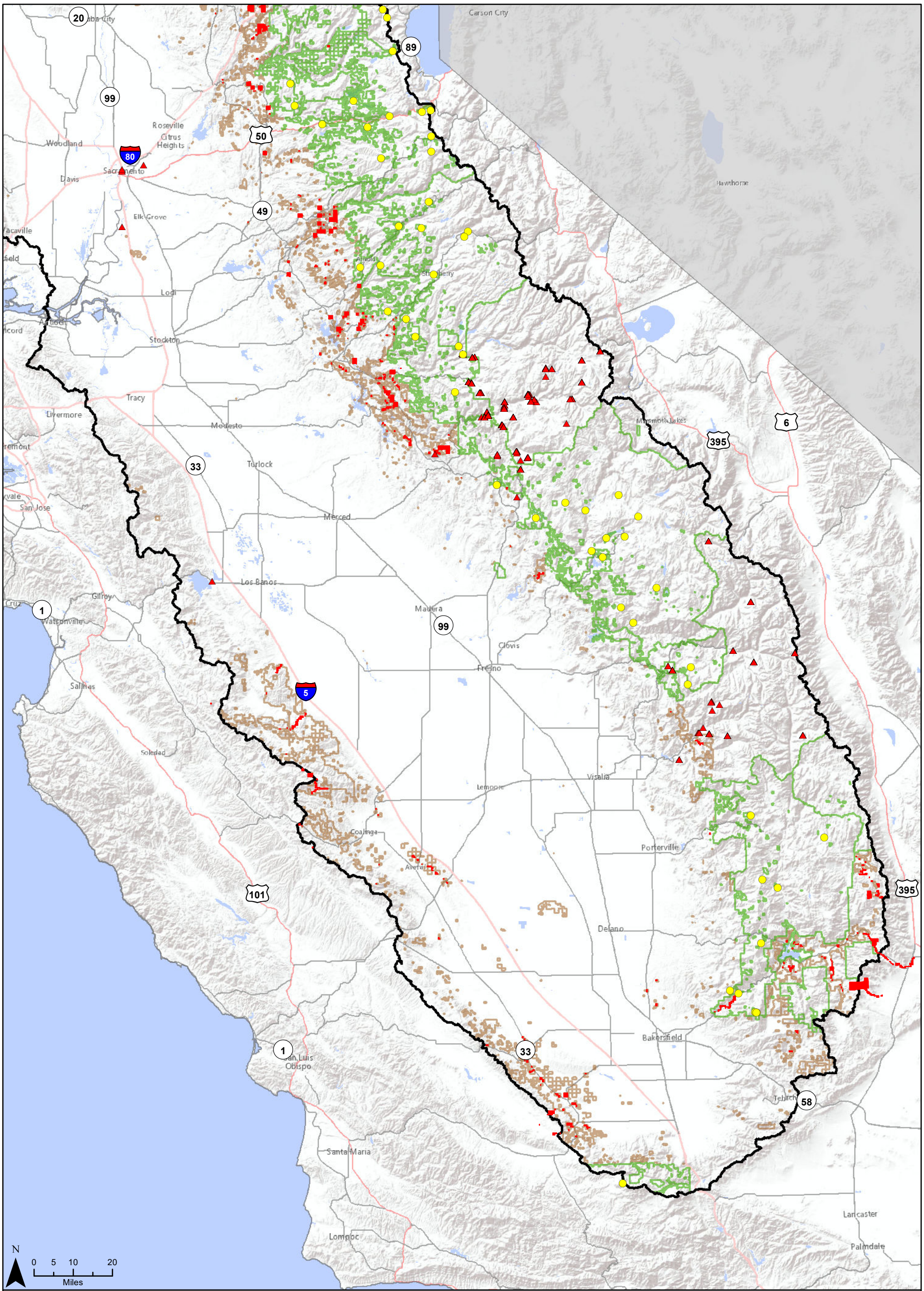


Figure 3.16-3
Communication Sites

Sheet 2 of 2

Federal Nonpoint Source Permit
Draft Environmental Impact Report

Source: ESRI 2018, Cal Trans 2014

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3.16.4 Impact Analysis

Methodology

Potential impacts on utilities were evaluated qualitatively by considering the management actions that would occur as a result of the Proposed Project in light of the CEQA Guidelines Appendix G significance criteria (see below) and the existing regulatory and environmental settings.

Significance Criteria

Based on Appendix G of the CEQA Guidelines, the Proposed Project would result in a significant impact on utilities and service systems if it would:

A. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

B. Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

C. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

D. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

E. Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Environmental Impacts of the Proposed Project

Impact UTL-1: Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. *(Less than Significant)*

As discussed above, due to the rural nature of the USFS and BLM managed lands, there are no public wastewater treatment facilities; sewage systems are minimal or absent. Instead, the federal lands typically have outhouses or vault style toilets at high traffic locations such as camp sites or trail heads. Some relevant management measures include the requirement for self-contained sanitary facilities at all developed recreational sites (BLM BMP REC-04) and that all sanitary facilities should be outside of the riparian reserve and constructed and managed in a way that minimizes water contamination (BLM BMP AQ-07). Therefore, although the Proposed Project could result in the relocation or construction of sanitation facilities, these facilities are expected to be small in size and few in number. USFS and BLM have already (over the last 20 years) been making a concerted effort to move all sanitary facilities away from floodplains,

lakes, and other water sources; however, the Proposed Project could provide new impetus for these on-going efforts.

Likewise, there are no public, centralized stormwater facilities on the USFS and BLM managed lands; instead federal agencies rely on BMPs to address stormwater. As discussed in Section 3.10, "Hydrology and Water Quality," several BMPs from the USFS' and BLM's manuals (see Appendix B) require consideration of stormwater management with respect to any new impervious surfaces that may be created through compliance with the Proposed Project. Additionally, many of the reasonably foreseeable management practices themselves may be considered stormwater management measures (e.g., rolling dips, water bars, other road drainage facilities) – the potential environmental impacts of these measures are evaluated throughout this DEIR. This Proposed Project aims to actively monitor BMP effectiveness and react with timely corrective action and adaptive management. This assumes that the Proposed Project will require the federal agencies to be more consistent and successful with BMP implementation leading to increased success of stormwater management.

In general, construction/installation of the reasonably foreseeable management measures under the Proposed Project is not expected to require substantial water or other utility services. Construction of certain ground-disturbing management measures, such as water bars and rolling dips, may require some amount of water for conditioning road surface and subsurface materials, while any access roads and staging areas used during construction/installation activities may require water for dust control. This water would be expected to be obtained from existing sources, such as surface waters in proximity to specific sites, or groundwater. Water could potentially be obtained from a municipal source, but no new pipelines, treatment plants, or other water facilities would need to be constructed. Likewise, construction workers may generate small quantities of wastewater from use of sanitary facilities, but this would not require or result in the need for new wastewater facilities (it is anticipated that portable restrooms or existing vault toilets in proximity to the construction site could be used).

Construction/installation of management measures would not be anticipated to require substantial electric power, but, if needed, electric generators could be used or an existing electric distribution line could potentially be tapped into. Natural gas and telecommunications service would not be needed for any phase of the Proposed Project. Monitoring requirements under the Proposed Project may result in additional vehicle trips by USFS and BLM field staff, but would not result in the need for any new or expanded utility systems. Operation and maintenance of some of the management measures associated with the Proposed Project could require use of equipment and water; however, this would not require or result in the need for new or expanded utility facilities.

Impacts will be **less than significant**.

Impact UTL-2: Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. *(Less Than Significant)*

Both USFS and BLM use water for various purposes under existing conditions. Implementation of appropriate management measures for water quality protection during covered activities (i.e., vegetation management, transportation management, recreation facilities management,

post-emergency recovery, and restoration activities) could result in an increase in water use. Management measures that would require at least some water to construct or install include: installation of water bars or rolling dips may require water for dust control and/or for conditioning road substrate or surface materials; washing down equipment required for the implementation of some management measures (e.g., tilling compacted soil surfaces, slash packing skid trails, adding/placing rock armor, removal of outside berms on road surfaces, adding ground cover such as mulch, straw, and wood chips, etc.); and drinking and sanitation uses for the construction workers.

All of these would be relatively minor uses of water. Some BMPs are currently being implemented in conjunction with federal activities so the incremental additional water use from the Proposed Project would be associated with the incremental increase in management measure implementation over current practices. The use of water in the context of management measures is likely minor in comparison to water use associated with the federal covered activities themselves. The Proposed Project's monitoring and reporting requirements could lead to additional vehicle trips to monitoring sites by USFS and BLM personnel, but this would not require or result in the need for additional water supplies.

Although precise quantities of water needed are unknown, and would depend on a number of site-specific factors, water demand is not expected to significantly increase as a result of the Proposed Project because the implementation of new management measures are expected to have relatively minor uses of water. Furthermore, the use of water related to management measures would likely pale in comparison to water use associated with the covered activities themselves. The USFS and BLM hold multiple appropriative water rights within the Central Valley Region and exercise riparian water rights to cover the water demand of implementing current management measures and which would be adequate to cover the incremental increase associated with the Proposed Project. Due to the relatively minor quantities of water that would likely be needed to support management measure implementation for the Proposed Project, it is anticipated that sufficient water supplies would be available via the USFS's and BLM's existing entitlements, including during normal, dry and multiple dry years. The Proposed Project would not include any habitable structures and would not create or establish any new land uses that would require water. There would be no reasonably foreseeable future development associated with the Proposed Project.

Therefore, the impact is **less than significant**.

Impact UTL-3: Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. *(Less than Significant)*

As discussed above, there are no conventional wastewater treatment collection and treatment systems present on the USFS and BLM managed lands in the Central Valley Region. Wastewater generated on the federal lands is minimal under existing conditions (e.g., restrooms at campgrounds or trail heads) and would not increase substantially due to the Proposed Project. Wastewater generated from the Proposed Project would likely be limited to that from sanitary facilities (e.g., portable restrooms) used by construction workers involved in construction/installing management measures. This wastewater may ultimately be transported

to wastewater treatment facilities outside of the federal lands; however, the small quantities of wastewater from Proposed Project activities would not substantially affect the capacity of any wastewater treatment provider.

The Proposed Project would not include construction or development of any habitable structures, nor would it establish any new land uses that would generate wastewater or require wastewater service. Therefore, this impact would be **less than significant.**

Impact UTL-4: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. *(Less than Significant)*

Construction activities associated with the Proposed Project may generate some solid waste. Management measures that are expected to generate solid waste include installing water bars or rolling dips on roadways, repairing or replacing damaged or at-risk infrastructure (e.g., culverts) damaged by wildfire or suppression activities, and removal of outside berms on road surfaces created from side cast materials from grading operations, among others. Solid waste materials from these measures may include unused or unneeded fill material, damaged culvert or watercourse crossing components, or unwanted side cast material that cannot be reused for other purposes.

Due to the nature of the Proposed Project, precise quantities of solid waste generated are unknown, and would depend on a number of site-specific factors. However, in general, the solid waste generated by the Proposed Project is not expected to be substantial and would be disposed of properly in nearby landfills (see Figure 3.16-1 for the proximity of landfills to the federal lands) or reused/recycled. Furthermore, in some cases, the management measures may utilize material that is the waste product of covered activities (e.g., slash packing a skid trail, which may use limbs and leftover material from processing of trees). In this respect, the Proposed Project's reuse of waste products would be beneficial and could likely reduce impacts on landfill capacity.

Some management measures included in the Proposed Project intend to reduce the possibility of solid waste generated at recreation sites entering or contaminating surface waters. For example, one common management measure to address this is having regularly maintained and contained waste management facilities (garbage bins/outhouse/pit-toilets/etc.) at recreational facilities. Therefore, the Proposed Project allows the federal agencies to better meet their goals with respect to solid waste management and therefore has a beneficial impact. Monitoring and reporting activities by USFS and BLM pursuant to the Proposed Project would not generate meaningful quantities of solid waste. The Proposed Project would not include or establish any habitable structures or land uses that may require solid waste disposal service over the long term.

Overall, impacts are **less than significant**.

Impact UTL-5: Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste. *(Less than Significant)*

As discussed above under Impact UTL-4, implementation of the Proposed Project would generate relatively small quantities of solid waste associated with construction/installation of

certain management measures. Given that specific sites and management measures are unknown at this time, it is impossible to determine the specific quantities of solid waste that may be generated associated with the Proposed Project and the potential for this waste to be reused or recycled. As the USFS and BLM are part of the federal government, these agencies may not be subject to California solid waste laws, such as the CIWMA or AB 341. Nevertheless, the federal agencies would review individual actions on a case-by-case basis and may reuse/recycle materials, as appropriate. The USFS' National Core BMP Technical Guide includes BMPs for solid waste management (e.g., BMP Fac-5 [Solid Waste Management]), which encourage recycling of materials where practicable (USFS 2012).

As noted above, generally, amount of waste attributed to the Proposed Project would be relatively minor and incremental compared to waste that is generated during the ongoing federal activities (e.g., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration), which are part of the baseline. Given this, and considering that the federal agencies would reuse or recycle wastes as practicable, the impact would be **less than significant**.

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3.17 Wildfire

3.17.1 Introduction

This section of the DEIR presents the environmental setting and potential impacts of the Proposed Project related to wildfire. While Section 3.9, "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 3.17.4 for the significance criteria used in the impacts analysis for this section).

3.17.2 Regulatory Setting

Federal Laws, Regulations, and Policies

The National Strategy: The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy

In the Federal Land Assistance, Management, and Enhancement Act of 2009 (FLAME Act), Congress mandated the development of a national cohesive wildland fire management strategy to comprehensively address wildland fire management across all lands in the United States (Secretary of the Interior and Secretary of Agriculture 2014). The National Strategy is the result of a collaborative effort by Federal, state, local, and tribal governments and non-governmental partners and public stakeholders, in conjunction with scientific data analysis, which was initiated after enactment of the FLAME Act. The National Strategy describes how the Nation can focus future efforts in making strategic investments to reduce the severe effects of wildfire on areas of high risk, and includes a set of guidelines intended to provide basic direction when planning activities (Secretary of the Interior and Secretary of Agriculture 2014).

The Cohesive Strategy (of which the National Strategy is a part) vision for the next century is as follows: "To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire" (Secretary of the Interior and Secretary of Agriculture 2014).

Executive Order 13855 – Promoting Active Management of America's Forests, Rangelands, and Other Federal Lands to Improve Conditions and Reduce Wildfire Risk

Executive Order (EO) 13855 established that "it is the policy of the United States to protect people, communities, and watersheds, and to promote healthy and resilient forests, rangelands, and other Federal lands by actively managing them through partnerships with States, tribes, communities, non-profit organizations, and the private sector." EO 13855 identified the following goals related to treatment of DOI and USFS lands:

Department of Interior

- Treating 750,000 acres of DOI-administered lands to reduce fuel loads;
- Treating 500,000 acres of DOI-administered lands to protect water quality and mitigate severe flooding and erosion risks arising from forest fires;
- Treating 750,000 acres of DOI-administered lands for native and invasive species;
- Reducing vegetation giving rise to wildfire conditions through forest health treatments by increasing health treatments as part of DOI's offering for sale 600 million board feet of timber from DOI-administered lands; and
- Performing maintenance on public roads needed to provide access for emergency services and restoration work.

United States Forest Service

- Treating 3.5 million acres of USFS lands to reduce fuel load;
- Treating 2.2 million acres of USFS lands to protect water quality and mitigate severe flooding and erosion risks arising from forest fires;
- Treating 750,000 acres of USFS lands for native and invasive species;
- Reducing vegetation giving rise to wildfire conditions through forest health treatments by increasing health treatments as part of USDA's offering for sale at least 3.8 billion board feet of timber from USFS lands;
- Performing maintenance on roads needed to provide access on USFS lands for emergency services and restoration work.

National Response Framework – Emergency Support Function #4

Coordination of resources during a Presidential declaration of emergency or major disaster is conducted under the National Response Framework (NRF) (USFS 2018). The NRF identifies the roles and structures of Federal agencies to provide support to States or other agencies through Emergency Support Functions (ESFs). The NRF identifies ESF #4 as the coordinator for wildland, rural, urban, and suburban firefighting support; and, under the NRF, USFS serves as the Primary Agency for ESF #4 (USFS 2018). During all types of disasters and major emergencies, ESF #4 is the primary link between the Federal wildland and structural fire communities and the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA). USFS coordinates and staffs ESF #4 with the support of the DOI, and serves as the face of wildland and structural firefighting resources to FEMA and other involved agencies (USFS 2018).

The purpose of ESF #4 is to provide Federal support for the detection and suppression of wildland, rural, and urban fires resulting from, or occurring coincidentally with, an all hazard incident requiring a coordinated Federal response and assistance. Under the NRF, ESF #4

manages and coordinates Federal firefighting activities by mobilizing firefighting resources in support of State, tribal, and local wildland, rural, and urban firefighting agencies (USFS 2018).

State Laws, Regulations, and Policies

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.

Strategic Plan: California Department of Forestry and Fire Protection

The CAL FIRE's Strategic Plan (CAL FIRE 2019) describes the department's vision for the future and primary goals. The goals are to: (1) Improve our core capabilities; (2) Enhance internal operations; (3) Ensure health and safety; and (4) Build an engaged, motivated, innovative workforce. The following measures of success, related to the identified goals, relate to wildfire and the Proposed Project:

- Increase by 20 percent the acreage of projects implemented under the California Forest Improvement Program

- Implement fuels reduction projects on at least 50,000 acres annually

California's Wildfire and Forest Resilience Action Plan

California's Wildfire and Forest Resilience Action Plan: A Comprehensive Strategy of the Governor's Forest Management Task Force (State of California 2021) outlines the State's strategic efforts to meet the following goals:

- Restore the health and resilience of California forests, grasslands and natural places;
- Improve the fire safety of our communities; and
- Sustain the economic vitality of rural forested areas.

Although the Action Plan highlights many efforts by CAL FIRE and other State entities, it also identifies actions that will need to be undertaken, in whole or in part, by the USFS. Specifically, the Action Plan identifies the following actions or objectives related to the USFS and the Proposed Project (State of California 2021):

- The USFS will double its current forest treatment levels from 250,000 acres to 500,000 acres annually by 2025.
- The USFS, in partnership with CAL FIRE, tribal governments, and other agencies will seek to establish a Prescribed Fire Training Center to provide training opportunities for prescribed burn practitioners and focus training efforts on western ecosystems.
- The USFS will significantly expand its prescribed fire program to attain its 500,000-acre target for forest treatments by 2025.
- The USFS will develop a restoration strategy for wildfire impacted federal lands and CAL FIRE will partner with the Cal OES and other federal, state, and local agencies to develop a coordinated strategy to prioritize and rehabilitate burned areas and affected communities. These ecologically-based strategies will focus on silvicultural practices that increase carbon storage, protect biodiversity, and build climate resilience.

California Public Resources Code

The 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. The following requirements in the PRC apply to construction activities at 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

By definition, lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use laws or regulations. Although incorporated cities may occur in proximity to USFS and BLM managed lands within the Central Valley Region, the federal lands would not be included within the incorporated city limits or sphere of influence. Likewise, although USFS and BLM managed lands occur within California county boundaries, the federal lands are not subject to county laws, regulations, policies, or plans.

3.17.3 Environmental Setting

Wildfires are unplanned and unwanted fires, including lightning-caused fires, unauthorized human-caused fires, and escaped prescribed fire projects. Among the primary factors that impact wildfire intensity and behavior include weather (e.g., wind and humidity), fuel conditions (e.g., vegetation type and age, accumulation of dead material, etc.), and topography (e.g., steep terrain). States are responsible for responding to wildfires that begin on nonfederal (state, local, and private) lands, except for lands protected by federal agencies under cooperative agreements (Congressional Research Service [CRS] 2021).

Background on Wildfire in the West

In the western United States historic forest management and fire suppression, in conjunction with a changing climate, have led to uncharacteristically large, severe wildfires (Flannigan et al. 2000, Littell et al. 2009, Westerling et al. 2006, Westerling and Bryant 2008, cited in Central Valley Water Board 2017). As a result of nearly a century of intense fire suppression, increased frequency and intensity of stand-replacing fire is occurring throughout the western United States. The remaining forests of central and northern California that have not recently burned at high severity, have high fuel loads and are experiencing extended periods of above average seasonal temperatures (Central Valley Water Board 2017).

These factors are leading to both extended fire seasons as a result of drier fuel conditions, and increased incident of extreme fire behavior with stand-replacing wildfires. Climatology models and information gathered by leading fire ecologists predict that the future wildfire regime in California will result in increased spatial size, distribution, and occurrence of severe wildfires (Fried et al. 2004, Miller et al. 2009, Westerling and Bryant 2008, Westerling et al. 2011, cited in Central Valley Water Board 2017).

Nationwide Data on Wildfire Frequency and Extent

Nationwide data compiled by the National Interagency Coordination Center (NICC) indicate that the number of annual wildfires is variable but has decreased slightly over the last 30 years. By contrast, the number of acres impacted annually, while also variable, generally has increased.

Since 2000, an annual average of 70,600 wildfires burned an annual average of 7.0 million acres (CRS 2021). This figure is more than double the average annual acreage burned in the 1990s (3.3 million acres), although a greater number of fires occurred annually in the 1990s (78,600 average) (CRS 2021). **Table 3.17-1** shows data on annual wildfires and acres burned nationwide, on both federal and non-federal lands, for the period 2016 to 2020.

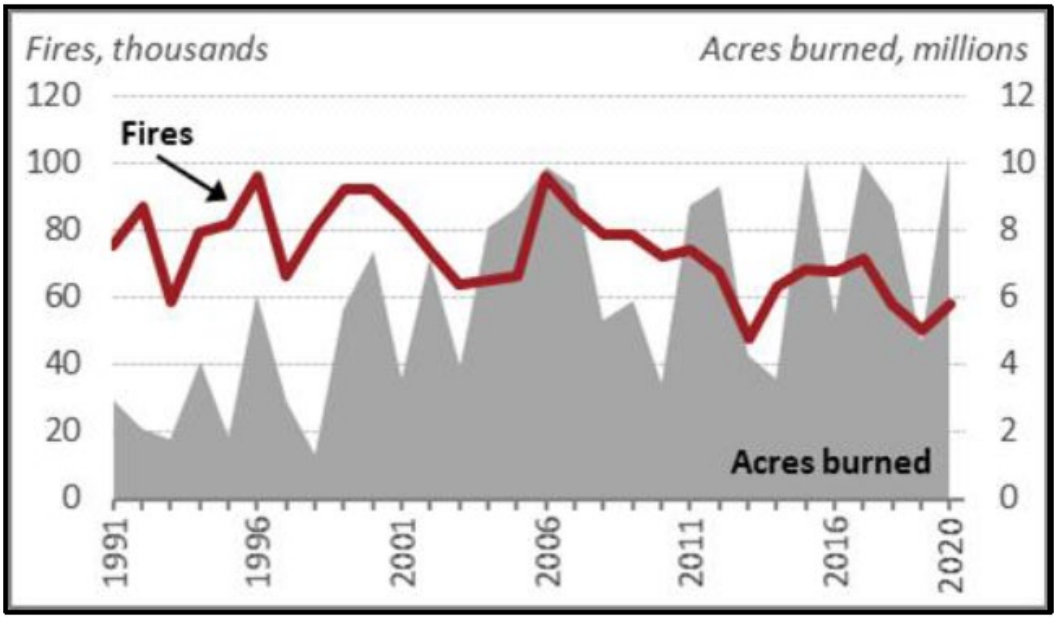
Table 3.17-1. Annual Wildfires and Acres Burned

	2016	**2017**	**2018**	**2019**	**2020**
Number of Fires (thousands)					
Federal	12.6	15.2	12.5	10.9	14.4
USFS	5.7	6.6	5.6	5.3	6.7
DOI	6.8	7.3	7.0	5.3	7.6
Other	<0.1	1.2	0.1	0.2	<0.1
Nonfederal	55.2	56.4	45.6	39.6	44.6
Total	**67.7**	**71.5**	**58.1**	**50.5**	**59.0**
Acres Burned (millions)					
Federal	3.0	6.3	4.6	3.1	7.1
USFS	1.2	2.9	2.3	0.6	4.8
DOI	1.7	3.3	2.3	2.3	2.3
Other	<0.1	<0.1	<0.1	<0.1	<0.1
Nonfederal	2.5	3.7	4.1	1.6	3.1
Total	**5.5**	**10.0**	**8.8**	**4.7**	**10.1**

Source: NICC, cited in CRS 2021

The data in Table 3.17-1 shows that the annual number of fires have slightly decreased in recent years, while the annual acres burned have fluctuated but generally increased. **Figure 3.17-1** shows similar data but over a longer time period (1991–2020). This figure shows similar trends, in that the annual number of fires has generally decreased over time, while the annual acres burned has increased.

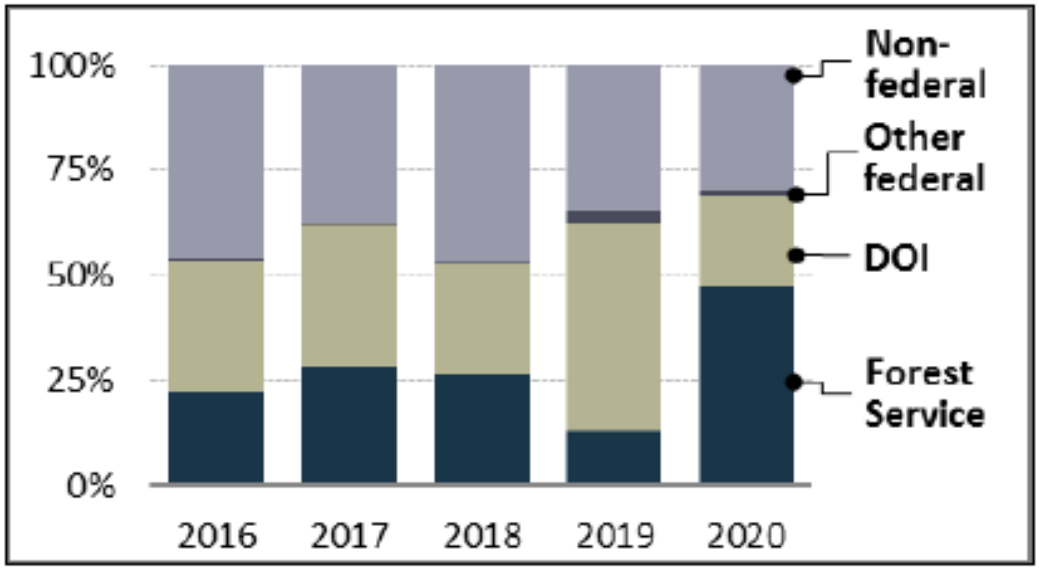
Figure 3.17-1. Annual Wildfires and Acres Burned (1991–2020)



Source: CRS 2021

In 2020, 58,950 wildfires burned 10.1 million acres, which is the second-most acreage impacted in a year since 1960, and nearly 40 percent of this impacted area was in California (CRS 2021). The nationwide acreage impacted in 2020 also largely occurred on federal lands (70 percent). **Figure 3.17-2** shows the nationwide percentage of acreage burned in wildfires by ownership, for the period 2016–2020.

Figure 3.17-2. Percentage Acreage Burned by Ownership



Source: CRS 2021

As shown in Figure 3.17-2, since 2016, at least 50 percent of the total nationwide acreage burned in wildfires has been on federal lands. Typically, a sizeable portion of this occurs on USFS lands, in particular in 2020, when nearly 50 percent of the acreage burned occurred on USFS lands.

California Wildfire Statistics

As alluded to above, 2020 was a particularly destructive year for wildfires in California. In total, the 2020 Fire Siege claimed the lives of 28 civilians and three firefighters, destroyed 9,248 structures and consumed 4.2 million acres (CAL FIRE 2020). Recent data on wildfires in California indicate that both 2020 and 2021 have been above average in terms of the number of fires and number of acres burned. **Table 3.17-2** shows wildfire data for 2020 and 2021 compared to the 5-year average.

Table 3.17-2. Year to Date Wildfire Statistics (CAL FIRE and Federal)

Interval	Fires	Acres
5-Year Average (same interval)	5,544	421,896
2021 Combined YTD (CAL FIRE & US Forest Service)	6,574	1,301,597
2020 Combined YTD (CAL FIRE & US Forest Service)	6,738	860,500

Notes: These statistics are a combination of wildfires responded to by CAL FIRE in both State Responsibility Area and the Local Responsibility Area under contract with the department, as well as federal fire agencies reported in the National Situation Report. Final numbers will be provided in the annual Wildfire Activity Statistics Report (Redbook) once it's published.

Source: CAL FIRE 2021

Wildfire data for California also shows that many of the most destructive fires in the State's history have occurred in recent years (see **Table 3.17-3**).

Table 3.17-3. Top 20 Most Destructive California Wildfires

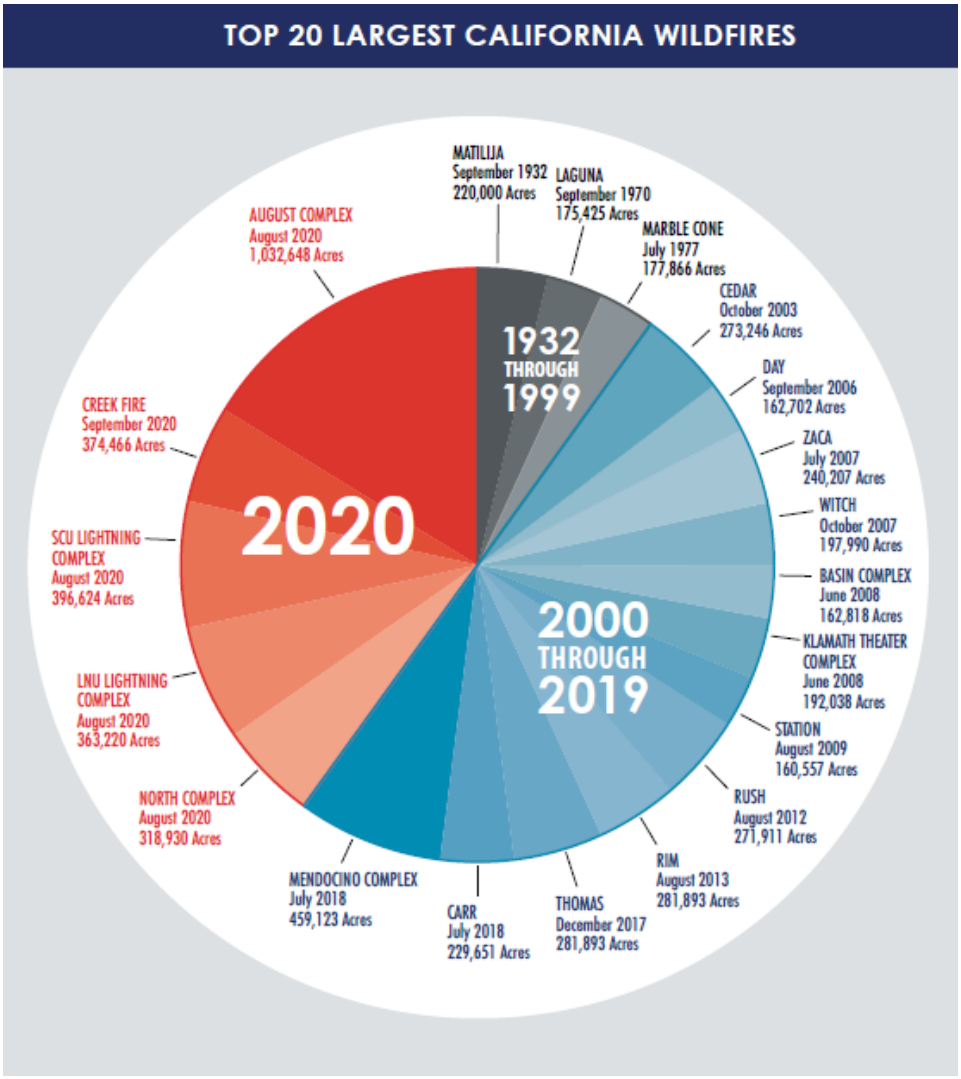
Fire Name (Cause)	Date	County	Acres	Structures	Deaths
1. Camp (Powerlines)	November 2018	Butte	153,336	18,804	85
2. Tubbs (Electrical)	October 2017	Napa & Sonoma	36,807	5,636	22
3. Tunnel – Oakland Hills (Rekindle)	October 1991	Alameda	1,600	2,900	25
4. Cedar (Human Related)	October 2003	San Diego	273,246	2,820	15
5. North Complex (Under Investigation)	August 2020	Butte, Plumas, & Yuba	318,935	2,352	15
6. Valley (Electrical)	September 2015	Lake, Napa, & Sonoma	76,067	1,955	4
7. Witch (Powerlines)	October 2007	San Diego	197,990	1,650	2
8. Woolsey (Under Investigation)	November 2018	Ventura	96,949	1,643	3
9. Carr (Human Related)	July 2018	Shasta County, Trinity	229,651	1,614	8
10. Glass Fire (Under Investigation)	September 2020	Napa & Sonoma	67,484	1,520	0
11. LNU Lightning Complex (Under Investigation	August 2020	Napa, Solano, Sonoma, Yolo, Lake, & Colusa	363,220	1,491	6
12. CZU Lightning Complex (Lightning)	August 2020	Santa Cruz, San Mateo	86,509	1,490	1
13. Nuns (Powerline)	October 2017	Sonoma	54,382	1,355	3
14. Dixie (Under Investigation)	July 2021	Butte, Plumas, Lassen, & Tehama	635,728	1,208	0
15. Thomas (Powerline)	December 2017	Ventura & Santa Barbara	281,893	1,063	2
16. Old (Human Related)	October 2003	San Bernardino	91,281	1,003	6
17. Jones (Undetermined)	October 1999	Shasta	26,200	954	1
18. August Complex (Under Investigation)	August 2020	Mendocino, Humboldt, Trinity, Tehama, Glenn, Lake, & Colusa	1,032,648	935	1
19. Butte (Powerlines)	September 2015	Amador & Calaveras	70,868	921	2
20. Creek (Under Investigation)	September 2020	Fresno & Madera	379,895	856	0

Notes: “Structures” include homes, outbuildings (barns, garages, sheds, etc.) and commercial properties destroyed.

This list does not include fire jurisdiction. These are the Top 20 regardless of whether they were state, federal, or local responsibility.

As shown in Table 3.17-3, 15 of the top 20 most destructive fires (lives lost and structures destroyed) have occurred since 2015. A number of these have occurred in counties with lands within the Central Valley Region and within lands under federal jurisdiction. Although the most destructive fires are not always the largest, **Figure 3.17-3** shows that the top 20 largest California wildfires have also largely occurred within the recent past, with 2020 being an exceptional year in terms of large fires.

Figure 3.17-3. Top 20 Largest California Wildfires



Source: CAL FIRE 2020

Central Valley Region Characteristics with Respect to Wildfire

The Central Valley Region includes a wide variety of landscapes and vegetation types, as discussed throughout this DEIR. In particular, the lands within the Central Valley Region that are managed by USFS and BLM include conifer forests and other landscapes that would be considered high risk for wildfire. CAL FIRE does not map fire risk (i.e., Fire Hazard Severity Zones) within Federal Responsibility Areas (FRAs), but much of the lands within the Proposed Project

area would likely be considered high or very high risk for wildfire. However, many areas within USFS and BLM managed lands in the Central Valley Region are not near people or structures, so the potential for loss of life or damage from a wildfire in these areas is reduced.

Existing Wildfire Management and Recovery Activities on Federal Lands in the Central Valley Region

The USFS and BLM conduct wildfire management and recovery activities on lands within their jurisdiction as part of existing conditions. This includes wildland fire suppression activities, salvage logging, rehabilitating fire and suppression damage (recovery), and prescribed fire. In any given year, the frequency and extent of wildland fire suppression and recovery activities within the Central Valley Region may be dictated by the extent and location of individual wildland fires (e.g., whether and to what degree fires occur on federal lands within those areas). Fuels management activities (e.g., prescribed fire) are typically planned on the National Forest level and may be implemented based on individual project planning timelines.

3.17.4 Impact Analysis

Methodology

The analysis evaluates direct and indirect widlfire-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

This analysis uses the significance criteria related to wildfire contained in Appendix G of the State CEQA Guidelines; however, the analysis is not limited to areas located in or near state responsibility areas or lands classified as very high fire hazard severity zones.[1] As such, the Proposed Project would result in a significant impact if 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.

[1] Since the Proposed Project area would be limited to the federal lands managed by the USFS and BLM within the Central Valley Region, it would not include or overlap with any state responsibility areas. Likewise, CAL FIRE does not map very high fire hazard severity zones on federal lands.

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)*

Several of the reasonably foreseeable management measures under the Proposed Project would have potential to impair emergency response and/or evacuation procedures. In particular, management measures involving disturbance or repairs to existing roads could interfere with vehicle movement, including emergency vehicles. For example, installation of water bars or rolling dips would involve construction work within the roadway; similarly, adding armor/hardened surface to the inlet or outlet of culverted watercourse crossings could require operation of construction equipment in the roadway, which could interfere with traffic flow. Adding road surface material such as rock to native surface roads to protect against erosion and sediment transport may require temporarily closing a road to through-traffic.

For all of these activities, if the impacts to the roadways were to occur at the same time as an emergency on the federal lands (such as a wildfire), this could adversely affect the response procedures. Depending on where the Proposed Project activities (i.e., installation of management measures, treatment of CSDS, etc.) take place in relation to the emergency, the work could prevent emergency vehicles from reaching the emergency site or hinder their progress, particularly if proper precautions are not taken. It is important to note that the potential impacts from these management measures would not differ substantially from impacts that may occur from USFS's and BLM's routine activities, such as road maintenance and reconstruction. In this respect, the potential impacts from the Proposed Project would be the incremental additional impacts relative to existing conditions (e.g., additional road disturbance that may occur from implementation of management measures).

In addition to affecting emergency vehicle movement and emergency response, the temporary construction-related impacts to USFS and BLM roadways could affect emergency evacuation procedures. Although the majority of the USFS and BLM managed lands in the Central Valley Region are rural and undeveloped in nature, in some cases the federal lands occur in proximity to populated areas (in particular, BLM lands). Further, even on the generally unpopulated USFS and BLM managed lands, recreationists may be present at dispersed camping sites or more developed campgrounds. As such, if roadways are affected by management measure implementation/construction at the same time that a wildfire or other emergency occurs, this could limit the ability of those individuals present on the federal lands (e.g., recreationists, federal agency staff) to evacuate the area. Similarly, if certain roadways are blocked or temporarily impacted, this could affect the ability of individuals in populated areas adjacent to USFS or BLM managed lands to evacuate those areas (potentially to find refuge on the USFS/BLM managed lands).

Emergency response, including wildfire response, on Federal lands is coordinated through the NRF (see discussion under Section 3.17.2). USFS serves as the Primary Agency for ESF #4, which is the coordinator for wildland, rural, urban, and suburban firefighting support (USFS 2018). The specific operations and procedures followed or implemented in response to a wildfire on federal

lands in the Central Valley Region pursuant to the NRF and ESF #4 would depend on the specific nature of the event. However, as noted above, it is possible that the actions related to the Proposed Project (e.g., management measure implementation/construction) could hinder emergency response efforts. In particular, ground-disturbing management measures within roadways on USFS/BLM managed lands could hinder the ability for emergency vehicles and personnel to access wildfire-affected areas.

As discussed in Section 3.14, "Transportation," both USFS and BLM regularly conduct roadway improvement work on their lands and have procedures in place to minimize potential impacts on traffic flow, which would include emergency services vehicles. The USFS implements its Forest Service Specifications for Construction of Roads & Bridges (EM-7720-100) (USFS 1996), which states that USFS shall "perform no work that interferes or conflicts with traffic or existing access to the roadway surface until a plan for the satisfactory handling of traffic has been approved." The Specifications further direct the USFS to post construction signs and traffic control devices in conformance with the Manual on Uniform Traffic Control Devices (MUTCD). BLM posts information on its website regarding roads that are to be temporarily closed or limited to one way traffic, and reviews potential impacts on roadways from individual actions on a case-by-case basis. Given the federal agencies' existing practices and procedures, and considering the relatively minor and incremental impact of the Proposed Project activities, the potential impacts on emergency response and evacuation plans and procedures from construction activities would be less than significant.

Once constructed/installed, the reasonably foreseeable management measures (e.g., water bars, rolling dips, etc.) associated with the Proposed Project would not affect the functionality or capacity of roadways on the federal lands. Likewise, none of the management measures, once constructed or installed, would reasonably affect the ability of emergency personnel to access areas within the federal lands or hinder emergency evacuation efforts. On-going maintenance of certain management measures (e.g., periodic clearing of road drainage features) could potentially affect roadways, but the USFS' and BLM's existing practices and procedures (see above) would prevent significant impacts from occurring. Monitoring and reporting activities themselves (e.g., driving to and from monitoring sites) would have no potential to substantially affect emergency response or evacuation. Therefore, potential impacts during the operation phase would be less than significant.

It is important to note that the Proposed Project would not require management measures that would conflict with, or impair, firefighters' ability to protect life and safety during a wildfire response. As described in Chapter 2, *Project Description,* BMPs to protect soil, water quality, and riparian resources exist for wildfire suppression activities (e.g., MIST), but must not compromise public or firefighter safety. Wildfire suppression and emergency response activities would not be subject to the requirements of the Proposed Project; thus, the Proposed Project would have no potential to directly interfere with emergency response procedures related to a wildfire.

Overall, 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)*

The reasonably foreseeable management measures associated with the Proposed Project would not substantially increase wildfire risks over the long term relative to existing conditions. Many of the management measures (e.g., water bars, rolling dips, rock armoring at culvert inlets/outlets, etc.) would not include flammable components that could provide fuel for a wildfire. Some management measures (e.g., slash packing a skid trail or fire line, adding woody material to disturbed soil or existing areas of erosion, adding straw mulch for ground cover, etc.) would include flammable material, which could potentially serve as fuel for a wildfire; however, in the context of the vast National Forests and BLM-managed lands, any additional fuel created through implementation of the reasonably foreseeable management measures would be marginal. Often, the areas being treated would be post-wildfire landscapes, and thus these areas would already be largely devoid of flammable material (due to the recent burn), thereby minimizing the risk of reignition.

As noted above, USFS and BLM managed lands in the Central Valley Region are generally unpopulated, although recreationists may stay at dispersed campsites or developed campgrounds on the federal lands for periods of time. Additionally, in some areas, the federal lands may be located nearby or adjacent to populated areas. The Proposed Project would not include, or result in the construction of, any habitable structures or buildings. The personnel charged with implementing the Proposed Project (or complying with its requirements) (i.e., USFS and BLM staff and their contractors) would be the same personnel that currently conduct or manage the covered activities and oversee implementation of BMPs pursuant to the existing agreements (see discussion in Chapter 2, *Project Description*). Thus, there would be no "project occupants" that could be exposed to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Given that it is unknown which management measures may be implemented in which locations under the Proposed Project, it is impossible to analyze the specific risks at any given site. Although not mapped by CAL FIRE for fire risk (since it is a FRA), much of the federal land area in the Central Valley Region may be considered to be at high or very high risk for wildfire. In particular, the conifer forests of the Sierra Nevada, Coast Range, and Cascade Mountains in the region frequently experience fire and are generally at high risk for wildfire in any given year, depending on hydrologic conditions (e.g., drought) and other factors. Generally, areas that have not burned in a long period of time and where there is a buildup of combustible vegetation (i.e., fuel load) would be at higher risk for wildfire. Additionally, wildfires may spread more easily in steeply sloped areas and where there are high winds (e.g., ridge lines).

Construction/installation of certain management measures associated with the Proposed Project could potentially provide a spark and thereby increase the risk of ignition of a wildfire. This issue is also discussed in Section 3.9, "Hazards and Hazardous Materials." For example, construction/installation of management measures such as water bars or rolling dips would require combustion-engine powered equipment. Similarly, implementation of many other management measures (e.g., slash packing, placement of rock armor, straw wattles, etc.) may require utilization of mechanical equipment that could provide a spark and that may be operated in vegetated areas prone to wildfire. As described in Section 3.9, while these activities

could increase fire risk to some degree, the additional risk would be relatively minor and incremental relative to that associated with the federal agencies' ongoing activities, which are part of the baseline. As federal entities, USFS and BLM may not be required to follow California PRC requirements related to wildland fire safety; nevertheless, the adherence to industry-standard levels of care should ensure that any ignition risk is minimized.

It should be noted that vegetation management activities conducted by USFS and BLM (e.g., hazard tree removal, thinning operations, prescribed fire, and invasive plant treatment) serve to reduce wildfire risk by reducing fuel loads. As described in Chapter 2, *Project Description,* these activities are on-going under existing conditions and are not the focus of the environmental analysis. Independent of the Proposed Project, USFS has pledged to double its fuel reduction efforts in California, as described in California's Wildfire and Forest Resilience Action Plan: A Comprehensive Strategy of the Governor's Forest Management Task Force (State of California 2021).

Overall, 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)*

As discussed above under Impact WF-2, the Proposed Project would not include any habitable structures or buildings. As such, it would not require the installation or maintenance of infrastructure (e.g., roads, fuel breaks, emergency water sources, power lines or other utilities) for the purpose of serving new developments. Likewise, it is unlikely that implementation of any management measures, or treatment of CSDS, pursuant to the Proposed Project would require installation of any such infrastructure. Rather, it is anticipated that construction/installation of management measures and treatment of CSDS could be accomplished using existing roads and water sources (e.g., through drafting from streams or lakes consistent with USFS/BLM current practices). Any electrical power supply needed for construction/installation of management measures pursuant to the Proposed Project could be supplied through generators or potentially through tapping into existing power lines on the federal lands.

The Proposed Project would not involve, or result in the construction of, any new roads; rather, it would place conditions on the construction or maintenance of roadways, should USFS/BLM conduct such activities and seek coverage under the Proposed Permit.

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)*

In general, the Proposed Project would serve to reduce post-wildfire slope instability and runoff relative to existing conditions. One of the primary objectives of the Proposed Project is to protect and preserve water quality, including through implementation of appropriate BMPs that will effectively protect water quality (see Section 2.4 in Chapter 2, *Project Description*). Post-

emergency recovery (including for wildfires) is one of the categories of activities that would be covered by the Proposed Permit, and would include wildland fire suppression repair, salvage logging, hazard tree abatement, rehabilitating fire and suppression damage (recovery), reforestation, and prescribed fire. The Proposed Project would impose requirements for implementing management measures and conducting monitoring and reporting for these activities.

Common management measures for post-emergency recovery activities that may be implemented pursuant to the Proposed Project include installing water bars on fire lines; slash packing fire lines; and adding ground cover on exposed soils such as straw mulch, slash, or woody material, or revegetating the area. All of these measures would serve to reduce erosion and sediment discharges in post-wildfire landscapes, and may also stabilize slopes. Likewise, many of the measures would slow or detain runoff, which may reduce potential for adverse downslope effects. After a wildfire, hillsides that have been denuded of vegetation (i.e., due to the fire) are more susceptible to erosion and runoff rates generally increase due to the lack of vegetation. Both of these factors could increase potential for slope failure and/or downslope or downstream flooding. The reasonably foreseeable management measures and monitoring/reporting requirements would reduce potential for these effects.

To the extent that implementation of the Proposed Project could increase wildfire risk during construction/installation activities, this could increase the potential to expose people or structures to risks. As discussed in Impact WF-2, construction/installation of management measures involving ground disturbance or placement of materials may require use of combustion engine-powered equipment that could provide a spark and thereby potentially result in ignition of a wildfire. However, these effects would be incremental and not significant in the context of the federal agencies' ongoing activities involving internal combustion engine equipment.

Over the long term, once constructed/installed, the reasonably foreseeable management measures would function to minimize potential discharges of sediment from the federal lands. Although some measures may add flammable materials (e.g., woody debris, straw, mulch, etc.) to the landscape, any additional "fuel" resulting from Proposed Project implementation would be marginal relative to the existing vegetation within the USFS/BLM managed lands. Additionally, as noted above, the vegetation management activities that would be covered by the Proposed Permit would largely function to reduce fuel loads – thereby mitigating wildfire risk.

In general, the USFS and BLM managed lands in the Central Valley Region are unpopulated and there are few structures present on the lands (e.g., campground facilities). As such, there would be limited potential for people or structures on the federal lands to be exposed to significant risks, such as downslope or downstream flooding or landslides. However, in some instances, populated areas are located near or adjacent to USFS and BLM managed areas – and in these cases, it is possible that runoff, post-wildfire slope instability, and drainage changes associated with wildfire could result in significant risks to these populated areas. As discussed, the Proposed Project would largely function to reduce potential for adverse post-wildfire runoff and slope stability effects. Any increased risk of wildfire ignition associated with construction/installation of management measures would be marginal and minimized through adherence to industry-standard levels of care.

Therefore, this impact would be **less than significant.**

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Chapter 4
Alternatives Analysis

4.1 Introduction

This chapter analyzes alternatives to the California Regional Water Quality Control Board, Central Valley Region's (Central Valley Water Board) proposed Waste Discharge Requirements (WDRs) for Nonpoint Source (NPS) Discharges Related to Certain Activities Conducted by the United States Forest Service (USFS) and Bureau of Land Management (BLM) on Federal Lands (Proposed Project or Federal NPS Permit) pursuant to requirements of the California Environmental Quality Act (CEQA). As described in Chapter 2, *Project Description,* the proposed Federal NPS Permit would include requirements for best management practice (BMP) implementation and effectiveness monitoring; actively addressing Controllable Sediment Discharge Sources (CSDS), and conditions for pesticide applications. The proposed Federal NPS Permit would cover the following types of activities conducted by the USFS and BLM on federal lands: vegetation management, transportation management, recreation facilities management, post-emergency recovery activities, and restoration activities.

This chapter describes the regulatory requirements related to alternatives analyses; the alternatives screening and development process conducted for the Proposed Project, and the 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

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 considering potential alternatives to the Proposed Project, the Central Valley Water Board applied the screening criteria described below. In accordance with CEQA requirements, these included: (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.

4.3.1 Alternatives Screening Criteria

Would the Alternative Meet Most of the Project Objectives?

As described in Chapter 2, *Project Description,* the overarching purpose of the Federal NPS Permit is to ensure protection of water quality and beneficial uses by addressing threats to water quality resulting from actual or potential NPS discharges. Specific goals and objectives of the Proposed Project are as follows:

1. Protect and preserve water quality through the following:
    a. Implementation of appropriate BMPs that will effectively protect water quality;
    b. Timely corrective action and adaptive management informed by actively monitoring BMP effectiveness in protecting water quality;
    c. Preservation of high-quality waters (anti-degradation); and
    d. Identification and reduction of existing and potential sediment discharges and other pollutant discharges from USFS and BLM lands.
2. Ensure regulatory compliance with legal requirements, including but not limited to the Central Valley Basin Plans, NPS Policy, Division 7 of the California Water Code, and other state and federal regulatory requirements.
3. Provide regulatory certainty for two of the largest land management agencies in the Central Valley Region through the following:
    a. Clear programmatic permit requirements that are less focused on nonessential paperwork and more focused on performance (including effective BMPs) leveraging where possible existing USFS/BLM mandates;
    b. Increased communication between the Central Valley Water Board and USFS/BLM staff; and

c. Coverage of multiple activities within a single permit.

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 the proposed Federal NPS Permit, 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 the proposed Federal NPS Permit would be implemented on federal lands, which are not subject to local land use laws (e.g., city and county). Moreover, the proposed Federal NPS Permit would not involve a significant change to an existing land use that could conflict with general plan land use designation or zoning (even if the federal agencies were subject to such laws).

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 render the alternative environmentally infeasible.
- **Legal Feasibility.** Does the alternative conflict with established law or regulations, such that it would be infeasible to implement? With respect to the proposed Federal NPS Permit, this criterion is particularly relevant to consistency with Project Objective #2, which requires compliance with federal and state mandates, including the Central Valley Basin Plans, Section 319 of the federal CWA, NPS Policy, and California Water Code Sections 13263, subdivision (a), and 13241. Inability to meet this objective, even if the other two objectives (i.e., "most") could be met, could render an alternative legally infeasible.
- **Social Feasibility.** Is the alternative inconsistent with an adopted goal or policy of the Central Valley Water Board 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 the proposed Federal NPS Permit 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 measures may be technically infeasible at certain locations, but it is assumed that USFS/BLM would implement or install management measures that are suitable for the specific site or situation.

Note that the threshold for retaining an alternative for consideration in the Draft Environmental Impact Report (DEIR) 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 Board Members of the Central Valley Water Board) makes the final determination in its findings pursuant to CEQA as to whether a given alternative analyzed in the DEIR is actually feasible.

Would the Alternative Lessen or Avoid One or More of the Proposed Project's Significant Environmental Impacts?

As described throughout this DEIR, the Proposed Project would have the potential to result in only one potentially significant environmental impact, which the analysis finds could be reduced to less-than-significant with implementation of a mitigation measure. Specifically, construction/installation of certain management measures involving ground disturbance could impact California special-status species that may be present on the federal lands; however, implementation of Mitigation Measure BIO-1 (Avoid and Minimize Impacts on Sensitive Biological Resources) would reduce the impact to a level that is less than significant.

Other impacts on environmental resources due to ground-disturbing activities from management measure construction/installation would not rise to the level of significance given adherence to USFS' and BLM's existing protective practices and procedures; nevertheless, some level of impact would still occur.

The Proposed Project would not result in any significant and unavoidable impacts. It is also important to consider that the Proposed Project is specifically designed to correct existing deficiencies in BMP implementation by the federal agencies and associated water quality impacts from the covered activities. Therefore, even though the Proposed Project would potentially result in a significant impact requiring a mitigation measure to avoid or minimize the impacts, as described above, it would effectively address the existing adverse impacts on the environment and improve water quality conditions on the USFS/BLM lands over the long term.

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 impacts of the Proposed Project:

1. No Project Alternative

2. Reduced Management Measure Implementation Alternative

These alternatives are described below. The alternative screening results are also discussed and the potential environmental impacts of each alternative are analyzed in comparison to the Proposed Project. Section 4.5 discusses alternatives that were considered but dismissed from detailed analysis in the EIR.

4.4.1 No Project Alternative

Description

Under the No Project Alternative, the Central Valley Water Board would not implement the proposed Federal NPS Permit. In this scenario, NPS discharges from activities conducted by USFS and BLM on federal lands would continue to be governed by the current agreements between the State of California and the federal agencies (1981 Management Agency Agreement [MAA], 1992 Memorandum of Understanding [MOU], and Timberland Management General Order; see Chapter 2, *Project Description* for discussion). Central Valley Water Board staff would continue to review individual project plans and materials, potentially issuing individual WDRs or otherwise placing conditions on projects proposed by USFS and BLM that have potential to impact waters of the state. However, under current conditions, the federal agencies do not submit project materials or notifications for many projects that could potentially impact waters. Thus, lacking additional enforcement or coordination with the federal agencies, the No Project Alternative would not allow the Central Valley Water Board to review and issue individual WDRs for all projects requiring coverage (in this respect, it differs from an "Individual WDRs Alternative" – see discussion under Section 4.5.1).

None of the permit conditions, monitoring and reporting requirements, and other aspects of the Proposed Project (see Chapter 2, *Project Description*) would go into effect. No Controllable Sediment Source Reduction Program (CSSRP)would be established and thus there would be no regulatory mechanism for identifying, tracking, and treating CSDS on the federal lands.

Screening Analysis

The No Project Alternative is required by statute; thus, it was carried forward for detailed analysis. However, with respect to the screening criteria, the No Project Alternative would not fully meet the Proposed Project objectives. Regarding Objective #1, the No Project Alternative would not fully protect and preserve water quality since the Central Valley Water Board's experience and monitoring have shown that sole reliance on the 1981 MAA (with USFS) and 1992 MOU (with BLM) for regulation of NPS discharges from USFS/BLM-managed lands has not led to sufficient protection of water quality (see discussion in Section 2.2.5 in Chapter 2, *Project Description*). In particular, the No Project Alternative would not include a framework for "timely corrective action and adaptive management informed by actively monitoring BMP effectiveness in protecting water quality" (Objective #1.b), nor "identification and reduction of existing and potential sediment discharges and other NPS pollutant discharges from USFS and BLM lands" (Objective #1.d).

Since the existing regulatory structure doesn't provide for sufficient protection of water quality, the No Project Alternative would not meet Objective #2, which seeks to "ensure regulatory compliance with federal and state mandates, including the Central Valley Basin Plans, Section 319 of the federal CWA, NPS Policy, and California Water Code Sections 13263, subdivision (a), and 13241." Finally, the No Project Alternative would not meet Objective #3, since the proposed Federal NPS Permit would not be established and there would be no mechanism for increased communication between the Central Valley Board and USFS/BLM staff. As noted above, there is some confusion under the existing framework as far as which projects and activities by USFS and BLM require notification to the Central Valley Water Board (the federal agencies currently do not notify or submit project materials to the Central Valley Water Board for many activities with potential to impact waters). As such, under the No Project Alternative, regulatory certainty would not be provided for two of the largest land management agencies in the Central Valley Region.

In terms of feasibility, the No Project Alternative would not be so costly to implement that it would be economically infeasible (it would likely be less costly than the Proposed Project in terms of Central Valley Water Board staff time and resources). Additionally, relative to baseline, the No Project Alternative would not result in substantially greater environmental damage than the Proposed Project, such as to make the alternative environmentally infeasible. However, given that the No Project Alternative would not meet Objective #2 (see discussed above), which requires compliance with legal requirements with respect to water quality and NPS discharge regulation, it would be legally infeasible to implement. The Central Valley Water Board is responsible for ensuring that appropriate NPS control implementation programs are in place; thus, an indefinite continuation of the current arrangement, which has been shown to be ineffective and has not been updated consistent with the NPS Policy, would not be feasible. With respect to the other aspects of feasibility identified in the CEQA Guidelines, the No Project Alternative would not be socially or technically infeasible.

The No Project Alternative would reduce the potentially significant environmental impact of the Proposed Project, and those impacts not rising to the level of significance. As described in Section 4.3.1 above and throughout this DEIR, the impacts of the Proposed Project would primarily be related to the construction/installation of certain management measures (e.g., those involving ground disturbance, such as water bars, rolling dips, other road drainage features, etc.), which would have potential for short-term, construction-related impacts. However, all of these impacts would be less than significant given adherence to the USFS and BLM existing practices and procedures or with implementation of Mitigation Measure BIO-1. Since it is assumed that the Proposed Project would result in increased management measure implementation, the No Project Alternative would avoid many of the potential impacts associated with additional management measure implementation relative to baseline.

In conclusion, the No Project Alternative would not meet most of the Project objectives and would not be legally feasible (although it would reduce one of the Proposed Project's potentially significant impacts). Regardless, since it is required by statute, the No Project Alternative is carried forward for detailed analysis.

Impacts Analysis

Aesthetics

The No Project Alternative would have no potential to impact aesthetics since it would be a continuation of existing conditions. Since the No Project Alternative would result in less management measure implementation compared to the Proposed Project, there would be less potential for construction-related activities to temporarily affect scenic vistas (or access to scenic vistas) and/or the existing visual character or quality of public views of specific sites and their surroundings. As described in Section 3.1, "Aesthetics," construction/installation of certain management measures could temporarily result in some adverse effects on aesthetics and visual resources; however, these impacts would be less than significant. The No Project Alternative would have similar impacts (since construction/installation of management measures would still occur under the No Project Alternative), but these would be reduced compared to the Proposed Project and the impacts are ongoing under baseline.

Like the Proposed Project, the No Project Alternative would not substantially damage scenic resources (e.g., trees, rock outcroppings, and historic buildings within a state scenic highway) and would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area. In general, the No Project Alternative would be a continuation of existing conditions and thus there would be no change with respect to the baseline. Therefore, the No Project Alternative would have **no impact** on aesthetics.

Agriculture and Forestry Resources

The No Project Alternative would have no potential for impacts to agriculture and forestry resources since it is a continuation of existing conditions. As described in Section 3.2, "Agriculture and Forestry Resources," there is some potential for construction/installation of management measures to temporarily affect access and use of Important Farmland. These activities, in particular the implementation of management measures, may occur under the No Project Alternative pursuant to the current agreements (1981 MAA, 1992 MOU, and Timberland Management General Order); however, the frequency and extent of the activities would be reduced under this alternative compared to the Proposed Project and would be the same as baseline. The management measures would not be anticipated to result in permanent conversion of Farmland to nonagricultural use under either the No Project Alternative or Proposed Project.

As described in Section 3.2, "Agriculture and Forestry Resources," for the Proposed Project, the management measures would be expected to benefit forest land over the long-term; however, there would be some potential for construction/installation of the measures (in particular, those measures involving ground disturbance) to result in short-term, adverse effects to forest lands. For example, tree injury or mortality could occur from the ground-disturbing activities. These impacts could also occur under the No Project Alternative, although the level/severity of the impacts would be the same as under existing conditions. Given that the No Project Alternative would be a continuation of existing (i.e., baseline) conditions, it would have **no impact** on agricultural and forestry resources.

Air Quality

The No Project Alternative would have no potential to substantially impact air quality relative to existing, baseline conditions. Generally, the No Project Alternative would result in fewer management measures being implemented relative to the Proposed Project (due to lack of permit conditions and monitoring and reporting requirements). This would include measures that would involve emission of air pollutants (e.g., diesel particulate matter [DPM], nitrogen oxides [NOx], and reactive organic gases [ROG]) due to operation of construction equipment during construction activities and/or transport of equipment and materials to treatment sites. As such, the No Project Alternative would result in fewer of these types of emissions, and the emissions would generally be the same as baseline. Similarly, given that the No Project Alternative would result in fewer ground-disturbing management measures, it would have reduced potential to mobilize naturally occurring asbestos (NOA).

While the No Project Alternative would avoid some impacts of the Proposed Project on air quality, it also would not achieve the same beneficial effects. For example, many management measures to reduce erosion (e.g., in post-emergency landscapes) would also serve to minimize fugitive dust generation. Since the level of management measure implementation would be reduced under the No Project Alternative, these beneficial effects would also be reduced. Overall, relative to baseline, the No Project Alternative would have **no impact** on air quality.

Biological Resources

Under the No Project Alternative, there would be no potential for substantial adverse impacts on biological resources relative to baseline. Biological resources would include special-status species that may be present in the disturbance area, sensitive natural communities or migratory species that may be impacted by pollutant discharges associated with construction-related activities (e.g., hazardous materials, sediment), and/or wetlands that could be directly or indirectly affected by construction/installation of management measures. Without the additional oversight, permit conditions, and monitoring provided by the Proposed Project, it is reasonable to assume that fewer management measures would be implemented under the No Project Alternative, thereby leading to fewer short-term, potential adverse effects. Since the No Project Alternative is a continuation of existing conditions, any adverse effects would be the same as under baseline.

By the same token, the No Project Alternative would not achieve the same level of beneficial effects as the Proposed Project. Although certain reasonably foreseeable management measures under the Proposed Project (in particular, those involving ground-disturbance) would have potential for short-term, adverse effects, these measures would be effective in curbing NPS pollutant discharges from the lands managed by USFS and BLM. In this regard, the management measures would benefit biological resources over the long-term, since NPS pollution is detrimental to beneficial uses and aquatic life. The fine sediment that may be discharged from USFS and BLM managed lands due to the covered activities (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities) can adversely affect spawning habitat for special-status salmonid species.

Overall, given that the potential impacts on biological resources under the No Project Alternative would be the same as under existing conditions, **no impact** would occur.

Cultural Resources

The No Project Alternative would have no potential to impact cultural resources since it would be a continuation of existing conditions/activities. As discussed above, the No Project Alternative would result in fewer management measures being implemented on the USFS and BLM managed lands relative to the Proposed Project. Therefore, there would be reduced potential for ground-disturbing activities (e.g., grading, excavation) associated with construction/installation of certain management measures to encounter buried, unknown cultural resources. As discussed in Section 3.4, "Cultural Resources," the USFS and BLM have protocols in place to avoid or minimize potential impacts to cultural resources from ground-disturbing activities, as well as impacts associated with the inadvertent discovery of human remains. Because the potential impacts of the No Project Alternative on cultural resources would be the same as under existing (i.e., baseline) conditions, **no impact** would occur.

Energy

The No Project Alternative would use the same amount of energy as under existing conditions, which would be reduced compared to the Proposed Project. For example, there would be less energy use from operation of fossil fuel-powered equipment during construction/installation of management measures, and from maintenance of equipment used in construction and operation activities, under the No Project Alternative as compared to the Proposed Project. This energy use would be the same as under baseline. Similarly, there would be reduced potential for wasteful or inefficient energy use, such as can occur from unnecessary truck or equipment idling – and any adverse effects would be the same as that which occurs under existing conditions.

In general, energy use under the No Project Alternative, including any wasteful or unnecessary energy use and/or any use of energy that could conflict with or obstruct a state or local plan for renewable energy or energy efficiency, would be the same as under existing conditions. Therefore, **no impact** would occur.

Geology and Soils

The impacts of the No Project Alternative related to geology and soils would be the same as under existing, baseline conditions (and reduced compared to the Proposed Project). Management measures are currently being implemented for the activities proposed to be covered by the Federal NPS Permit, but not to the extent that they would be under the Proposed Project. Thus, under the No Project Alternative, there would be some potential for loss of topsoil or increased landslide/slope failure risk due to management measures involving ground-disturbance (e.g., grading, excavation); however, these effects would not be as pronounced as under the Proposed Project, and would be the same as baseline.

While the No Project Alternative may have reduced potential for short-term, construction-related adverse effects on geology and soils compared to the Proposed Project, it also wouldn't achieve the same level of beneficial effects. As discussed in Section 3.7, "Geology and Soils," existing impacts on geology and soils are currently occurring due to the activities proposed to be covered by the Federal NPS Permit (e.g., erosion and loss of topsoil due to vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities). The increased level of management measure implementation under the Proposed Project would be more effective in reducing erosion and

loss of topsoil (as well as stabilizing slopes and reduced potential for landslide risks) over the long term compared to the No Project Alternative.

Overall, since the impacts on geology and soils under the No Project Alternative would be the same as under existing conditions, **no impact** would occur.

Greenhouse Gas Emissions

Under the No Project Alternative, greenhouse gas (GHG) emissions would be reduced compared to the Proposed Project and would be the same as under baseline conditions. This is because the level of management measure implementation would be increased under the Proposed Project due to the proposed permit conditions and monitoring and reporting requirements. As discussed in Section 3.8, "Greenhouse Gas Emissions," the construction/installation of certain management measures (e.g., those involving operation of heavy equipment and ground-disturbance, as well as measures that may require materials to be transported long distances to project sites) would result in GHG emissions, although these effects would be less than significant.

Some emissions would occur under the No Project Alternative associated with management measures that are implemented under existing conditions, but these emissions would be the same as under baseline. Thus, **no impact** would occur.

Hazards and Hazardous Materials

The No Project Alternative would have no potential to result in significant impacts related to hazards and hazardous materials, since it would be a continuation of existing conditions/activities. The No Project Alternative would result in fewer management measures relative to the Proposed Project; therefore, there would be reduced potential for any accidental releases of hazardous materials associated with construction activities, and any potential effects under the No Project Alternative would be the same as under baseline. Because the USFS and BLM managed lands in the Central Valley Region are generally undeveloped and sparsely populated, there would be minimal potential for activities to significantly affect sensitive receptors under the Proposed Project or No Project Alternative. For example, although construction/installation of certain management measures could emit hazardous emissions (e.g., DPM from construction equipment), in most cases, these emissions would be far from any sensitive receptors, including schools.

Due to the reduced level of management measure implementation compared to the Proposed Project, there would be reduced potential for accidental ignition of wildfires from operation of construction equipment in fire-prone areas under the No Project Alternative. This risk would be the same as under existing (i.e., baseline) conditions. **No impact** would occur related to hazards and hazardous materials from the No Project Alternative.

Hydrology and Water Quality

Under the No Project Alternative, there would be no potential for substantial impacts to surface waters and groundwater since the alternative would be a continuation of existing conditions. Due to the reduced management measure implementation under the No Project Alternative compared to the Proposed Project, there would be fewer short-term effects to water quality

during construction/installation of certain management measures (e.g., water bars, rolling dips, etc.) and any effects would be the same as under baseline. Similarly, there would be reduced potential for equipment to leak hazardous materials, or for hazardous materials associated with management measure construction/installation to otherwise be spilled or released, thereby affecting water quality. The potential for short-term impacts on hydrology and water quality to occur under the No Project Alternative would be the same as under existing conditions.

To the extent that the No Project Alternative would result in reduced management measure implementation compared to the Proposed Project, this would also reduce the beneficial effects of management measure implementation over the long-term. That is to say, the No Project Alternative would be less effective (compared to the Proposed Project) in reducing or mitigating NPS discharges from activities conducted by USFS and BLM on federal lands. Additionally, there would be fewer watershed restoration projects on the federal lands under the No Project Alternative (due to the lack of a CSSRP requirement); although these types of projects can have short-term impacts on water quality of their own, they are beneficial to hydrology and water quality overall.

Overall, since the potential for adverse impacts to hydrology and water quality under the No Project Alternative would be the same as existing conditions, **no impact** would occur.

Mineral Resources

The No Project Alternative would have no potential to adversely affect mineral resources availability since it would be a continuation of existing conditions. None of the management measures that could be implemented to address NPS discharges under the Proposed Project or the No Project Alternative would involve new housing or commercial developments or other new land uses that could potentially preclude future mineral resources development. Generally, the management measures would be limited to treatments to control erosion and sedimentation, and/or relatively minor modifications to existing facilities (e.g., installation of water bars or rolling dips, addition of hardened surfaces to parking or water craft launch areas). As such, the NPS discharge control measures would not substantially inhibit mineral resources availability on the USFS and BLM managed lands, although the presence of construction equipment or staging areas could affect mineral resources development temporarily in certain areas.

The No Project Alternative's potential to affect mineral resources availability would be minor and the same as under existing conditions; therefore, **no impact** would occur.

Noise

Under the No Project Alternative, there would be no potential for substantial impacts to noise since the alternative would be a continuation of existing conditions. Some noise would occur under the No Project Alternative from construction/installation of certain management measures (e.g., those involving loud pieces of equipment, such as bulldozers, chainsaws, excavators, etc.) that are implemented pursuant to the current regulatory structure; however, this level of noise would be reduced compared to the Proposed Project and the same as baseline.

As discussed in Section 3.12, "Noise," for the Proposed Project, the effects of noise at any one site would depend on the proximity to sensitive receptors in the vicinity and the types of equipment used for construction/installation of a specific management measure. Neither the Proposed Project nor No Project Alternative would include or result in the addition of any new permanent substantial sources of noise; rather, the noise associated with the No Project Alternative, like the Proposed Project, would be temporary and construction-related (and the same as existing conditions). The No Project Alternative would have **no impact** with respect to noise.

Public Services

The No Project Alternative would have no potential to adversely affect public services relative to baseline, since the No Project Alternative would be a continuation of existing conditions. Thus, under the No Project Alternative, while construction/installation of certain management measures (i.e., those requiring combustion engine-powered equipment) would have potential to provide a spark and ignite a wildfire, these potential effects would be the same as under the baseline and would be reduced compared to the Proposed Project. Similarly, while USFS and BLM may implement management measures under existing conditions that could add "fuel" to the landscape (e.g., slash, straw, woody material), the level of management measure implementation would be reduced compared to the Proposed Project, thereby resulting in reduced potential effects. As such, the No Project Alternative would have no potential to adversely affect fire protection services (e.g., via reduced response times or other performance metrics or creating the need for additional facilities) relative to baseline.

Like the Proposed Project, the No Project Alternative would have no potential to adversely affect police protection services, schools, parks or other public services. **No impact** to public services would occur under the No Project Alternative.

Transportation

The No Project Alternative would have no potential to impact transportation since the alternative would be a continuation of existing conditions. Since fewer management measures would be constructed/installed under the No Project Alternative compared to the Proposed Project, there would be less potential for construction activities to temporarily affect roadways on USFS and BLM managed lands, and any effects would be the same as that which occur under baseline. As described in Section 3.14, "Transportation," construction/installation of certain management measures (in particular, those involving ground-disturbing activities within existing roads [e.g., water bars, rolling dips, road drainage features, etc.]) could require temporary lane or road closures. This could interfere with emergency access or potentially create a hazard due to incompatible uses (e.g., construction equipment present on roadways), although the effects would be reduced through adherence to the federal agencies' existing practices and procedures. While these effects would be less than significant for the Proposed Project, the effects would be further reduced under the No Project Alternative and would be the same as under existing conditions.

The USFS and BLM managed lands in the Central Valley Region are largely undeveloped and sparsely populated; thus, there is minimal traffic along the majority of roads within these areas. The types of management measures that may be implemented under the Proposed Project and No Project Alternative would not substantially affect the capacity or performance of roadways

over the long-term (once installed) and would not be expected to conflict with alternative modes of transportation (e.g., bicycle, pedestrian). The effects of the No Project Alternative would be the same as under the existing, baseline conditions. Therefore, **no impact** would occur.

Tribal Cultural Resources

The No Project Alternative would have no potential to impact tribal cultural resources (TCRs) since this alternative would be continuation of existing conditions. As discussed above under "Cultural Resources," construction/installation of certain management measures under both the Proposed Project and No Project Alternative would involve ground disturbance (e.g., grading, excavation) and thus could encounter buried cultural resources; however, any effects under the No Project Alternative would be the same as baseline. Discovered cultural resources could potentially be TCRs, although no known TCRs have been identified within the USFS and BLM managed lands in the Central Valley Region. The USFS and BLM both have existing protocols that they follow during ground-disturbing activities to avoid or minimize potential impacts to cultural resources, including TCRs; adherence to these protocols would reduce potential impacts under both the Proposed Project and No Project Alternative. The management measures would not be anticipated to substantially change any landscapes or above-ground features of the landscape that could be considered TCRs.

The potential effects on TCRs from the No Project Alternative would be the same as under existing conditions. Therefore, **no impact** would occur.

Utilities and Service Systems

Given that the No Project Alternative would result in reduced management measure implementation compared to the Proposed Project, there would be reduced water use associated with these activities (e.g., water needed for dust control for ground-disturbing measures or for conditioning of fills/soils for road-related improvements). Similarly, there would be reduced wastewater generation (e.g., use of portable restrooms by construction workers involved in implementing management measures), as well as reduced need for solid waste disposal services. All of these impacts would be less than significant for the Proposed Project; however, the No Project Alternative's impacts would be further reduced and would be the same as under baseline conditions. As a result, **no impact** would occur from the No Project Alternative on utilities and service systems.

Wildfire

Under the No Project Alternative, there would be no potential for significant wildfire impacts to occur, since this alternative would be a continuation of existing conditions. Compared to the Proposed Project, there would be reduced potential for construction/installation of certain management measures (e.g., water bars, rolling dips, etc.) to impair emergency response or evacuation efforts related to a wildfire. Since management measure implementation would generally be reduced under the No Project Alternative compared to the Proposed Project, there would be reduced potential for ground-disturbing management measures affecting roadways to potentially affect emergency vehicle movement or access. Similarly, there would be reduced potential for construction/installation of certain management measures to potentially provide a

spark and thereby increase the risk of igniting a wildfire. However, this impact is not significant for the Proposed Project.

While the No Project Alternative would reduce some short-term, construction-related effects of the Proposed Project, it also would reduce the beneficial effects of the Proposed Project related to stabilization of slopes damaged by wildfire (e.g., adding ground cover on exposed soils such as straw mulch, slash, woody material, or revegetating) and otherwise reducing runoff/discharges from wildfire-affected areas. As described in Section 3.17, "Wildfire," the management measures that would be implemented pursuant to the Proposed Project would largely function to reduce risks associated with wildfire, such as downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Since the No Project Alternative would result in reduced management measure implementation, these beneficial effects would not be as fully realized.

Overall, since the potential impacts of the No Project Alternative related to wildfire would be the same as under existing conditions, **no impact** would occur.

4.4.2 Reduced Management Measure Implementation Alternative

Description

Under the Reduced Management Measure Implementation Alternative, the Central Valley Water Board would limit the types of management measures that can be implemented under the permit to address NPS discharges associated with activities conducted by USFS and BLM on federal lands. Since the majority of the potential environmental impacts from the Proposed Project are related to those certain management measures involving ground disturbance in their construction/installation, this alternative would limit the management measures that can be employed to those that do not involve substantial ground disturbance. Thus, management measures primarily involving planning considerations such as developing campsites away from surface waters or riparian areas, having designated fueling locations for off-highway vehicle use, having regularly maintained and contained waste management facilities (garbage/bins/outhouse/pit-toilets/etc.), providing signage for authorized parking and camping areas, etc. could be employed. Similarly, provided that they could be installed/implemented without use of heavy, off-road equipment, many measures involving erosion and sediment controls (e.g., adding straw mulch for ground cover, adding woody material to disturbed soil or existing areas of erosion, adding straw, or other organic materials within or at the head cut of gullies and rills to minimize further migration and scour, etc.) could be used.

Generally, however, management measures such as water bars, rolling dips, and other means of hydrologic disconnection from roads that would involve grading or excavation to install would be prohibited, as would tilling of compacted soil. Additionally, rock armoring could only be conducted in select areas (e.g., not riparian areas) where it would have no potential to impact sensitive biological resources and where the rock could be installed from existing roads or other stabilized surfaces. In other words, heavy equipment would not need to be operated off-road to install the rock armoring, thus avoiding disturbance of soft or loose soils and subsequent erosion/sedimentation. In this respect, the Reduced Management Measure Implementation Alternative would limit the suite of tools available to USFS and BLM for addressing NPS discharges over the long term in order to reduce potential short-term effects.

Under the Reduced Management Measure Implementation Alternative, other aspects of the proposed Federal NPS Permit would remain (see description of permit components in Chapter 2, *Project Description*). Namely, the monitoring and reporting requirements included in the Proposed Permit (e.g., discharge incident monitoring, implementation and effectiveness monitoring, etc.) would remain. The USFS and BLM also would still need to implement BMPs from their respective BMP manuals in accordance with the permit conditions; however, the potential management measures (or site-specific prescriptions) that could be used to implement the BMPs would be limited to those that are non-ground disturbing. Additionally, the Reduced Management Measure Implementation Alternative would retain a CSSRP requirement, but the methods available to the USFS and BLM to address/treat identified CSDS would be limited.

Screening Analysis

The Reduced Management Measure Implementation Alternative would partially meet the Project objectives, but not to the same extent as the Proposed Project. Since many of the non-ground disturbing management measures would be effective in reducing NPS discharges, the Reduced Management Measure Implementation Alternative would serve to protect and preserve water quality in the Central Valley Region relative to baseline conditions. As noted above, all of the primary components of the proposed Federal NPS Permit would remain in this alternative; thus, the Reduced Management Measure Implementation Alternative would still promote or require "implementation of appropriate BMPs that will effectively protect water quality" (Objective #1.a); "timely corrective action and adaptive management informed by actively monitoring BMP effectiveness in protecting water quality" (Objective #1.b); "preservation of high-quality waters (anti-degradation)" (Objective #1.c); and "identification and reduction of existing and potential sediment discharges and other pollutant discharges from USFS and BLM lands" (Objective #1.d).

While these aspects of Project Objective #1 would be partially addressed by the Reduced Management Measure Implementation Alternative, the alternative would not fully meet the objective, and would not be as effective in achieving the objective as the Proposed Project. This is because the ground-disturbing management measures, despite their potential for short-term adverse impacts during construction/installation, are very effective in reducing NPS pollutant discharges over the long term. In many cases, the most appropriate management measure for a given situation or activity site would be a measure that may require ground disturbance during construction/installation (e.g., rehabilitating an existing road by installing water bars or rolling dips); thus, the Reduced Management Measure Implementation Alternative may preclude USFS/BLM from implementing the most effective measures for protecting water quality in certain situations. The Reduced Management Measure Implementation Alternative also may not allow the Central Valley Water Board to ensure preservation of high-quality waters within and downstream of the USFS and BLM managed lands to the maximum extent possible, since it would limit the suite of tools available for NPS pollution prevention/minimization.

Similarly, the Reduced Management Measure Implementation Alternative would partially meet Project Objective #2 in that it would help, but may not completely ensure regulatory compliance with federal and state mandates, including the Central Valley Basin Plans, Section 319 of the federal CWA, NPS Policy, and California Water Code Sections 13263, subdivision (a), and 13241. The Reduced Management Measure Implementation Alternative would be an improvement over existing, baseline conditions, as it would establish the permit conditions and monitoring

and reporting requirements that would help to ensure BMPs are implemented properly and effectively for the covered activities. However, the limitation on the types of management measures that can be employed may prevent maximum protection of beneficial uses, as identified in the Central Valley Basin Plans. In this regard, the Reduced Management Measure Implementation Alternative may not fully comply with the NPS Policy, in particular Key Element 1, which states that "A NPS control implementation program's ultimate purpose must be explicitly stated and at a minimum address NPS pollution control in a manner that achieves and maintains WQOs."

Given that the Reduced Management Measure Implementation Alternative would retain all of the primary elements of the proposed Federal NPS Permit (e.g., permit conditions, monitoring and reporting requirements), it would largely meet Project Objective #3. The Reduced Management Measure Implementation Alternative would provide regulatory certainty for USFS and BLM, including by providing "clear programmatic permit requirements that are less focused on nonessential paperwork and more focused on performance… leveraging where possible existing USFS/BLM mandates" (Objective #3.a); "increased communication between the Central Valley Water Board and USFS/BLM staff" (Objective #3.b); and "coverage of multiple activities within a single permit" (Objective #3.c). Overall, the Reduced Management Measure Implementation Alternative would meet most of the Project objectives (even though, as discussed, it would not fully meet several of the objectives, particularly in relation to the Proposed Project).

With respect to feasibility, the Reduced Management Measure Implementation Alternative would not be so costly that implementation would be prohibitive. Rather, the alternative would likely be less costly for the Central Valley Water Board to implement, and would certainly be less costly for USFS/BLM to comply with, as compared to the Proposed Project. Generally, the management measures involving heavy equipment and ground-disturbance for construction/installation are more costly to implement; as such, eliminating these management measures from consideration would reduce costs for USFS/BLM. Any cost savings may be less substantial for the Central Valley Water Board, but there may be reduced hours required for reviewing notification materials and Watershed Treatment Plans (WTP) (pursuant to the CSSRP) by Central Valley Water Board staff if the suite of available measures or tools is reduced. Regardless, the Reduced Management Measure Implementation Alternative would not be economically infeasible.

Similarly, the Reduced Management Measure Implementation Alternative would not cause substantially greater environmental damage than the Proposed Project. As discussed above, the Reduced Management Measure Implementation Alternative would avoid or reduce the only potentially significant impact of the Proposed Project as well as those impacts not rising to the level of significance, which are all primarily associated with the ground-disturbing activities required for construction/installation of certain reasonably foreseeable management measures. As such, the Reduced Management Measure Implementation Alternative would not be environmentally infeasible.

To the extent that the Reduced Management Measure Implementation Alternative could potentially not achieve full compliance with relevant federal and state mandates (i.e., Central Valley Basin Plans, Section 319 of the federal CWA, NPS Policy, and California Water Code Sections 13263, subdivision (a), and 13241) (see discussion above), this could render the

alternative legally infeasible. The Central Valley Water Board could not adopt an alternative that did not ensure compliance with these mandates. However, the effectiveness of individual management measures would depend on site-specific conditions; thus, in some respects, it is speculative whether the Reduced Management Measure Implementation Alternative would fail to achieve compliance with the applicable federal and state mandates. Additionally, the other aspects of the Reduced Management Measure Implementation Alternative (e.g., monitoring and reporting requirements, including implementation and effectiveness monitoring) would provide mechanisms for assessing the effectiveness of management measures and use of adaptive management to fine-tune performance. For these reasons, the Reduced Management Measure Implementation Alternative is considered potentially legally feasible.

Similarly, the Reduced Management Measure Implementation Alternative could potentially conflict with the Central Valley Water Board's mission, which is to "preserve, enhance, and restore the quality of the Central Valley's water resources for the protection of the environment, public health, and all beneficial uses for the benefit of present and future generations." Since the Reduced Management Measure Implementation Alternative would be less effective in protecting and preserving water quality over the long term compared to the Proposed Project, it would not fully align with the agency's mission. Despite the potential for short-term impacts, the management measures involving ground disturbance are known to be very effective in reducing NPS discharges over the long term. As such, the Reduced Management Measure Implementation Alternative, in attempting to avoid short-term adverse impacts, would be eschewing substantial long-term benefits. However, since the Reduced Management Measure Implementation Alternative would still be an improvement over existing conditions, it would still serve to further the Central Valley Water Board's mission, if not to the same extent as the Proposed Project. Therefore, at this level of analysis, the Reduced Management Measure Implementation Alternative is considered potentially socially feasible.

There is no reason to believe that the Reduced Management Measure Implementation Alternative would be technically infeasible. Management measures would be developed/implemented on a site-specific basis and there would remain under this alternative a large suite of potential measures to employ to avoid or minimize NPS discharges. Overall, the Reduced Management Measure Implementation Alternative is considered potentially feasible.

Finally, with respect to environmental impacts, the Reduced Management Measure Implementation Alternative would reduce the only potentially significant impact of the Proposed Project, as well as other impacts of the Proposed Project that do not rise to the level of significance. As noted above, the potential impacts of the Proposed Project are all primarily related to ground disturbance associated with construction/installation of certain management measures. Thus, the Reduced Management Measure Implementation Alternative (which would limit the acceptable management practices to those not involving ground disturbance) would avoid these effects. Although all of the environmental impacts identified for the Proposed Project in this DEIR would be less than significant given adherence to the USFS' and BLM's existing protective practices and procedures or with mitigation incorporated, the Reduced Management Measure Implementation Alternative would still provide value in avoiding these potential impacts altogether. Thus, in accordance with the requirements of CEQA, the Reduced Management Measure Implementation Alternative would avoid one or more of the Proposed Project's significant environmental impacts.

In conclusion, the Reduced Management Measure Implementation Alternative would potentially meet most of the Project objectives; is potentially feasible, and would avoid one or more of the Proposed Project's significant environmental impacts. Therefore, the alternative is carried forward for detailed analysis in the EIR.

Impact Analysis

Aesthetics

The Reduced Management Measure Implementation Alternative would have reduced potential to impact aesthetics compared to the Proposed Project. By limiting the management measures that could be implemented to those that would not involve ground-disturbance, the Reduced Management Measure Implementation Alternative would reduce the potential temporary adverse effects on scenic vistas and visual conditions caused by the presence of construction equipment, staging areas, etc. As described in Section 3.1, "Aesthetics," construction/installation of certain management measures under the Proposed Project could temporarily result in some adverse effects on aesthetics and visual resources due to the presence of these construction activities and potentially limiting access to scenic vistas. The Reduced Management Measure Implementation Alternative would largely avoid these impacts, since it would not include the management measures with greatest potential for impacts. The alternative would still have some impacts from implementation of non-ground-disturbing management measures (which would still require equipment operation, trucks, and other activities that could temporarily diminish views), but these would be less than significant.

Like the Proposed Project, the Reduced Management Measure Implementation Alternative would not substantially damage scenic resources (e.g., trees, rock outcroppings, and historic buildings within a state scenic highway) and would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area. Overall, the impacts of the Reduced Management Measure Implementation Alternative on aesthetics would be **less than significant**.

Agriculture and Forestry Resources

The Reduced Management Measure Implementation Alternative would have reduced potential for impacts on agriculture and forestry resources compared to the Proposed Project. As described in Section 3.2, "Agriculture and Forestry Resources," the primary aspects of the Proposed Project with potential to impact agriculture and forestry resources are associated with construction/installation of certain management measures, which could temporarily affect access to and use of Important Farmland. Generally, the management measures and activities with greatest potential for adverse effects on Farmland would be those involving ground-disturbance, and the Reduced Management Measure Implementation Alternative would not include these measures/activities. As such, the Reduced Management Measure Implementation Alternative would avoid or reduce these potential impacts. The management measures that may be implemented under the Reduced Management Measure Implementation Alternative would not be anticipated to result in permanent conversion of Farmland to nonagricultural use.

For the Proposed Project, the management measures would be expected to benefit forest land over the long-term; however, there would be some potential for construction/installation of the measures (in particular, those measures involving ground disturbance) to result in short-term,

adverse effects to forest lands. For example, tree injury or mortality could occur from the ground-disturbing activities. These impacts would be largely avoided under the Reduced Management Measure Implementation Alternative since it would not include the ground-disturbing measures, which have most potential for impacts. Overall, the impacts of the Reduced Management Measure Implementation Alternative on agriculture and forestry resources would be **less than significant**.

Air Quality

The Reduced Management Measure Implementation Alternative would have reduced air quality impacts compared to the Proposed Project. Generally, as described in Section 3.3, "Air Quality," the types of management measures with greatest potential for air quality impacts are those involving ground-disturbance and heavy equipment operation. Although the Reduced Management Measure Implementation Alternative would result in some emissions associated with equipment operation and truck trips for the non-ground-disturbing measures, it would not include those measures/activities that tend to involve the greatest amount of emissions. As such, the Reduced Management Measure Implementation Alternative would result in fewer DPM, NOx, and ROG emissions compared to the Proposed Project. Similarly, given that the Reduced Management Measure Implementation Alternative would not include the ground-disturbing management measures, it would have no potential to mobilize NOA.

The Reduced Management Measure Implementation Alternative also would reduce potential fugitive dust generation associated with the ground-disturbing management measures. The alternative would still achieve many of the positive effects of the Proposed Project with respect to air quality, since it would include many of the effective measures (e.g., seeding disturbed bare soil, adding straw mulch for ground cover, etc.); however, it may not achieve the same level of benefits as the Proposed Project given that some potentially effective measures in curbing fugitive dust generation may not be permitted if they were to require ground disturbance (e.g., adding hardened surface to parking areas, watercraft launch sites, and staging areas). Overall, the impacts of the Reduced Management Measure Implementation Alternative would be **less than significant.**

Biological Resources

The Reduced Management Measure Implementation Alternative would generally reduce potential for adverse impacts to biological resources compared to the Proposed Project. By limiting the acceptable management measures to those not involving ground-disturbance, the Reduced Management Measure Implementation Alternative would largely avoid the potential impacts on special-status species, sensitive natural communities, and wetlands that are described in Section 3.4, "Biological Resources." For example, given that new grading or excavation and/or operation of heavy equipment in off-road areas would not be permitted under the Reduced Management Measure Implementation Alternative, there would be no potential for special-status species to be crushed or otherwise impacted by these activities. There may continue to be some potential for adverse impacts to species and habitat associated with non-ground disturbing management practices (e.g., placement of erosion and sediment control measures without the use of heavy equipment), but this potential would be substantially reduced compared to the Proposed Project.

Although the Reduced Management Measure Implementation Alternative would reduce potential for short-term adverse impacts to biological resources due to construction/installation of management measures, the alternative would sacrifice some of the long-term benefits to biological resources that would be achieved by the Proposed Project. The activities proposed to be covered by the Federal NPS Permit (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities) are ongoing under existing conditions and are having adverse effects on biological resources, both directly (these impacts are addressed through the National Environmental Policy Act process) and indirectly through NPS discharges that adversely affect aquatic habitats. The reasonably foreseeable management measures under the Proposed Project would substantially reduce the NPS discharges associated with the ongoing activities and would help to restore watershed health by addressing existing CSDS; however, the Reduced Management Measure Implementation Alternative would not fully achieve these beneficial effects, in particular because the management measures involving ground disturbance are some of the most effective in reducing NPS discharges over the long term.

As such, in reducing potential short-term impacts to biological resources, the Reduced Management Measure Implementation Alternative would eschew long-term benefits. When looking purely at the effects of the Reduced Management Measure Implementation Alternative (i.e., not comparing to other alternatives or the Proposed Project), the impacts on biological resources would be **less than significant.**

Cultural Resources

The Reduced Management Measure Implementation Alternative would have reduced potential to impact cultural resources relative to the Proposed Project. As described in Section 3.4, "Cultural Resources," the Proposed Project would have potential to result in impacts on cultural resources (including human remains) primarily through ground-disturbing activities associated with construction/installation of certain management measures; however, these potential impacts would be largely avoided or reduced through implementation of USFS and BLM protocols for protecting and preserving cultural resources. The Reduced Management Measure Implementation Measure would entirely avoid the potential impacts on buried cultural resources, including potential human remains, since it would not include those ground-disturbing management measures. Overall, the impacts of the Reduced Management Measure Implementation Alternative on cultural resources would be **less than significant.**

Energy

The Reduced Management Measure Implementation Alternative would reduce energy use and the potential for inefficient or wasteful use of energy compared to the Proposed Project. Generally, the management measures involving ground-disturbance and use of heavy equipment during construction/installation activities tend to use the most energy (e.g., fossil fuels associated with the heavy equipment), and are the measures where there would be greatest potential for unnecessary truck or equipment idling resulting in wasteful energy use. The Reduced Management Measure Implementation Alternative would still use some amount of energy (e.g., truck trips for delivery of materials, operation of lighter pieces of equipment or heavy equipment from existing roadways or other stable surfaces); however, this energy use would be reduced compared to the Proposed Project.

Like the Proposed Project, the energy use under the Reduced Management Measure Implementation Alternative would have no potential to conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Overall, the impacts would be **less than significant**.

Geology and Soils

The Reduced Management Measure Implementation Alternative would have reduced impacts on geology and soils compared to the Proposed Project. Like the Proposed Project, the Reduced Management Measure Implementation Alternative would have no potential to cause or exacerbate potential fault rupture or seismic ground shaking. The Reduced Management Measure Implementation Alternative would not involve substantial ground disturbance and would not involve development of any new habitable structures that could be placed on active fault lines or Alquist-Priolo Fault Zones. Since the ground disturbance associated with construction/installation of certain management measures would be avoided under the Reduced Management Measure Implementation Alternative, this alternative would not result in the potentially significant impacts related to short-term erosion and loss of topsoil caused by construction of those measures.

Similarly, the Reduced Management Measure Implementation Alternative would not include the measures that would involve grading or other ground disturbance in their construction (e.g., water bars, rolling dips, other road drainage features); thus, it would have no potential to cause soils underlying existing or new facilities to become unstable, potentially resulting in adverse effects. The Reduced Management Measure Implementation Alternative also would not result in adverse impacts related to being located on expansive soils. Further, since the Reduced Management Measure Implementation Alternative would not include ground disturbance, it would have greatly reduced potential to directly or indirectly destroy a unique paleontological resource or site or unique geological feature. For the Reduced Management Measure Implementation Alternative, these impacts would be less than significant.

While the Reduced Management Measure Implementation Alternative would avoid the construction-related (i.e., short-term) impacts on geology and soils associated with the Proposed Project, it would not achieve some of the long-term benefits that would be afforded by the Proposed Project. For example, many of the road drainage improvements contemplated under the Proposed Project would not be conducted under the Reduced Management Measure Implementation Alternative. While this would avoid potential short-term impacts associated with constructing/installing the improvements, it would also avoid the long-term benefits of these improvements in terms of hydrologic disconnection and potentially reduced erosion and loss of topsoil. Similarly, rock armoring (which may not be permitted under the Reduced Management Measure Implementation Alternative) would be effective over the long term in reducing erosion and loss of topsoil, as well as stabilizing slopes.

Overall, the impacts of the Reduced Management Measure Implementation Alternative on geology and soils would be **less than significant**.

Greenhouse Gas Emissions

The Reduced Management Measure Implementation Alternative would result in fewer GHG emissions compared to the Proposed Project. As described in Section 3.8, “Greenhouse Gas

Emissions," many of the GHG emissions associated with the Proposed Project would be related to construction/installation of management measures involving ground disturbance (which would not be permitted under the Reduced Management Measure Implementation Alternative). Those management measures involving grading, excavation, or other ground disturbance in their construction/installation would tend to generate greater emissions due to the heavy equipment operation; thus, the Reduced Management Measure Implementation Alternative would avoid these emissions.

However, there would still be GHG emissions under the Reduced Management Measure Implementation Alternative (e.g., emissions from transportation of materials to sites, operation of equipment associated with permitted management measures, and vehicle trips to monitoring sites). Like the Proposed Project, these emissions would be less than significant. The Reduced Management Measure Implementation Alternative would not conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of GHGs. Impacts related to GHG emissions from the Reduced Management Measure Implementation Alternative would be **less than significant.**

Hazards and Hazardous Materials

The Reduced Management Measure Implementation Alternative would have reduced potential to result in significant impacts related to hazards and hazardous materials compared to the Proposed Project. Since the Reduced Management Measure Implementation Alternative would result in fewer management measures (in particular, the measures and activities involving ground-disturbance), there would be reduced potential for accidental releases of hazardous materials associated with operation and maintenance of equipment. Moreover, there would be reduced hazardous emissions (e.g., DPM from construction equipment), although any such emissions associated with management measure implementation would be unlikely to occur in close proximity to schools under both the Proposed Project and Reduced Management Measure Implementation Alternative.

Given that the Reduced Management Measure Implementation Alternative would result in reduced construction equipment overall, there would also be reduced potential for accidental ignition of wildfires compared to the Proposed Project. Like the Proposed Project, the impacts related to hazards and hazardous materials under the Reduced Management Measure Implementation Alternative would be **less than significant.**

Hydrology and Water Quality

The Reduced Management Measure Implementation Alternative would generally have reduced impacts on hydrology and water quality over the short-term compared to the Proposed Project. The management measures involving ground-disturbance, while very effective in reducing NPS discharges over the long-term, would have potential for adverse impacts to water quality during construction/installation. As described in Section 3.10, "Hydrology and Water Quality," these types of management measures could temporarily alter drainage patterns and loosen soils in the immediate construction area, potentially leading to erosion/sedimentation. Construction/installation of these management measures also would involve use of heavy equipment containing hazardous materials that could potentially leak or spill, resulting in adverse impacts on water quality and beneficial uses.

The Reduced Management Measure Implementation Alternative would avoid many of these potential impacts since it would not involve implementation of the most impactful management measures. There would still be some potential for adverse impacts to hydrology and water quality under the Reduced Management Measure Implementation Alternative, as there would still be potential for accidental pollutant (e.g., hazardous materials contained in lighter construction equipment and trucks) releases. This risk would be greatly reduced, however, and would be less than significant. The Reduced Management Measure Implementation Alternative also would reduce potential for impacts related to stormwater runoff and discharge of pollutants from impervious surfaces to the extent that less hardening of parking lots and water craft launch sites would occur under this alternative.

Like the Proposed Project, the Reduced Management Measure Implementation Alternative would not include, or result in the development of, substantial new aboveground structures that could impede or redirect flood flows. There still may be some risk of release of pollutants during flood events for hazardous materials (e.g., in construction equipment) that may be present in inundation areas under the Reduced Management Measure Implementation Alternative. This risk would be reduced compared to the Proposed Project and would be less than significant. Additionally, the Reduced Management Measure Implementation Alternative would not use substantial quantities of water; would not substantially affect groundwater supplies, and would not conflict with or obstruct a sustainable groundwater management plan or water quality control plan.

Although the Reduced Management Measure Implementation Alternative would avoid or reduce many of the potential short-term impacts on hydrology and water quality identified for the Proposed Project, it also would not achieve the same long-term benefits to water quality that would be afforded by the Proposed Project. As discussed, the management measures involving ground-disturbance during construction (e.g., water bars, rolling dips, etc.) are some of the most effective measures in reducing NPS discharges over the long-term. As described in Section 3.10, “Hydrology and Water Quality,” the ongoing activities conducted by the USFS and BLM that are proposed to be covered by the Federal NPS Permit are currently impacting water quality due to the NPS discharges associated with the activities. The Proposed Project, including the ground-disturbing management measures, would reduce/ameliorate these ongoing effects; whereas, the Reduced Management Measure Implementation Alternative would not achieve the same level of long-term benefits relative to baseline.

For the Reduced Management Measure Implementation Alternative, this impact would be **less than significant.**

Mineral Resources

The Reduced Management Measure Implementation Alternative may have reduced potential to impact mineral resources compared to the Proposed Project; however, neither the alternative nor the Proposed Project would have significant effects. As described in Section 3.11, “Mineral Resources,” common management measures implemented pursuant to the Proposed Project would have limited potential to adversely affect the availability of a known mineral resource on the federal lands (although construction activities associated with certain management measures could temporarily preclude mineral resources availability/development at specific sites). Given that the Reduced Management Measure Implementation Alternative would not

include the ground-disturbing management measures (e.g., water bars, rolling dips, etc.), it would have slightly reduced potential to temporarily affect mineral resources availability.

Like the Proposed Project, the Reduced Management Measure Implementation Alternative would have no potential to result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Lands managed by USFS and BLM are under federal jurisdiction and are not subject to local land use plans. Overall, the impacts of the Reduced Management Measure Implementation Alternative on mineral resources would be **less than significant**.

Noise

The Reduced Management Measure Implementation Alternative would have reduced noise impacts compared to the Proposed Project. Often, the management measures involving ground-disturbance in their construction/installation require the loudest equipment during construction activities; however, loud construction equipment could still be used in constructing/installing the non-ground disturbing management measures under the Reduced Management Measure Implementation Alternative. For example, chain saws and chippers could be used in implementing erosion and sediment control measures (e.g., slash packing a skid trail or fire line no longer in use, adding woody material to disturbed soil or existing areas of erosion, adding ground cover such as mulch, straw, wood chips, bark, slash, etc.). Similarly, dump trucks, loaders, and other types of equipment could be used to transport materials to treatment sites or off-haul wastes. As described in Section 3.12, “Noise,” these pieces of equipment would generate substantial noise in the immediate area of the construction activity; however, the noise would dissipate rapidly with distance from the activity area.

The USFS and BLM would not be subject to local plans or ordinances related to noise (although federal guidelines and regulations would apply; see Section 3.12 for discussion) and the impacts from construction-related noise for both the Proposed Project and Reduced Management Measure Implementation Alternative would be less than significant. In particular, noise from management measure implementation at any given site would (1) be temporary and infrequent; (2) occur on USFS or BLM lands typically in rural/sparsely populated areas; and (3) need to comply with federal laws and regulations. Further, the Reduced Management Measure Implementation Alternative would not include or establish any new permanent/stationary sources of noise.

Construction equipment and vehicles used under the Reduced Management Measure Implementation Alternative would generate some vibration and/or ground-borne noise; however, even while some management measures could be installed in areas adjacent to or near sensitive land uses (e.g., residential) or existing buildings, it is not anticipated that vibration levels would be sufficient to damage any buildings or structures. The Reduced Management Measure Implementation Alternative would not create any new housing and thus would not place new residents or people within an area subject to excessive noise levels associated with airport operations. Overall, potential impacts related to noise from the Reduced Management Measure Implementation Alternative would be **less than significant.**

Public Services

The Reduced Management Measure Implementation Alternative would have reduced potential for impacts to public services compared to the Proposed Project. Since it would not include the ground-disturbing management measures, the Reduced Management Measure Implementation Alternative would create less risk of accidental ignition of a wildfire (e.g., from combustion engine-powered equipment). Often, the ground-disturbing measures require heavier equipment, which present more risks of accidental ignition. However, implementation of measures under the Reduced Management Measure Implementation Alternative also would require use of equipment (e.g., chainsaws) that could generate a spark. Management measures also would involve addition of "fuel" (i.e., combustible, vegetative material) to the landscape, although this would be marginal in the context of the vast National Forests and BLM-managed lands.

Like the Proposed Project, the Reduced Management Measure Implementation Alternative would have no potential to affect police protection services, schools, parks, or other public services. The Reduced Management Measure Implementation Alternative would not involve any new development or land uses that could result in population growth, thus resulting in increased need for public services. Overall, the impacts on public services from the Reduced Management Measure Implementation Alternative would be **less than significant**.

Transportation

The Reduced Management Measure Implementation Alternative would have reduced potential to impact transportation relative to the Proposed Project. As described in Section 3.15, "Transportation," the primary way in which the Proposed Project would impact transportation would be via construction/installation of certain management measures (in particular, those involving ground-disturbing activities within existing roads [e.g., water bars, rolling dips, road drainage features, etc.]). These activities could require temporary lane or road closures and could interfere with emergency access or potentially create a hazard due to incompatible uses (e.g., construction equipment present on roadways). These effects would be largely avoided by the Reduced Management Measure Implementation Alternative given that it would not involve the ground-disturbing activities within roads, which would have the greatest potential for disruption.

The USFS and BLM managed lands in the Central Valley Region are largely undeveloped and sparsely populated; thus, there is minimal traffic along the majority of roads within these areas. The types of management measures that may be implemented under the Reduced Management Measure Implementation Alternative would not substantially affect the capacity or performance of roadways over the long-term (once installed) and would not be expected to conflict with alternative modes of transportation (e.g., bicycle, pedestrian). Overall, the impacts of the Reduced Management Measure Implementation Alternative on transportation would be **less than significant.**

Tribal Cultural Resources

The Reduced Management Measure Implementation Alternative would have reduced potential to impact TCRs compared to the Proposed Project. As described in Section 3.16, "Tribal Cultural Resources," the primary way in which the Proposed Project could impact TCRs is through the

ground-disturbing activities (e.g., grading, excavation) associated with construction/installation of certain management measures. These activities could potentially encounter buried cultural resources that could be TCRs, although no known TCRs have been identified within the USFS and BLM managed lands in the Central Valley Region. Adherence to existing USFS and BLM protocols would avoid or minimize these potential impacts for the Proposed Project; however, the Reduced Management Measure Implementation Alternative would avoid these potential impacts entirely given that it would not involve the ground-disturbing management measures.

The management measures that would be implemented under the Reduced Management Measure Implementation Alternative would not be anticipated to substantially change any landscapes or above-ground features of the landscape that could be considered TCRs. Therefore, the impacts of the Reduced Management Measure Implementation Alternative would be **less than significant.**

Utilities and Service Systems

The potential impacts of the Reduced Management Measure Implementation Alternative on utilities and service systems would be similar to those described for the Proposed Project in Section 3.16, "Utilities and Service Systems." However, the impacts for this alternative would be reduced due to the avoidance of certain management measures that may require water and generate solid waste requiring disposal during construction/installation activities. For example, some of the ground-disturbing management measures (e.g., water bars, rolling dips, etc.) would require water for conditioning sub-grade and surface materials. Similarly, water may be needed for dust control for management measures that disturb the ground surface, while the ground-disturbing measures may be more likely to generate waste materials. Since the Reduced Management Measure Implementation Alternative would not include or permit these ground-disturbing management measures, there would be fewer water service demands and solid waste disposal needs.

The USFS and BLM managed lands in the Central Valley Region do not contain centralized, public wastewater collection or treatment facilities, and water is generally obtained by USFS/BLM via direct diversion from surface waters or from groundwater wells (i.e., not supplied through public systems). The USFS and BLM managed lands also do not contain centralized stormwater collection and treatment systems; rather, there may be stormwater management facilities (e.g., ditches, swales, etc.) at individual recreation facilities or along roads. The Reduced Management Measure Implementation Alternative, similar to the Proposed Project, would not generate substantial quantities of wastewater or solid waste, or require substantial quantities of water. Generally, this would be limited to wastewater generated from construction workers using portable restrooms and solid waste disposal/water needs associated with construction/installation of management measures.

Overall, impacts on utilities and service systems from the Reduced Management Measure Implementation Alternative would be **less than significant.**

Wildfire

The Reduced Management Measure Implementation Alternative would have reduced potential for adverse impacts relative to baseline compared to the Proposed Project. As described in Section 3.17, "Wildfire," implementation of the Proposed Project could potentially interfere

with emergency response or evacuation procedures during a wildfire, although these effects would be minimized through adherence to USFS' and BLM's existing practices and procedures. In particular, construction/installation of certain management measures (primarily ground-disturbing measures to roads) could temporarily interfere with movement of emergency vehicles and other types of vehicles due to the presence of construction equipment and lane or road closures. Since the Reduced Management Measure Implementation Alternative would not include the ground-disturbing measures, which have greatest potential for temporary, construction-related impacts on roadways, this alternative would have reduced potential to interfere with emergency response or evacuation during a wildfire.

The Reduced Management Measure Implementation Alternative also would have reduced potential to exacerbate the risk of wildfire. Since the Reduced Management Measure Implementation Alternative would not include the ground-disturbing measures, which typically would require the heaviest equipment, it would have less potential to generate a spark and thereby potentially ignite a wildfire. Nevertheless, the risk would be incremental and relatively minor compared to that from the ongoing activities on the federal lands. While the Reduced Management Measure Implementation Alternative would add some amount of "fuel" to the landscape (e.g., from implementation of management measures such as adding woody material to disturbed areas subject to erosion), this additional fuel would be marginal in the context of the vast National Forests and BLM lands. The Reduced Management Measure Implementation Alternative would not include any new habitable structures or buildings and thus it would not require the installation or maintenance of infrastructure (e.g., roads, fuel breaks, emergency water sources, power lines, or other utilities) for the purpose of serving new developments.

The Reduced Management Measure Implementation Alternative would serve to reduce the potential for downslope or downstream flooding or landslides, as a result of runoff, post-wildfire slope instability, or drainage changes. Many of the management measures that may be implemented under the alternative would serve to reduce erosion and sediment discharges in post-wildfire landscapes, and may also stabilize slopes. However, since the Reduced Management Measure Implementation Alternative would not include the ground-disturbing measures, which are often very effective in preventing erosion and stabilizing slopes (e.g., adding water bars on fire lines, rock armoring), this alternative would not have the same level of beneficial effects as the Proposed Project.

Overall, the impacts related to wildfire from the Reduced Management Measure Implementation Alternative would be **less than significant.**

4.5 Alternatives Considered but Dismissed

Some alternatives were considered by the Central Valley Water Board but were ultimately dismissed from detailed analysis in the EIR because they either didn't meet the alternative screening criteria (see Section 4.3.1) or for other reasons. These alternatives that were considered but dismissed are described below.

4.5.1 Individual Waste Discharge Requirements Alternative

Under an Individual WDRs Alternative, the Central Valley Water Board would issue individual WDRs for the activities conducted by USFS and BLM on federal lands, rather than issue a General Order (as is contemplated in the Proposed Project). As alluded to above, such an alternative would also require additional communication/enforcement by Central Valley Water Board staff relative to existing conditions since the USFS and BLM currently do not notify the Central Valley Water Board or submit project materials for many projects that have potential to impact water quality and should receive permit coverage.

The Individual WDRs Alternative would be a natural alternative to consider. As described in Chapter 2, *Project Description,* pursuant to the State of California's Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy), the Central Valley Water Board must regulate NPS pollution by issuing (1) WDRs (Water Code Section 13260); or (2) Waiver of WDRs (Water Code Section 13269); or establishing (3) Basin Plan Prohibition(s) (Water Code Section 13243). With respect to option #1, the Central Valley Water Board may prescribe general WDRs for a category of discharges if all of the following criteria apply to the discharges in that category:

a. The discharges are produced by the same or similar operations.

b. The discharges involve the same or similar types of waste.

c. The discharges require the same or similar treatment standards.

d. The discharges are more appropriately regulated under general requirements than individual requirements.

Given that the activities proposed to be covered by the Proposed Project (i.e., vegetation management, transportation management, recreation facilities management, post-emergency recovery, and restoration activities) meet all of these criteria, the Central Valley Water Board has proposed to issue general WDRs as the Proposed Project. However, an alternative approach would be to issue individual WDRs for each individual project or activity within the activity categories proposed by USFS/BLM. This would involve reviewing project plans and materials submitted by the federal agencies, development of treatment requirements, monitoring and reporting requirements, and other individualized provisions that are necessary to implement relevant water quality control plans and the Water Code. In this respect, the Individual WDRs Alternative may provide more tailored requirements, such as differing deliverables and associated timelines, to specific projects and sites within the USFS/BLM lands in the region; however, this approach would require substantially more Central Valley Water Board and USFS/BLM staff time and potentially create inefficiencies.

The Individual WDRs Alternative was dismissed from detailed analysis because it would not meet all of the alternative screening criteria. With respect to the Project objectives, the Individual WDRs Alternative would meet Objective #1 to "protect and preserve water quality…" and may meet this objective (including subcomponents) better than the Proposed Project. The individual attention to specific projects by Central Valley Water Board staff may incrementally improve the effectiveness of WDRs in curbing NPS discharges and protecting water quality. The

Individual WDRs Alternative also would meet Objective #2 by ensuring "regulatory compliance with federal and state mandates, including the Central Valley Basin Plans, Section 319 of the federal CWA, NPS Policy, and California Water Code Sections 13263, subdivision (a), and 13241." Regarding Objective #3, the Individual WDRs Alternative would not fully meet this objective in that it would not provide "coverage of multiple activities within a single permit." It also may not provide regulatory certainty for USFS/BLM since the individual WDRs may vary depending on the individual staff person assigned to the project or based on site-specific factors (whereas general WDRs would be unchanging and therefore would provide greater certainty).

The Individual WDRs Alternative also may not be feasible given the Central Valley Water Board's current resources. As noted above, issuing individual WDRs for each project potentially subject to regulation would require substantially more staff time than reliance on a General Order, where Central Valley Water Board staff would primarily need to review discharge incident reports, annual summary reports for covered projects, and annual interim reports and completion reports for each WTP. In this respect, the Individual WDRs Alternative may be economically infeasible since it may be infeasible to hire sufficient staff to implement the alternative given the Central Valley Water Board's budget and other commitments/responsibilities.

Perhaps most importantly, the Individual WDRs Alternative would not avoid or reduce the Proposed Project's lone potentially significant environmental impact, or its other impacts that are below the level of significance. There is no reason to believe that individual Central Valley Water Board staff attention to specific projects proposed by the USFS and BLM would lead to development and implementation of management measures with no potential to impact environmental resources, such as special-status species. Regardless of whether requirements are issued through individual or general WDRs, the most effective management measures in reducing NPS discharges would continue to be prescribed by the USFS/BLM; many of these measures would involve ground-disturbance, heavy equipment operation, and other activities that would have potential to impact resources. Therefore, short of limiting the types of management measures that could be implemented, the Individual WDRs Alternative would generally have the same potential environmental impacts as the Proposed Project.

4.5.2 Expanded Coverage Alternative

Under an Expanded Coverage Alternative, the Central Valley Water Board would provide coverage under the General Order for additional categories of activities conducted by the USFS and BLM on federal lands. Most notably, this would include grazing. Several scoping commenters on the Proposed Project (see Table 1-1 in Chapter 1, *Introduction*) commented that grazing impacts should be included and addressed by the Proposed Permit. Commenters also commented that the permit should include third parties, such as grazers, logging companies, and recreation management companies. As such, an Expanded Coverage Alternative could explicitly include third parties, as well as include other categories of activities such as mineral resources development.

In this regard, the Expanded Coverage Alternative would be the same as the Proposed Project, but would include the additional categories of activities and would explicitly cover additional actions and activities by third parties. The permit conditions and monitoring and reporting

requirements would remain the same, although it is possible that more specific requirements may need to be developed specifically for these additional categories of activities.

With respect to the alternatives screening criteria (see Section 4.3.1), the Expanded Coverage Alternative would meet all of the Project objectives. The alternative would "protect and preserve water quality…" in that it would provide requirements/oversight for these additional activities. The Expanded Coverage Alternative also would "ensure regulatory compliance with federal and state mandates, including the Central Valley Basin Plans, Section 319 of the federal CWA, NPS Policy, and California Water Code Sections 13263, subdivision (a), and 13241." Finally, the Expanded Coverage Alternative would provide regulatory certainty for USFS and BLM – arguably, it may provide additional regulatory certainty relative to the Proposed Project given that it would cover the additional activities.

The Expanded Coverage Alternative should be feasible from an economic and technological perspective; however, it would not be the most efficient or sensible approach. Grazing has other types of discharges (e.g., nitrogen) relative to the activities proposed to be covered by the Federal NPS Permit, whose discharges are primarily related to sediment. In this regard, including grazing as an additional covered activity under a programmatic order would not make sense since the discharges would not involve the same or similar types of waste. Likewise, grazing would involve different types of NPS pollution treatment or management measures compared to the other categories of activities. Mining-related discharges are also not well-suited to coverage under a programmatic order because individual mines often have unique, site-specific issues that are better addressed individually. Thus, while the Expanded Coverage Alternative would likely be feasible, it would not be the most efficient approach from a regulatory perspective.

Most importantly, the Expanded Coverage Alternative would not avoid or reduce the Proposed Project's potentially significant environmental effect (i.e., biological resources), or those impacts of the Proposed Project that do not rise to the level of significance. Under the Expanded Coverage Alternative, the same management measures would be constructed/installed, and the same CSDS treatment activities would occur, as are described for the Proposed Project in Chapter 2, *Project Description.* As such, all the same impacts that are described throughout the EIR for the Proposed Project would still occur under the Expanded Coverage Alternative; additionally, there may be additional impacts associated with implementation of management measures specifically geared toward reducing NPS discharges from the additional covered activities/parties. For these reasons, the Expanded Coverage Alternative was dismissed from detailed consideration in the EIR.

4.6 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 thus would not be legally feasible. The No Project Alternative (i.e., regulation of NPS discharges pursuant to the 1981 MAA, 1992 MOU, and Timberland Management General Order – see discussion in Section 2.2.1 in Chapter 2, *Project Description*) has not been sufficiently effective in reducing discharges (primarily sediment) that have affected waters in the Central Valley Region. Although the No Project Alternative would avoid or reduce all of the Proposed Project's adverse effects (relative to baseline), it also would not achieve the long-term benefits of the Proposed Project in terms of NPS discharge reduction and water quality benefits.

Similarly, the Reduced Management Measure Implementation Alternative would not be environmentally superior because it would not fully achieve many of the long-term benefits of the Proposed Project. As discussed in Section 4.4, the Reduced Management Measure Implementation Alternative would not include the ground-disturbing management measures and thus would avoid many of the adverse (short-term) impacts of the Proposed Project; however, this would also reduce the effectiveness of the alternative in addressing/reducing NPS discharges from the USFS/BLM lands over the long-term. The ground-disturbing management measures are very effective in general and are often the most appropriate solution for a given site or CSDS. Therefore, limiting the suite of management measures available to treat a given site would severely limit the ability of USFS and BLM to avoid or reduce NPS discharges from their lands associated with the covered activities. The avoidance of the adverse short-term impacts of the Proposed Project by the Reduced Management Measure Implementation Alternative would not be enough to counter-act this reduction in long-term benefits.

For these reasons, the Central Valley Water Board believes that the Proposed Project is environmentally superior. The Proposed Project (including construction/installation of the ground-disturbing management measures) would only result in one significant environmental impact (i.e., impacts on California special-status species), which could then be reduced to a less-than-significant level with implementation of Mitigation Measure BIO-1. Even below the level of significance, some other impacts would still occur; however, these impacts would pay off in the long run by reducing the ongoing NPS discharges from federal lands, which are adversely affecting numerous beneficial uses under existing conditions. The Proposed Project is somewhat unique in that it is designed to correct existing sources of pollutants from the landscape (as well as prevent discharges from new facilities or activities); in this respect, the Proposed Project itself is essentially a mitigation plan. While CEQA is designed to identify the *adverse* effects of proposed projects relative to baseline, it does not account (as well) for situations where the baseline is unacceptable from an environmental perspective and a proposed project is designed to correct or improve upon those existing conditions.

In accordance with CEQA, this EIR generally focuses on the negative aspects of the Proposed Project relative to baseline. However, in this chapter, the totality of the Proposed Project's effects (costs and benefits) are more fully considered and weighted against those effects of other potential alternatives. As such, it is acknowledged that the fundamental purpose of the Proposed Project is to ensure protection of water quality and beneficial uses – which also serves

to benefit other environmental resources, such as special-status species that rely on aquatic habitats. In order to fully accomplish this, certain adverse impacts must be incurred. Given that there is no way to avoid these short-term effects without sacrificing the long-term benefits to water quality and the environment, the Central Valley Water Board believes that it is reasonable to trade a short-term impact for long-term gain. Moreover, neither the No Project Alternative nor Reduced Management Measure Implementation Alternative can be considered environmentally superior when they would not fully achieve the long-term protection of water quality and beneficial uses.

In conclusion, the Proposed Project is considered the environmentally superior alternative.

Chapter 5
Other Statutory Considerations

5.1 Introduction

This chapter presents discussions of significant and unavoidable impacts, significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts associated with the California Regional Water Quality Control Board, Central Valley Region's (Central Valley Water Board) proposed Waste Discharge Requirements (WDRs) for Nonpoint Source (NPS) Discharges Related to Certain Activities Conducted by the United States Forest Service (USFS) and the Bureau of Land Management (BLM) on Federal Lands (Proposed Project or Federal NPS Permit), as required by the California Environmental Quality Act (CEQA) and its implementing 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. As identified in the various resource sections of Chapter 3, *Environmental Analysis,* no impacts of the Proposed Project were found to be significant and unavoidable.

5.3 Significant Irreversible Environmental Changes

CEQA Section 21100(b)(2)(B) and CEQA Guidelines Section 15126.2(d) requires an EIR to identify significant irreversible environmental changes that may be caused by a project if it is implemented. Irretrievable commitments of resources should be evaluated to ensure that current consumption of resources during the initial and continued phases of the project are justified. For example, uses of nonrenewable resources may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary and secondary impacts generally commit future generations to similar uses. Irreversible damage can result from environmental accidents associated with the project. For this analysis, the irreversible impacts described below could occur as a result of implementing the Proposed Project.

The proposed Federal NPS Permit would provide for implementation of BMPs for certain activities (vegetation management, transportation management, recreation facilities management, post-emergency recovery activities, and restoration activities) conducted by the BLM and USFS on federal lands within the Central Valley Region, as well as monitoring and reporting for covered activities to ensure the effectiveness of water quality control measures. The USFS and BLM activities themselves are ongoing and part of the existing conditions; thus, the effects of these activities are not the focus of the evaluation in the EIR. Rather, the EIR focuses on the effects of implementation of management measures to reduce water quality impacts from the covered activities, which are a reasonably foreseeable consequence of the

proposed Federal NPS Permit. The common or reasonably foreseeable management measures that would be implemented pursuant to the proposed Federal NPS Permit are listed in Section 2.6.5 in Chapter 2, *Project Description.* The environmental impacts of the management measures are described in detail in the resource sections of Chapter 3, *Environmental Analysis*.

Implementation of common or reasonably foreseeable management measures under the Proposed Project would result in use of construction materials (e.g., metal materials; excavation and/or importing of rock, sand, gravels, and soil; and energy used to manufacture, transport, or install BMP features) that could not be restored and nonrenewable resources (e.g., fossil fuels) to operate construction equipment. Implementation of management measures under the Proposed Project would also result in the removal and disposal of excess vegetative material (logs, brush, chips) not used for erosion control or channel restoration purposes. The quantity of resources that would be used for the Proposed Project would not noticeably reduce the availability of these resources for other projects or uses because the use of resources for the Proposed Project would be minor relative to other ongoing activities (e.g., the covered activities themselves) and the scope of individual management measures would be limited to smaller areas. These resources would account for a minimal portion of the state's or region's resources; therefore, the loss of these resources would be minimal. The Proposed Project would not result in a significant irreversible environmental change.

5.4 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 Appendix C, which discusses resource topics and significance criteria eliminated from detailed analysis in the EIR, the Proposed Project would not result in the construction of any housing, office buildings, or related structures; nor would it cause the need for a significant number of new employees to manage the implementation of the proposed Federal NPS Permit because it is expected that the current work force would be utilized. Therefore, the Proposed Project would not directly or indirectly induce substantial unplanned population growth. Furthermore, implementation of the management measures and monitoring would occur on USFS and BLM managed land, which is sparsely populated and would not displace any existing housing or people. Therefore, the Proposed Project would not be considered growth-inducing.

5.5 Cumulative Impacts

According to 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 (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 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.

5.5.1. 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 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 to cumulatively considerable impacts.

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 a projection approach, based on management actions identified in management plans for USFS National Forest lands (**Table 5-1**) and BLM managed lands within the Central Valley Region (**Table 5-2**). Where applicable, specific projects are also listed for USFS and BLM managed lands. Essentially, the projected cumulative activities are those ongoing activities conducted by USFS and BLM that would be subject to the Federal NPS Permit (but are not the subject of the CEQA analysis directly), as well as other activities conducted on the USFS

and BLM managed lands that may not be subject to the Proposed Permit. The plans, projects, and projected activities listed and described in Table 5-1 and Table 5-2 were reviewed to identify potential cumulative impacts and the Proposed Project's contribution to any cumulative significant impacts. For each resource topic evaluated, the possible impacts are considered cumulatively in light of similar possible impacts as the Federal NPS Permit.

Resource Topics Considered and Dismissed from the Cumulative Analysis

The Proposed Project would have the potential to make a considerable contribution to cumulative impacts related to the following resource topics: biological resources and cultural resources. Greenhouse gas emissions are a cumulative issue and are already addressed in Section 3.8, "Greenhouse Gas Emissions"; therefore, this topic is not discussed further in this section. Similarly, cumulative effects on air quality are addressed in Section 3.3, "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 5-1. Summary of Related Cumulative Activities on USFS Managed Lands

Planning Area	Project/Plan	Associated Sub-Plans or Projects	Activities that Could Affect Resources Similar to the Proposed Project
Eldorado National Forest	Eldorado Forest Plan – approved in 1989; amended in 2001/2004 (Sierra Nevada Forest Plan Amendment, described below)	Desolation Wilderness Management Guidelines (1998); Mokelumne Wilderness Management Guidelines (2000); Snow Canyon Research Natural Area designation (2005); Management Indicator Species designation (2007); Travel Management decision (2008); Amendment Pertaining to Lands Donated by PG&E (2020)	Developed and dispersed recreation; commercial timber harvesting; reforestation and timber stand improvement; wildfire management and fuels treatment; transportation management (road construction and maintenance); facilities development; livestock grazing and mineral resources development
Inyo National Forest	Inyo National Forest Land Management Plan – approved in 1988; updated in 2019	Wilderness Management Plan for John Muir, Ansel Adams, and Dinkey Lakes Wildernesses (2001); Region 5 Post-Disturbance Hazardous Tree Management Project (in process, described below)	Habitat and post-wildfire restoration; invasive species control; wildfire management, fuels reduction; recreation management; road and trail development and maintenance; hazardous tree removal; livestock grazing and mineral resources development
Lassen National Forest	Lassen Forest Land and Resource Management Plan – approved in 1992-1993; amended in 2001/2004 (Sierra Nevada Forest Plan, described below)	Northwest Forest Plan Amendment (1994); Northwest Forest Plan – Survey and Manage (2001); Forest Recovery Act (1999 – allows for alternate forest management activities designed to reduce wildfire danger while providing environmental protections; amended in 2003 to address DFPZ Maintenance); Sierra Nevada Forest Plan Amendment (2001/2004); Region 5 Post-Disturbance	Road, trail, and administrative building construction; prescribed fire for fuels management; firewood collection/harvesting; off-highway vehicle (OHV) recreation; recreational facilities development and maintenance; timber harvesting; hazardous tree removal; livestock grazing and mineral resources development

Planning Area	Project/Plan	Associated Sub-Plans or Projects	Activities that Could Affect Resources Similar to the Proposed Project
		Hazardous Tree Management Project (in process, described below)	
Los Padres National Forest	Los Padres Forest Plan – approved in 2005; amended in 2014	Southern California Forest Plan revision (2006); Travel Analysis Report (2015); Piru Creek Wild and Scenic River Comprehensive River Management Plan (in process, decision expected 2022)	Developed and dispersed recreation; road and trail construction and maintenance; OHV recreational uses; timber harvesting; vegetation management; wildfire management and prevention; hazardous fuels reduction; livestock grazing and mineral resources development
Mendocino National Forest	Mendocino Forest Management Plan – approved in 1995; amended in 2001 (Northwest Forest Plan, described below)	Region 5 Post-Disturbance Hazardous Tree Management Project (in process, described below)	Developed and dispersed recreation; OHV use; timber harvesting; road construction, reconstruction, and maintenance; fuels management, including through prescribed burning; reforestation; aquatic habitat improvement; forest pest management; hazardous tree removal; livestock grazing and mineral resources development
Modoc National Forest	Modoc National Forest Land and Resource Management Plan (Forest Plan) – approved in 1991; updated as part of the Sierra Nevada Forest Plan (2001/2004, described below)	Devil's Garden Plateau Wild Horse Territory Management Plan (in process); Noxious Weed Treatment Project (2008); Sage Steppe Ecosystem Restoration Strategy (2008)	Recreational facilities management; road and trail construction, reconstruction, and maintenance; fuels management, including prescribed burning; timber harvesting; watershed restoration; aquatic habitat improvement; livestock grazing and mineral resources development

Planning Area	Project/Plan	Associated Sub-Plans or Projects	Activities that Could Affect Resources Similar to the Proposed Project
Plumas National Forest	Plumas Forest Plan – approved in 1988; amended in 2015	Public Motorized Travel Management program (2010); meadow restoration (ongoing); Region 5 Post-Disturbance Hazardous Tree Management Project (in process, described below)	Developed and dispersed recreation; OHV use; timber harvesting; road and trail construction and/or reconstruction; road decommissioning; fuels management (e.g., prescribed fire or other methods); forest pest management; livestock grazing and mineral resources development
Sequoia National Forest	Sequoia Forest Plan – approved in 1988; revision in process, decision expected 2022	Motorized Travel Management Plan (2009); Rough Fire recovery (restoring landscape post-fire in 2015); Giant Sequoia National Monument Management Plan (2012); Region 5 Post-Disturbance Hazardous Tree Management Project (in process, described below)	Developed and dispersed recreation, including OHV use; recreational facilities development; timber harvesting; habitat maintenance and improvement; transportation system development and maintenance; wildfire control; pest management; livestock grazing and mineral resources development
Shasta-Trinity National Forest	Shasta-Trinity Forest Plan – approved in 1995; amended as part of the Northwest Forest Plan (2001, described below)	Management of Habitat for Late-Successional and Old-growth Forest Related Species Within the Range of the Northern Spotted Owl (1994); Northwest Forest Plan Amendment (1994); Forest Wide Late Successional Reserve Assessment (1999); Northwest Forest Plan – Survey and Manage (2001); Clarification to Aquatic Conservation Strategy (2004); Region 5 Post-Disturbance Hazardous Tree	Road maintenance and development; wildfire suppression and management, including fuels treatment; aquatic habitat protection and restoration; recreation facilities management; timber harvesting; riparian habitat improvement; livestock grazing and mineral resources development

Planning Area	Project/Plan	Associated Sub-Plans or Projects	Activities that Could Affect Resources Similar to the Proposed Project
		Management Project (in process, described below)	
Sierra National Forest	Sierra Forest Plan – approved in 1991; revision in process, decision expected 2022	Kings River, South Fork and Middle Fork Wild and Scenic River Plan; Merced River and South Fork Merced River Wild and Scenic River Plan; Management Indicator Species amendment; Collaborative Forest Landscape Implementation Program (Dinkey Collaborative); Willow Creek Planning Collaborative; Region 5 Post-Disturbance Hazardous Tree Management Project (in process, described below); Creek Fire Restoration Project (in process, decision expected 2022)	Developed and dispersed recreation; aquatic habitat management and improvement; timber harvesting; pest management; road construction and reconstruction; wildfire management; livestock grazing and mineral resources development
Stanislaus National Forest	Stanislaus Forest Plan – approved in 1991; updated in 2017	Forest Roads Analysis (2003); Tuolumne Wild and Scenic River Management Plan (1988)	Habitat maintenance and improvement; pest management; developed and dispersed recreation, including OHV use; timber harvesting; transportation system management; wildfire management, including fuels treatment; noxious weed management; livestock grazing and mineral resources development
Tahoe National Forest	Tahoe Forest Plan – approved in 1990; amended in 2001/2004 (Sierra Nevada Forest Plan Amendment, described below)	Management Indicator Species designation (20xx); Forest Recovery Act (1999 – allows for alternate forest management activities designed to reduce wildfire danger while providing	Developed and dispersed recreation; trails development and OHV use; timber harvesting; transportation system/facilities management; wildfire management, including fuels

Planning Area	Project/Plan	Associated Sub-Plans or Projects	Activities that Could Affect Resources Similar to the Proposed Project
		environmental protections; amended 2003 to address DFPZ Maintenance; applicable only to Sierraville Ranger District)	treatment via prescribed fire; pest management; livestock grazing and mineral resources development
Sierra Nevada Mountains and Modoc Plateau	Sierra Nevada Forest Plan – approved in 2004; updated in 2013	N/A	Riparian and aquatic habitat protection and restoration; fire fuels treatment; noxious weed management
Washington, Oregon, and California	Northwest Forest Plan – approved in 1994; amended in 2001 to coordinate management activities of existing forest plans on 19 national forest units across Washington, Oregon, and California	Coordinated Management Direction for Northern Spotted Owl; Clarification to Aquatic Conservation Strategy (2004); Forest Wide Late Successional Reserve Assessment (1999)	Spotted owl habitat management
Nationwide	Nationwide Aerial Application of Fire Retardant on National Forest System Land – in progress; NOI published in Federal Register in 2020; decision expected 2022	N/A	Aerial application of fire retardant; use of new retardant formulations
USFS Region 5	Region 5 Post-Disturbance Hazardous Tree Management Project – in progress; decision expected 2022	N/A	Hazard tree removal

Sources: USFS 1988a, 1988b, 1989, 1990, 1991, 1992, 1995a, 1995b, 2004, 2005, 2017, 2019, 2022a, 2022b, 2022c, 2022d, 2022e, 2022f, 2022g, 2022h, 2022i, 2022j, 2022k, 2022l, 2022m, 2022n, 2022o, 2022p, 2022q

Table 5-2. Summary of Related Cumulative Activities on BLM Managed Lands

Planning Area	Project/Plan	Associated Sub Plans or Projects	Activities that Could Affect Resources Similar to the Proposed Project
Applegate Field Office	Alturas RMP – approved in 2008; Surprise RMP – approved in 2008	Duck Flat PPA Sage-steppe Restoration Project (ongoing); Riparian Restoration Project (ongoing)	Wildfire management and suppression; fuels treatment, including use of prescribed fire; timber harvesting; reforestation; road construction; recreation facilities management; OHV use; range improvements; nonnative species reduction; riparian habitat restoration; hazardous fuels reduction; livestock grazing and mineral resources development
Eagle Lake Field Office	Eagle Lake RMP – approved in 2008; RMP amendments for the Great Basin Region Greater Sage-Grouse Sub-regions – approved in 2015	Byers Pass Recreation Area improvements (in process); North Horse Phase I Fuels Reduction Maintenance (2021)	Wildfire management and suppression; recreation facilities management; OHV use; transportation management; road construction and decommissioning; weed management; habitat restoration; timber harvesting and salvage; fuels reduction and maintenance, including use of prescribed fire; livestock grazing and mineral resources development
Central Coast Field Office	RMP for the Southern Diablo Mountain Range & Central Coast of California – approved in 2007; RMP for the Clear Creek Management Area – approved in 2014; RMP Amendment for Oil	Tumey Hills Fuelbreak and Prescribed Fire (2021)	Recreation management, including for OHV use; habitat restoration; invasive weed management; timber harvesting; transportation system management; grazing allotments; range improvement; fuelbreak construction

Planning Area	Project/Plan	Associated Sub Plans or Projects	Activities that Could Affect Resources Similar to the Proposed Project
	and Gas Leasing and Development – approved in 2019		and maintenance; prescribed fire; burned area rehabilitation; mineral resources development
Redding Field Office	Redding RMP – approved in 1993; amended in 2005 to allow land sales; Northwest California Integrated RMP – in process	Helena Fire Emergency Stabilization and Rehabilitation Project (2017); Lewiston Community Protection Fuels Reduction (2020); Oregon Mountain Forest Health Thinning and Fuels Reduction Project (ongoing); Yreka Community Fuels Reduction Project (2020)	Transportation system management, road decommissioning; wildfire management and suppression; fuels reduction and maintenance, including through prescribed burns; timber harvesting; developed and dispersed recreation, including OHV use; livestock grazing and mineral resources development
Mother Lode Field Office	Sierra RMP – approved in 2008	Butte Fire Emergency Stabilization and Rehabilitation Plan (2015)	Wildfire management and suppression; fuels reduction and maintenance, including use of prescribed fire; recreation management, OHV use; noxious weed/invasive species control; habitat restoration; roads and trail management, decommissioning; grazing allotments; mineral resources development
Bakersfield Field Office	Bakersfield RMP – approved in 2014; Carrizo Plain National Monument RMP – approved in 2010; Desert Renewable Energy Conservation Plan, RMP Amendment – approved in 2016	Case Mountain Grove – Roads Hand Lines and Prescribed Fire (2019); Case Mountain Vegetation and Forest Health Plan (2018); Chimney Creek site road washout repair (2019); Chimney Creek fuels reduction project (2019); Keyesville hazard fuel reduction	Annual road maintenance; hazardous fuel reduction; habitat restoration; invasive species management; wildfire management and suppression; recreation management, including OHV use; vegetation management through

Planning Area	Project/Plan	Associated Sub Plans or Projects	Activities that Could Affect Resources Similar to the Proposed Project
		(ongoing); Keyesville hazard tree removal (2019)	various methods; livestock grazing and mineral resources development
Ukiah Field Office	Ukiah RMP – approved in 2006	Cache Creek Natural Area Weeds and Fire Fuels Control project (ongoing); Garcia River Estuary Salmonid Habitat Enhancement Project (ongoing)	Nonnative species removal and fire fuels control; reconnecting and enhancing floodplain habitat; wildfire suppression; livestock grazing; transportation system management; recreation management, including OHV use; mineral resources development

Sources: BLM 1993, 2005, 2006, 2007, 2008a, 2008b, 2008c, 2008d, 2010, 2014a, 2014b, 2015, 2016, 2019

Table 5-3. Resource Topics Dismissed from Further Consideration in the Analysis of Cumulative Impacts

Resource Topic Not Discussed Further	Rationale
Aesthetics	As discussed in Section 3.1, "Aesthetics," common management measures for water quality protection would have limited potential to disrupt scenic vistas, scenic resources, or existing visual character. Depending on the site-specific location, the presence of construction work areas or staging areas could prevent access to a scenic resource in the immediate area. However, these effects would be short-lived. Once constructed/installed, the management measures would not permanently hinder scenic vista usage. Many of the common management measures that would be implemented for the activities covered under the Federal NPS Permit would have long-term beneficial impacts on visual resources as they would help speed the return to natural conditions. The management measures would have the potential to impact historical buildings; however, all non-exempt actions undertaken by the BLM and USFS under the Proposed Project must comply with Section 106 of the National Historic Preservation Act (NHPA). Many of the projected cumulative activities listed in Table 5-1 and Table 5-2 would primarily involve construction-related impacts to aesthetics that would be temporary. Like the Proposed Project, the cumulative activities described in Table 5-1 and Table 5-2 would not be anticipated to involve or result in the construction of large buildings or structures (more likely these would be moderately-sized administrative or recreational facilities) that could substantially change the visual character or quality of public views, or involve land use changes that could result in substantial glare or nighttime lighting. Certain activities associated with the cumulative activities (e.g., hazard tree removal, forest/fuels management, nonnative species removal, etc.) could alter viewsheds (e.g., by reducing the number or predominance of trees or vegetation), but these effects would not be anticipated to be significant and could be preferable to some viewers. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact on aesthetics.
Agriculture and Forestry Resources	As described in Section 3.2, "Agriculture and Forestry Resources," many of the long-term effects of the Proposed Project on Important Farmland and agriculture would be beneficial. For example, the mechanisms included in the Proposed Project would lead to more effective management measure implementation, including those measures intended to reduce soil erosion and loss of topsoil, relative to the baseline. Many of the measures would be modifications to existing facilities (e.g., roadways, recreation facilities), while other measures (e.g., erosion control treatments, mulching) would be temporary and/or would not inhibit agricultural use or development. Similarly, many of the projected cumulative activities listed in Table 5-1 and Table 5-2 would involve primarily construction-related impacts related to agriculture that would be temporary. Like the Proposed Project, the cumulative activities described in Table 5-1 and Table 5-2 would not involve large commercial, residential, or industrial developments that could convert a large number of acres of Farmland to nonagricultural uses; rather, the

Resource Topic Not Discussed Further	Rationale
	activities would be limited to largely forest and range management activities that would not be anticipated to substantially change the existing land uses on the USFS and BLM managed lands. The activities would involve removal of hazard trees and other forest management approaches, which would not affect the forest's future uses or otherwise result in the loss of forest land or conversion of forest land to non-forest use. Commercial timber harvesting is ongoing on the USFS and BLM managed lands and would continue into the future. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact on agriculture and forestry resources.
Energy	As discussed in Section 3.6, "Energy," implementation and monitoring of management measures (e.g., sediment control measures, construction of water bars on fire lines, placement of riprap) on USFS and BLM managed lands would require the operation/use of gasoline- or diesel-fueled vehicles and equipment. Once installed, certain management measures may require some energy use in their operation or maintenance. In general, the energy use that would occur under the Proposed Project would not be wasteful in the sense that management measures are necessary for the protection and restoration of water quality in the Central Valley Region. The State's Renewable Portfolio Standard sets goals for renewable energy use, and numerous jurisdictions in the Central Valley Region have adopted climate action plans, which typically include goals for renewable energy use and energy efficiency, as described in Section 3.8, "Greenhouse Gas Emissions." The Proposed Project would not obstruct or discourage use of such energy sources. Similarly, many of the cumulative activities listed in Tables 5-1 and 5-2 would use energy; however, this energy use generally would not be wasteful, inefficient, or unnecessary. The cumulative activities would not involve new, stationary facilities that could use large amounts of energy. The energy use associated with the forest and range management and related activities would not be expected to be substantial. Additionally, like the Proposed Project, these other plans and projects would not conflict with or obstruct any state or local plans for renewable energy or energy efficiency. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to energy.
Geology and Soils	As discussed in Section 3.7, "Geology and Soils," common management measures for water quality protection would have very limited potential to result in impacts that would increase the likelihood of geologic, seismic, structural, or paleontological damage. Certain measures, such as maintaining watercourse protection buffers and following application requirements for herbicide use, would have no potential for impacts. For many management measures, ground-disturbing activities would be relatively minor in terms of the depth and scale of ground disturbance, as well as in duration. Where grading and excavation would be required, the level and depth of disturbance would be relatively minor. By contrast, the mechanisms included in the Proposed Project would lead to

Resource Topic Not Discussed Further	Rationale
	more effective implementation of management measures intended to reduce soil erosion and loss of topsoil, relative to the baseline. The potential impacts of the Proposed Project with respect to landslides, soil erosion and loss of topsoil, geologic unit or soil instability, expansive soils, and impacts to paleontological resources would be less than significant on the project-level. Similarly, many of the projected cumulative activities listed in Table 5-1 and Table 5-2 would involve limited ground disturbance and may function to improve the resilience of lands to erosion. Going forward, many of the activities on the USFS and BLM managed lands would be subject to the proposed Federal NPS Permit, which would impose requirements with respect to erosion prevention. The cumulative activities on USFS and BLM managed lands would not be anticipated to involve residential developments (other than possible new dwelling units for USFS/BLM staff), and any roads or recreation facilities associated with the plans would be expected to be constructed in accordance with applicable laws and regulations to minimize geologic hazards. While any ground disturbance may have potential to encounter/affect paleontological resources, the limited ground disturbance/excavation associated with the cumulative activities would minimize potential for substantial adverse effects on such resources. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to geology and soils.
Hazards and Hazardous Materials	As described in Section 3.9, "Hazards and Hazardous Materials," construction/installation of certain management measures may involve transport, use, and disposal of hazardous materials (e.g., fuel, oil, lubricants) and could expose construction workers, the public, or the environment to hazards. 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 management measures that would disturb greater than 1 acre of land, USFS/BLM may be subject to the Construction General Permit, including preparation and implementation of a stormwater pollution prevention plan (SWPPP), including hazardous materials management measures. Additionally, the USFS and BLM would implement internal guidelines and practices to limit potential releases of hazardous materials. Nothing in the Proposed Project would substantially increase pesticide/herbicide use or the potential for accidental releases of hazardous chemicals from containment vessels on existing USFS or BLM lands. Impacts related to impeding emergency response and evacuation plans and procedures (e.g., from constructing/installing management measures within roads) would be minimized through application of USFSs and BLM's existing protective procedures, while any risk of accidental ignition from operation of internal combustion engine equipment during Proposed Project activities would be minor and incremental. Similarly, many of the projected cumulative activities listed in Table 5-1 and Table 5-2 would involve routine transport, use, storage, and disposal of hazardous materials; however, the cumulative activities would be subject to the same existing regulations described in Section 3.9, "Hazards and Hazardous Materials" and certain of the

Resource Topic Not Discussed Further	Rationale
	activities (i.e., those requiring coverage under the Federal NPS Permit) may be subject to the requirements of the Proposed Project. In general, the potential hazards and hazardous materials impacts associated with the other reasonably foreseeable cumulative activities would be relatively minor, and the activities would take place in the context of the vast and sparsely populated USFS and BLM managed lands. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to hazards and hazardous materials.
Hydrology and Water Quality	As described in Section 3.10, "Hydrology and Water Quality," the purpose of the Proposed Project is to improve implementation of management measures for water quality protection during certain activities on federal lands, such as to reduce NPS discharges (primarily sediment) associated with these activities. Thus, it is expected that implementation of the Proposed Project would improve water quality on the USFS and BLM managed lands and in the Central Valley Region generally over the long term. In the short term, USFS and BLM would implement construction BMPs for erosion and sedimentation control when constructing/installing management measures, either as required by the federal agencies' BMP manuals or via the Construction General Permit. While certain management measures implemented pursuant to the Proposed Project could create new impervious surfaces (e.g., hardened surfaces at parking lots, boat launch sites, etc.), the federal agencies' BMP manuals require considerations to reduce any potential adverse effects from stormwater runoff from these surfaces. The use of water related to management measures under the Proposed Project would also likely be substantially less than the water use associated with the covered activities themselves and would not substantially decrease groundwater supplies. Many of the projected cumulative activities listed in Table 5-1 and Table 5-2 would involve ground-disturbing activities that could result in erosion and/or NPS discharges; however, going forward, compliance with the proposed Federal NPS Permit (i.e., for those activities requiring coverage) would reduce the potential impacts on hydrology and water quality from some of these activities. For example, vegetation management activities described in Table 5-1 and Table 5-2, including hazardous tree removal, would be subject to the proposed Federal NPS Permit in the future, which would function to improve BMP implementation and reduce NPS discharges from these activities. Like the Proposed Project, the other cumulative activities on the USFS and BLM managed lands would not create substantial new areas of impervious surface and the water use from the activities would not be of a degree to substantially decrease groundwater supplies. In general, while USFS and BLM activities have resulted in past and ongoing NPS discharges (primarily sediment), the Proposed Project would help to reduce these effects in the future. Like the Proposed Project, many of the cumulative activities would improve conditions with respect to hydrology and water quality over the long term (e.g., fuels management to reduce the likelihood of extensive wildfires and the associated adverse water quality impacts), even while short-term impacts from construction/management activities

Resource Topic Not Discussed Further	Rationale
	could occur. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact on hydrology and water quality.
Mineral Resources	As described in Section 3.11, "Mineral Resources," much of the USFS and BLM managed land area within the Central Valley Region provides opportunities for the exploration, development, and production of known mineral resources, as well as opportunities for prospecting, mining, and claim staking other significant resources. With respect to implementation of the Proposed Project, common management measures for water quality protection would generally have limited to no potential to result in impacts to mineral resources, although construction/implementation of certain management measures could temporarily inhibit access to mineral resources in a specific area. The Proposed Project would not include any new developments or land uses that could permanently limit the access to or availability of subsurface minerals. Similarly, the projected cumulative activities listed in Table 5-1 and Table 5-2 would have little to no potential to result in adverse impacts on mineral resources. The other plans and projects on the USFS and BLM managed lands would not involve substantial new land developments or impervious surfaces (although more limited impervious surfaces would be possible from new recreational facilities [e.g., boat launch sites or parking lots) and/or new roads), which could permanently hinder future development of mineral resources beneath the ground surface. Although the management and/or construction activities could temporarily inhibit access to any mineral resource sites, these impacts would not be significant and it is not a cumulative issue on the USFS and BLM managed lands. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to mineral resources.
Noise	Noise associated with implementation of various reasonably foreseeable management measures under the Proposed Project would be localized and temporary at any given site. As discussed in Section 3.12, "Noise," sensitive receptors (e.g., single-family homes, campsites, and educational centers) could be located within or adjacent to USFS and BLM lands where work could take place, although in general the USFS and BLM managed lands are rural and sparsely populated. As such, these receptors could experience elevated noise levels during the implementation of management measures (e.g., from mechanical equipment used in the construction/installation of certain management measures); however, the potential noise associated with these activities would dissipate rapidly with distance from the source and would be temporary in any given location. The same can be said of ground-borne vibration and ground-borne noise from operation of construction equipment for construction/installation of management measures. The Proposed Project would not result in the establishment of any new permanent sources of noise on the USFS and BLM managed lands.

Resource Topic Not Discussed Further	Rationale
	Similarly, noise impacts from the projected cumulative activities listed in Table 5-1 and Table 5-2 would be localized and largely temporary (e.g., operation of equipment during vegetation management activities). Like the Proposed Project, the cumulative activities would not be anticipated to result in the development or establishment of new, substantial permanent/stationary sources of noise. Overall, the increase in noise levels from other cumulative activities in combination with the Proposed Project would not be substantial. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to noise.
Public Services	As described in Section 3.13, "Public Services," the Proposed Project would incorporate management measures for various vegetative management activities (e.g., prescribed burns) that may reduce fuel loads on the USFS and BLM managed lands, as well as post-emergency recovery activities such as rehabilitation of fire and suppression damage and reforestation. Generally, these measures would be implemented either before (e.g., minimizing the effects of vegetation management activities) or after a wildfire and thus would not interfere with active fire suppression/protection operations. Construction/installation of management measures involving ground disturbance and operation of combustion-engine equipment could increase the risk of ignition of a wildfire; however, this additional risk would be relatively minor and incremental in the context of the ongoing federal activities. As discussed in Appendix C, the Proposed Project would have no potential to adversely affect police protection services, schools, parks, or other public services. Similarly, the cumulative activities listed in Table 5-1 and Table 5-2 would be largely intended to reduce fire risk (e.g., by reducing fuel loads, constructing fire breaks, etc.), which would potentially reduce the demands upon, and the need for, fire protection services on the USFS and BLM managed lands. While certain cumulative activities on the USFS and BLM managed lands involving combustion-engine equipment would have potential to generate a spark and thereby increase wildfire ignition risk, this risk would be relatively minor in the context of the many routine activities occurring on the USFS and BLM managed lands involving vehicles. In general, the other cumulative activities would not be expected to require or result in the need to construct new public services facilities, which could then result in environmental impacts. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to public services (fire protection).
Transportation	As described in Section 3.14, "Transportation," the transportation plans and programs of USFS and the BLM are generally focused on identifying essential vs. non-essential roadways within the USFS and BLM managed lands, managing the roadway systems for multiple uses and transportation modes, and minimizing the impacts of travel on natural resources. Owing to the largely rural nature of the USFS/BLM managed lands within the Central Valley Region, the existing level/volume of traffic on most roadways within the USFS and BLM managed lands is generally low. The Proposed Project would primarily affect transportation during construction activities for certain

Resource Topic Not Discussed Further	Rationale
	management measures (in particular, those affecting roadways and involving ground-disturbance) that could restrict or delay traffic through the presence of slow-moving trucks and/or work areas occurring within the public right-of-way. The USFS and BLM regularly conduct road improvement work and would implement their existing practices and procedures when constructing/installing management measures under the Proposed Project, which would minimize potential impacts from vehicle travel delays, roadway hazards, and emergency access. The Proposed Project would not substantially increase vehicle miles traveled (VMT) or otherwise adversely affect transportation over the long-term. Similarly, transportation impacts from the other projected cumulative activities listed in Table 5-1 and Table 5-2 would be primarily related to construction activities. Like the Proposed Project, the cumulative activities would not substantially affect roadways within the USFS and BLM managed lands over the long-term (other than to potentially improve vehicle movement/circulation associated with roads improvement projects) and would not add a large number of vehicle trips or substantially increase VMT. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to transportation.
Tribal Cultural Resources	As described in Section 3.15, "Tribal Cultural Resources," given the vast region encompassed by the Proposed Project, it is likely that resources significant to tribes with a traditional cultural affiliation to areas included within the Proposed Project area exist. However, the BLM and USFS have developed extensive and detailed policies and procedures for consulting with tribes about significant and sacred sites within the various agency districts/regions; for individual projects under the implementing regulations of Section 106 of the NHPA; and for complying with applicable federal laws, regulations, and policies. Given the robust nature of these protocols, TCRs would be addressed during implementation of these procedures. The projected cumulative activities described in Table 5-1 and Table 5-2 would undergo the same level of regulatory oversight as the Proposed Project; as such, implementation of USFS and BLM protocols and procedures with respect to tribal consultation and implementation of Section 106 of the NHPA would ensure that TCRs are protected. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to TCRs.
Utilities and Service Systems	As described in Section 3.16, "Utilities and Service Systems," due to the rural nature of the USFS and BLM managed lands, there are no public wastewater treatment facilities. Likewise, there are no public, centralized stormwater facilities on the USFS and BLM managed lands; instead, USFS and BLM managed lands rely on BMPs to address stormwater. In general, construction and installation of the reasonably foreseeable management measures under the Proposed Project are not expected to require substantial water or other utility services, including wastewater and electricity. While implementation of certain management measures could generate solid waste, the quantities

Resource Topic Not Discussed Further	Rationale
	of waste would not substantially affect the remaining capacities of any landfills in proximity to the federal lands. The federal agencies' BMP manuals encourage recycling of solid waste where practicable. The projected cumulative activities described in Table 5-1 and Table 5-2 would involve similar levels of utility usage and would take place on the same USFS and BLM managed lands that are devoid of centralized water, wastewater, and stormwater systems owing to their rural and undeveloped nature. Like the Proposed Project, none of the projected cumulative activities would involve, or result in, construction/development of new housing developments (apart from relatively minor new administrative buildings or dwelling units for USFS and BLM staff) or land uses that could substantially increase the demand for utilities and service systems. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to utilities and service systems.
Wildfire	Post-emergency recovery (including wildfires) is one of the categories of activities that would be covered by the proposed Federal NPS Permit, and would include salvage logging, rehabilitating fire and suppression damage (recovery), reforestation, and prescribed fire. While the Proposed Project would not specifically cause or result in these activities, it would provide more streamlined coverage for the post-emergency recovery category of activities and ensure that water quality is protected when USFS and BLM perform these activities. As described in Section 3.17, "Wildfire," construction/installation of management measures pursuant to the Proposed Project would not substantially exacerbate wildfire risks nor expose people or structures to significant risks. For the reasons described above with respect to Transportation, construction/installation of certain management measures for the Proposed Project (i.e., those involving ground-disturbing activities affecting roads) would have potential to interfere with emergency response/evacuation, but adherence to existing USFS and BLM practices and procedures would minimize the impacts. The projected cumulative activities listed in Table 5-1 and Table 5-2 would involve similar fire suppression and risk reduction activities; indeed, many of these activities will require coverage by the proposed Federal NPS Permit going forward. Many of the cumulative activities would be largely beneficial with respect to wildfire, as vegetation management/fuels reduction would reduce the burn severity of wildfires that may occur on the USFS and BLM managed lands. The cumulative activities also may have potential to impair an emergency response plan or emergency evacuation plan due to construction-related impacts on roadways; however, these impacts would be temporary and many areas of the USFS and BLM managed lands could potentially be accessed via helicopter, which would reduce adverse effects. Therefore, the Proposed Project would not substantially contribute to a cumulative significant impact related to wildfire.

Geographic Scope of Analysis

The scope of individual Proposed Project activities (i.e., management measure construction/installation) generally would be limited to small sites within BLM and USFS managed land areas. For the purposes of the cumulative analysis, the overall geographic scope is BLM and USFS managed lands within the Central Valley Region, as described in Section 2.3, "Project Location." The geographic scope of the cumulative impact analysis for each resource topic is focused on the areas where potential effects of implementing the Proposed Project common management measures 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
Biological Resources	Wetlands and other waters, riparian habitat, sensitive natural communities, and other habitats within or near USFS and BLM managed lands in the Central Valley 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, projected cumulative activities identified in Table 5-1 and Table 5-2, and other activities throughout the Central Valley Region.
Cultural Resources	Areas within or adjacent to USFS and BLM managed lands in the Central Valley Region that could contain cultural resources, including prehistoric archaeological sites, historic-era archaeological sites, historic-era buildings, structures, landscapes, districts, linear features, or human remains.	This area generally covers the same geographic area as the Proposed Project where impacts on cultural resources could occur due to the Proposed Project, projected cumulative activities identified in Table 5-1 and Table 5-2, and other activities throughout the Central Valley Region.

5.5.2. Cumulative Impact Analysis by Resource

Impact CUM-1: Cumulative Impacts on Biological Resources.

As described in Section 3.4, "Biological Resources," the Proposed Project would help to protect water quality in the long term and would ultimately benefit aquatic habitats, as well as protect riparian habitat and restore disturbed areas that could offer potential habitat for special-status species. For example, the seeding of disturbed soil (once seedlings become established) and the placement of road surface material (such as rock to native surface roads) would help to protect

against erosion and sediment transport that could reach waterways and affect water quality and special-status fish species.

Although many of the Proposed Project's management measures are expected to benefit special-status aquatic species, their habitats, riparian habitats, and sensitive natural communities in the long term once they are installed, some could have short-term adverse effects to aquatic and other special-status species and habitats, riparian habitat, and wetlands during construction. If special-status plant or animal species were to occur within areas where construction of certain management measures (i.e., those involving ground disturbance) were to take place, this could result in direct impacts to those species. Installation/construction of management measures such as adding materials (i.e., rock, armor/hardened surface) near road drainage features, inlets/outlets, removing outside berms on road surfaces, and hydrologic disconnection activities could place fill in wetlands or destroy other vegetation classified as a natural community. Construction activities could also indirectly affect species through erosion and sedimentation, or accidental releases or improper management of hazardous materials. USFS and BLM would be required to obtain permits from the United States Army Corps of Engineers and the Central Valley Water Board prior to impacting any jurisdictional waters or wetlands. Compliance with existing laws and regulations, including USFS' and BLM's existing protective requirements, as discussed in Section 3.4, as well as implementation of **Mitigation Measure BIO-1** would reduce these impacts to less-than-significant on a project-level basis.

The cumulative impact on biological resources resulting from the Proposed Project in combination with other projected cumulative activities described in Table 5-1 and Table 5-2 would depend in part upon site-specific factors and the relative effectiveness of impact avoidance and minimization efforts prescribed by planning documents, CEQA or NEPA mitigation measures, and permit requirements for each activity or project. The cumulative impact would also depend on the benefits that would be realized from implementation of adopted habitat conservation plans described in Section 3.4. 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 substantial impacts to biological resources from occurring (e.g., since the activities on USFS and BLM managed lands will have undergone NEPA review). Like the Proposed Project, the projected cumulative activities would not eliminate large areas of habitat or substantially block migration corridors for special-status or common species.

Additionally, the USFS's and BLM's BMP manuals contain measures and policies that would benefit biological resources, as well as measures to avoid, minimize, and mitigate impacts to these resources. Potential BMPs and mitigation measures for cumulative activities/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) the Proposed Project's implementation of Mitigation Measure BIO-1 and compliance with regulatory requirements; (2) the beneficial long-term effects of the Proposed Project on water quality, aquatic habitat, and riparian habitat; and (3) the fact that many management measures implemented pursuant to the Proposed Project would have limited to no potential to adversely affect biological resources, the Proposed Project's contribution to this cumulative impact would be **less than considerable**.

Impact CUM-2: Cumulative Impacts on Cultural Resources.

Many of the common management measures that would be implemented under the proposed Federal NPS Permit would have the potential to impact historical resources, particularly those that are archaeological in nature. Any ground disturbance has the potential to expose buried cultural remains that have not previously been identified, potentially resulting in a significant impact. Ground disturbances associated with management measures for the covered activities could also expose previously undocumented human remains. As discussed in Section 3.4, "Cultural Resources," both the BLM and USFS have developed robust guidelines for implementing the NHPA Section 106 regulations within their respective agencies. BLM and USFS protocols require work to stop immediately when human remains are discovered, and Native American human remains are treated under Native American Graves Protection and Repatriation Act, within the guidelines developed for the BLM and USFS. Given the level of Section 106 review that the Proposed Project actions will undergo under the BLM and USFS policies for addressing cultural resources, it can be assumed that historical resources would be adequately identified, the potential impacts to historical resources would be assessed, and appropriate treatments to affected historical resources would be implemented. Likewise, human remains would be treated with dignity and appropriate protocols would be followed.

Some of the projected cumulative activities described in Table 5-1 and Table 5-2 would also involve ground-disturbing activities that would have potential to adversely affect cultural resources, primarily buried archaeological materials 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 that require the proper treatment of and mitigation for potential impacts to cultural resources, which the Proposed Project and the cumulative activities/projects would need to follow to mitigate the cumulative impact.

Overall, given compliance with existing federal and state laws, the Proposed Project's contribution to this cumulative impact would be **less than considerable.**

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Chapter 6
Report Preparation

California Regional Water Quality Control Board, Central Valley Region

364 Knollcrest Drive, #205
Redding, CA 96002
(530) 224-4845

Angela Wilson	Division Chief, Forest Activities Program Manager
Griffin Perea	Senior Engineering Geologist

State Water Resources Control Board

1001 I Street
Sacramento, CA 95814
(916) 341-5455

Taranjot Sahota	Senior Environmental Scientist
Bayley Toft-Dupuy	Attorney, Office of Chief Counsel
Emel Wadhwani	Assistant Chief Counsel

California Department of General Services

707 Third Street, Suite 4-430
West Sacramento, CA 95605
(916) 376-5000

Jennifer Parson	Senior Environmental Planner

Consultants

Montrose Environmental
1 Kaiser Plaza, Suite 340
Oakland, CA 94612
(510) 986-1850

Tom Engels	Principal
Patrick Donaldson	Project Manager
Janis Offermann	Director/Cultural Resources Practice Leader
Julie Allison	Senior Associate
Jonathan Hidalgo	Senior Associate
Debra Lilly	Senior Associate
Jennifer Schulte	Senior Associate
Johnnie Chamberlin	Associate
Carley Dutra	Associate
Emily Hyland	Associate
Dean Martorana	Geographic Information System Analyst
Ryan Johnson	Geographic Information System Analyst
Linda Littleton	Technical Editor
Lorrie Jo Williams	Graphic Artist

Remy Moose Manley, LLP
555 Capitol Mall, Suite 800
Sacramento, CA 95814
(916) 443-2745

Sabrina Teller	Partner
Christina Berglund	Senior Associate

Chapter 7
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Chapter 1 Introduction

None.

Chapter 2 Proposed Project Description

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Chapter 3 Environmental Analysis

3.0 Introduction to the Environmental Analysis

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Chapter 4 Alternatives Analysis

None.

Chapter 5 Other Statutory Considerations

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Chapter 6 Report Preparation

None.