Revised Draft Vegetation Management Plan

Recirculated Draft Environmental Impact Report






CITY OF
Oakland

Oakland Fire Department
150 Frank H. Ogawa Plaza, Suite 3354
Oakland, CA 94612

September 2023

City of Oakland

Revised Draft Vegetation Management Plan

Recirculated Draft Environmental Impact Report

Prepared for: **Oakland Fire Department**
150 Frank H. Ogawa Plaza, Suite 3354
Oakland, CA 94612

Contact: Michael Hunt, Chief of Staff

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

Contact: Ken Schwarz, Principal

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GENERAL INFORMATION ABOUT THIS DOCUMENT

This document is a Recirculated Draft Environmental Impact Report (Recirculated DEIR) for the Revised Draft Vegetation Management Plan (Revised Draft VMP) (State Clearinghouse #2019110002), prepared by the City of Oakland (City) in accordance with California Environmental Quality Act (CEQA) Guidelines Section 15088.5.

The City of Oakland (City), as Lead Agency under CEQA, has developed the Revised Draft VMP to describe vegetation management actions the Oakland Fire Department (OFD) would implement over the plan's 10-year timeframe to reduce fire hazard on 1,924 acres of City-owned land and along 308 miles of roadways in the City's designated Very High Fire Hazard Severity Zone (VHFHSZ).

The Revised Draft VMP was developed to meet the City's stated goals to:

- reduce the wildfire hazard on City-owned land and along critical access/egress routes;
- reduce the likelihood of ignitions and extreme fire behavior to enhance public and firefighter safety;
- avoid and minimize impacts to natural resources; and
- contribute to regional efforts to reduce wildfire hazard in the Oakland Hills.

A DEIR was previously prepared and circulated for public review in November 2020. That document is referred to herein as the "prior 2020 DEIR." In addition to comments received during the prior 2020 DEIR public review period, OFD received additional comments on the initial Draft VMP from City representatives and the public. Since then, OFD revised the Draft VMP further to address this additional guidance. The City has prepared this Recirculated DEIR to evaluate the environmental impacts of changes made to the Revised Draft VMP since 2020.

The main Revised Draft VMP revision is to expand the vegetation management areas from 30 feet to 100 feet wide along roadsides in the City's VHFHSZ where dead and dying trees are present on City-owned property. In addition, some of the maintenance standards have been revised to expand vegetation management activities around habitable structures to provide more defensible space around these structures.

These updates to the initial Draft VMP are considered "significant new information," which triggers the need to recirculate the DEIR (CEQA Guidelines Section 15088.5). To evaluate environmental impacts of the changes to the initial Draft VMP, this Recirculated DEIR provides revised versions of Chapter 1, *Introduction*, and Chapter 2, *Program Description*, as well as revised versions of the Aesthetics, Air Quality, Biological Resources, Geology, Soils and Seismicity, Greenhouse Gas Emissions, Hydrology and Water Quality, Recreation, and Transportation resource sections Chapter 4, Other Statutory Considerations, Chapter 5, *Alternatives,* Chapter 6, *References*, and Chapter 7, *Report Preparers*. Revisions are shown in <u>underline</u> (to indicate additions) and ~~strikeout~~ (to show deletions). Note that some headers are shown in underline formatting that are not additions.

This Recirculated DEIR will be available for public and agency review for a 45-day period, as indicated in the Notice of Availability. In accordance with CEQA Guidelines Section 15088.5(f)(2), the City requests that reviewers limit their comments to the recirculated portions of the Recirculated DEIR. Following the public review period, the City will respond to comments on both the prior 2020 DEIR and the Recirculated DEIR in a Final EIR that will be available for public review.

Table of Contents

Executive Summary **ES-1**

Chapter 1 Introduction **1-1**

1.1 Background and Overview of the VMP Environmental Process to Date 1-1

1.2 Key Features Included in This Recirculated DEIR 1-2

1.2.1 Revisions to the Project Description 1-2

1.2.2 Revisions to Resource Sections 1-3

1.3 Oakland Fire Department 1-4

1.4 Plan Background 1-4

1.5 Overview of CEQA Requirements 1-5

1.6 Scope and Intent of this Document 1-6

1.7 CEQA Process 1-6

1.7.1 Notice of Preparation 1-6

1.7.2 Scoping Comments and Meeting 1-7

1.7.3 Prior 2020 DEIR Distribution and Meeting 1-7

1.7.4 Recirculated DEIR Distribution and Meeting 1-8

1.7.5 Preparation and Certification of the Final EIR 1-8

1.8 Organization of the Prior 2020 DEIR and This Recirculated DEIR 1-8

1.9 Submittal of Comments 1-10

Chapter 2 Project Description **2-1**

2.1 Introduction 2-1

2.2 Revised Draft VMP Area 2-1

2.3 Background and Plan Development Process 2-3

2.3.1 Background 2-3

2.3.2 VMP Development Process 2-5

2.4 Proposed Project 2-10

2.4.1 Goals and Objectives 2-10

2.4.2 Revised Draft VMP Structure and Contents 2-11

2.4.3 Vegetation Management Standards 2-12

2.4.4 VMP Treatment Areas 2-17

2.4.5 Priority Ranking of VMP Treatment Areas 2-79

2.4.6 Vegetation Management Techniques 2-80
2.4.7 Equipment Needed for Revised Draft VMP Treatments 2-85
2.4.8 Access to Treatment Areas 2-85
2.4.9 Construction Personnel 2-86
2.4.10 Schedule and Timing for Implementing Revised Draft VMP Treatments 2-86
2.4.11 Amount of Vegetation Management Activities Conducted Annually 2-87
2.4.12 Annual Work Plan Development Process 2-87
2.4.13 Annual Monitoring and Reporting 2-88
2.5 Adaptive Management 2-89
2.6 Coordination with Stakeholders and Volunteer Groups 2-90
2.7 VMP Best Management Practices 2-91
2.8 Anticipated Permits and Approvals Required for the Revised Draft VMP 2-91

Chapter 3 Environmental Setting, Impacts, and Mitigation Measures 3.1-1
3.1 Overview 3.1-1
3.1.1 Significance of Environmental Impacts 3.1-1
3.1.2 Baseline Conditions 3.1-3
3.1.3 Sections Eliminated from Further Analysis 3.1-4
3.1.4 Sections Not Recirculated 3.1-7
3.2 Aesthetics 3.2-1
3.2.1 Environmental Setting 3.2-1
3.2.2 Regulatory Setting 3.2-21
3.2.3 Impact Analysis 3.2-22
3.3 Air Quality 3.3-1
3.3.1 Environmental Setting 3.3-1
3.3.2 Regulatory Setting 3.3-14
3.3.3 Impact Analysis 3.3-20
3.4 Biological Resources 3.4-1
3.4.1 Environmental Setting 3.4-1
3.4.2 Regulatory Setting 3.4-43
3.4.3 Impact Analysis 3.4-51
3.5 Cultural Resources 3.5-1
3.6 Geology, Soils, and Seismicity 3.6-1
3.6.1 Environmental Setting 3.6-1
3.6.2 Regulatory Setting 3.6-15

3.6.3 Impact Analysis 3.6-17
3.7 Greenhouse Gas Emissions, Climate Change, and Energy 3.7-1
3.7.1 Environmental Setting 3.7-1
3.7.2 Regulatory Setting 3.7-4
3.7.3 Impact Analysis 3.7-10
3.8 Hazards and Hazardous Materials 3.8-1
3.9 Hydrology and Water Quality 3.9-1
3.9.1 Environmental Setting 3.9-1
3.9.2 Regulatory Setting 3.9-2
3.9.3 Impact Analysis 3.9-8
3.10 Noise and Vibration 3.10-1
3.11 Recreation 3.11-1
3.11.1 Environmental Setting 3.11-1
3.11.2 Regulatory Setting 3.11-8
3.11.3 Impact Analysis 3.11-8
3.12 Transportation 3.12-1
3.12.1 Environmental Setting 3.12-1
3.12.2 Regulatory Setting 3.12-2
3.12.3 Impact Analysis 3.12-4
3.13 Tribal Cultural Resources 3.13-1
3.14 Wildfire 3.14-1

Chapter 4 Other Statutory Considerations 4-1
4.1 Introduction 4-1
4.2 Irreversible Impacts 4-1
4.3 Significant and Unavoidable Impacts 4-2
4.4 Growth Inducement 4-2
4.5 Cumulative Impacts 4-2
4.5.1 Methods Used in this Analysis 4-3
4.5.2 Activities Similar to the Revised Draft VMP with Potential to Affect Resources ~~Similar to the VMP~~ 4-4
4.5.3 Planning Documents Considered for Cumulative Impact Analysis 4-7
4.5.4 Resource Topics Considered and Dismissed for Cumulative Impacts Analysis 4-8
4.5.5 Cumulative Impacts 4-10

Chapter 5 Alternatives 5-1
5.1 Introduction 5-1

5.2 CEQA Requirements for Alternatives Evaluation 5-1
5.3 Alternatives Development Process 5-2
5.3.1 Public Meetings and Comments 5-2
5.3.2 Project Goals and Objectives 5-2
5.3.3 Significant and Unavoidable Environmental Impact of the Revised Draft VMP 5-3
5.4 Alternatives Considered 5-4
5.4.1 Alternative 1: No Project Alternative 5-4
5.4.2 Alternative 2: Reduced Vegetation Management Activities Alternative 5-7
5.4.3 Alternative 3: No Herbicide Use Alternative 5-8
5.4.4 Alternative 4: Reduced Herbicide Use Alternative 5-10
5.4.5 Alternative 5: Prior 2019 VMP Alternative 5-12
5.5 Comparison of Alternatives 5-14
5.6 Environmentally Superior Alternative 5-16

Chapter 6 References 6-1

Chapter 7 Report Preparation 7-1

List of Appendices

Appendices A, C, and D are provided as part of this Recirculated DEIR. This Recirculated DEIR retains the same appendix numbering as the prior 2020 DEIR. For appendices that have not been revised, see prior 2020 DEIR.

Appendix A. Revised Draft Vegetation Management Plan
Appendix C. Air Quality/Greenhouse Gas/Energy Calculations
Appendix D. Biological Resources Information

List of Tables

Table ES-1. City-owned Parcels within the Revised Draft VMP Area ES-5
Table ES-2. Estimated Maximum Areas for Vegetation Treatment Activities ES-10
Table ES-3. Summary of Environmental Impacts and Mitigation Measures ES-20
Table 2-1. City-owned Parcels within the Revised Draft VMP Area 2-3
Table 2-2. Remote Automated Weather Station Characteristics 2-7
Table 2-32. Public and Stakeholder Engagement in the initial Draft VMP Development Process 2-8

Table 2-~~4~~3. Vegetation Management Standards and Goals by Dominant Vegetation Type 2-14
Table 2-45. Summary of Targeted Vegetation Types, VMP Treatment Areas, and Quantities Where Herbicides May Be Used 2-87
Table 2-~~6~~5. Types of Equipment Used for VMP Treatments 2-88
Table 2-~~7~~6. Estimated Maximum Areas for Vegetation Treatment Activities 2-90
Table 2-~~7~~8. Anticipated Regulatory Permits, Approvals, and Consultations 2-94
Table 2-~~9~~8. Revised Draft VMP Treatment Projects and Proposed Vegetation Management Techniques 2-96
Table 3.1-1. Summary of Vegetation Management Activities Conducted between 2005 and 2018 ..... 3.1-3
Table 3.2-1. Summary of Existing Visual Conditions in Revised Draft VMP Treatment Areas 3.2-13
Table 3.3-1. San Francisco Bay Area Air Basin Attainment Status 3.3-7
Table 3.3-2. Air Monitoring Data for ~~2016-2018~~2019-2021 ..... 3.3-9
Table 3.3-3. Sensitive Receptors Near Revised Draft VMP ~~Treatment~~treatment Areas 3.3-11
Table 3.3-4. Baseline Conditions Criteria Pollutant Emissions 3.3-14
Table 3.3-5. City of Oakland Air Quality Thresholds of Significance and Relevant CEQA Guidelines Appendix G Thresholds 3.3-22
Table 3.3-6. BAAQMD Air Quality Thresholds of Significance 3.3-23
Table 3.3-7. Revised Draft VMP and Baseline Treatment Activities 3.3-24
Table 3.3-8. Revised Draft VMP Criteria Pollutant Emissions 3.3-25
Table 3.4-1. Habitats and Spatial Coverage within the Revised Draft VMP Area 3.4-3
Table 3.4-2. Special-Status Plant Species with Potential to Occur in the Revised Draft VMP Area 3.4-16
Table 3.4-3. Special-status Wildlife Species with Potential to Occur in the Revised Draft VMP Area 3.4-39
Table 3.4-4. Priority Projects within Creekside Properties 3.4-69
Table 3.4-5. Summary of Direct Impacts on Special-Status Wildlife Species from Revised Draft VMP Implementation 3.4-90
Table 3.4-6. Sensitive Natural Communities within Priority Project Areas 3.4-93
Table 3.7-1. Greenhouse Gas Overview and Global Warming Potential 3.7-2
Table 3.7-2. Revised Draft VMP GHG Emissions 3.7-15
Table 3.9-1. Section 303(d) Listed Waterbodies in the Revised Draft VMP Area 3.9-2
Table 3.9-2. Beneficial Uses in the Alameda County Watersheds 3.9-5
Table 3.11-1. Parks and Open Spaces in the Revised Draft VMP Area 3.11-2
Table 4-1. Projected Population and Housing Growth for the Revised Draft VMP Area for 2020–2030 4-8

Table 4-2. Resource Topics Eliminated from Further Consideration in the Analysis of Cumulative Impacts 4-9

Table 5-1. Comparison of Acres Treated Among the Revised Draft VMP and Alternatives 5-15

List of Figures

Figure 2-1. Revised Draft VMP Area 2-2

Figure 2-2. City-owned Parcel and Roadside Categories in Revised Draft VMP Area 2-19

Figure 2-3. Revised Draft VMP Treatment Projects 2-39

Figure 2-4. New Areas of Potential Dead and Dying Tree Removal Within 100 feet of Roads 2-67

Figure 3.2-1. Typical Views of Revised Draft VMP Treatment Areas – Urban/Residential Parcels and Canyon Areas 3.2-5

Figure 3.2-2. Typical Views of Revised Draft VMP Treatment Areas – Canyons and Ridgetop Areas 3.2-7

Figure 3.2-3. Typical Views of Revised Draft VMP Treatment Areas – City Park Lands and Open Space Areas 3.2-9

Figure 3.2-4. Typical Views of Revised Draft VMP Treatment Areas – Open Space Areas and Roadside Treatment Areas 3.2-11

Figure 3.2-5. Existing Condition and Visual Simulation of NOR-1 at North Oakland Sports Field 3.2-32

Figure 3.2-6. Existing and Visual Simulation of GPO-1 at Grizzly Peak Open Space 3.2-33

Figure 3.2-7. Existing and Visual Simulation of SHP-2 at Shepherd Canyon Park 3.2-34

Figure 3.4-1. Habitats in the Revised Draft VMP Area 3.4-119

Figure 3.4-2. Lakes and Streams in the Revised Draft VMP Area 3.4-129

Figure 3.4-3. Sensitive Natural Communities in the Revised Draft VMP Area 3.4-141

Figure 3.4-4. Critical Habitat in the Revised Draft VMP Area 3.4-153

Figure 3.4-5. CNDDB-Mapped Plants in the Revised Draft VMP Area 3.4-155

Figure 3.4-6. CNDDB-Mapped Special-status Wildlife in the Revised Draft VMP Area 3.4-157

Figure 3.6-1. Geology of Revised Draft VMP Area 3.6-3

Figure 3.6-2. Landslide Susceptibility 3.6-15

Figure 3.14-1. Fire Hazard Severity Zones 3.14-3

Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
2010 CAP	*Bay Area 2010 Clean Air Plan*

A

A	attainment (attainment status)
AAQS	ambient air quality standards
AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC Transit	Alameda-Contra Costa Transit District
ACDEH	Alameda County Department of Environmental Health
ACEEE	American Council for an Energy Efficient Economy
ACHP	Advisory Council on Historic Preservation
AGR	agricultural supply
APE	area of potential effects
APEs	alkyphenol ethoxylates
ATCM	airborne toxic control measures
Ave	Avenue

B

BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BAU	"business as usual"
Bay	San Francisco Bay
BE	built environment (building or structure)
BERD	Built Environment Resources Directory
BMPs	best management practices
Blvd	Boulevard

C

CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAC	County Agricultural Commissioner

CAFE	Corporate Average Fuel Economy
Cal. Code Regs.	California Code of Regulations
CalEEMod	California Emissions Estimate Model
Cal EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CAL-IPC	California Invasive Plant Council
Cal/OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CalVTP	California Vegetation Treatment Program
CAP	Bay Area Clean Air Plan
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CCAA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CDPR	California Department of Pesticide Regulation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHL	California Historical Landmark
CH_4	Methane
City	City of Oakland
CMP	Alameda County Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CNPSEB	California Native Plant Society, East Bay Chapter
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
COLD	cold freshwater habitat;
COMM	commercial and sport fishing
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSSC	Chabot Space and Science Center
Ct	Court
CTC	County Transportation Commission
CTP	Countywide Transportation Plan

CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
CWPP	Community Wildfire Protection Plan

D

D	District
dB	decibel
dBA	A-weighted decibel
DDT	dichlorodiphenyltrichloroethane
DEIR	Draft Environmental Impact Report
DPM	diesel particulate matter
DPR	California Department of Parks and Recreation
DPS	Distinct Population Segment
Dr	Drive
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources

E

E	Existing Beneficial Use
EBCE	East Bay Community Energy
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Park District
ECAP	Equitable Climate Action Plan
EFH	Essential Fish Habitat
EIA	U.S. Energy Information Administration
EIR	environmental impact report
EIS	environmental impact statement
EO	Executive Order
ERPG	Emergency Response Planning Guidelines
ESA	Endangered Species Act
EST	estuarine habitat

F

F	Fahrenheit
F&G Code	California Fish and Game Code
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FMP	fishery management plan
FRSH	freshwater replenishment
FTA	Federal Transit Administration

G

GHG	greenhouse gas
GIS	geographic information system
GSAs	Groundwater Sustainability Agencies
GSP	groundwater sustainability plan
GWP	global warming potential

H

H_2O	water
H_2S	hydrogen sulfide
HCP	habitat conservation plan
Hz	Hertz
Horizon	Horizon Water and Environment
HFCs	Hydrofluoro-carbons
HSAA	Hazardous Substance Account Act

I

I-	Interstate
IARC	International Agency for Research on Cancer
IEPR	Integrated Energy Policy Report
IND	industrial service supply
Intermix	wildland urban intermix
IPaC	Information for Planning and Conservation
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated Pest Management

L

L	liter
LBNL	Lawrence Berkeley National Laboratory
L_{eq}	equivalent sound level
L_{dn}	day-night sound level
L_{max}	maximum sound level
L_{min}	minimum sound level

M

MAR	marine habitat
MBTA	Migratory Bird Treaty Act
mg	milligram
mg/L	milligrams per liter
MIGR	fish migration
MLD	most likely descendant
MMT	million metric tons
MMWD	Marin Municipal Water District

MS4	Municipal Separate Storm Sewer System
msl	above mean sea level
MT	million tons
MTC	Metropolitan Transportation Council
MUN	municipal and domestic water supply

N

N	nonattainment (attainment status)
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAV	navigation
NEHRP	National Earthquake Hazards Reduction Program
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos
NOP	Notice of Preparation of an EIR
NO_X	nitrogen oxides
NP9E	nonylphenol 9 ethoxylate
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Units
NWIC	Northwest Information Center

O

O_3	ozone
OakDOT	Oakland Department of Transportation
OBD	on-board diagnostic
OEHHA	California Office of Environmental Health Hazard Assessment
OFD	Oakland Fire Department
OHP	California Office of Historic Preservation
OHWM	Ordinary High Water Mark
OPR	California Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
OWLS	Oakland Wildland Stewards

P

Pb	lead
PCBs	polychlorinated biphenyls

PDF	portable document format
PFCs	perfluoro-carbons
PFMC	Pacific Fisheries Management Council
PG&E	Pacific Gas and Electric Company
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PM	particulate matter
PM0.1	particulate matter smaller than 0.1 micrometer in diameter
PM2.5	particulate matter smaller than 2.5 micrometers in diameter
PM10	particulate matter smaller than 10 micrometers in diameter
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
PPV	peak particle velocity
prior 2020 DEIR	DEIR on the Draft VMP circulated for public review in November 2020
PST	Pacific Standard Time
Pub. Res. Code	Public Resources Code
PVC	polyvinyl chloride

R

RARE	preservation of rare and endangered species
RCPS	Regional Climate Protection Strategy
RCRA	Resource Conservation and Recovery Act
Rd	Road
REC-1	water contact recreation
REC-2	noncontact water recreation
ROG	reactive organic gas
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board

S

S	Site
SAFE Rule	Safer Affordable Fuel Efficient vehicles rule
SAR	Second Assessment Report
SB	Senate Bill
SFBAAB	San Francisco Bay Area Air Basin
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SHELL	shellfish harvesting
SIP	state implementation plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide

SOD	Sudden Oak Death
SPAWN	fish spawning
SR	State Route
SF_6	sulfur hexa-fluoride
SWRCB	State Water Resources Control Board

T

TAC	toxic air contaminant
TBEE	triclopyr, butoxyethyl ester
TCP	traditional cultural property
TCR	tribal cultural resource
TEA	triclopyr, triethylamine salt
TMDL	Total Maximum Daily Load

U

U	unclassified (attainment status)
UC Berkeley	University of California at Berkeley
UCMP	University of California Museum of Paleontology
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

V

VdB	vibration velocity in decibels
VHFHSZ	Very High Fire Hazard Severity Zone
VMC	Vegetation Management Consortium
VMP	Vegetation Management Plan
VMT	vehicle miles traveled
VOC	volatile organic compound

W

WARM	warm freshwater habitat
WILD	wildlife habitat
WPA	Works Projects Administration
WPAD	Wildfire Prevention Assessment District
WUI	wildland urban interface
WVFMP	Wildland Vegetative Fuel Management Plan

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Executive Summary

ES.1 INTRODUCTION

The City of Oakland (City) has developed a Revised Draft Vegetation Management Plan (Revised Draft VMP) that describes the actions that the Oakland Fire Department (OFD) would continue to take over the ~~plan's~~ VMP's 10-year timeframe to reduce fire hazard on 1,924 acres of City-owned land and along 308 miles of roadways in the City's designated Very High Fire Hazard Severity Zone (VHFHSZ). The Revised Draft VMP has been developed to meet the City's stated goals of reducing wildfire hazard on City-owned land and along critical access/egress routes, reducing the likelihood of ignitions and extreme fire behavior to enhance public and firefighter safety, avoiding or minimizing impacts to natural resources, and contributing to regional efforts to reduce wildfire hazard in the Oakland Hills.

The California Environmental Quality Act (CEQA) requires all state and local government agencies to consider the environmental consequences of projects over which they have discretionary authority before approving or carrying out those projects. As the lead agency for the VMP project under CEQA, the City has prepared this Recirculated Draft Environmental Impact Report (Recirculated DEIR) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of implementing the Revised Draft VMP. This Recirculated DEIR was prepared in compliance with the requirements of CEQA (as amended) and the CEQA Guidelines (California Code of Regulations [Cal. Code Regs.], tit. 14, Section 15000 et seq.). A DEIR was previously prepared and circulated for public review in November 2020. That document is referred to herein as the "prior 2020 DEIR." In addition to comments received during the prior 2020 DEIR public review period, OFD received additional comments on the VMP from City representatives and the public. Since then, OFD revised the Draft VMP further to address this additional guidance. The City has prepared this Recirculated DEIR to evaluate the environmental impacts of changes made to the Revised Draft VMP since 2020.

This Recirculated DEIR describes and summarizes the proposed actions of the Revised Draft VMP in Chapter 2, *Project Description*, and the environmental resource sections of Chapter 3. More detail is provided in the Draft VMP, which is provided in its entirety in **Appendix A** of this Recirculated DEIR.

ES.2 VMP OVERVIEW

The Oakland Hills is the location of one of the State's most destructive historic wildfires, the 1991 Tunnel Fire, which destroyed 2,900 structures, injured more than 150 people, and killed 25 people. The Oakland Hills represents a complex wildfire environment that presents a significant risk to public and firefighter safety and to the built and natural environment due to local extreme wind and weather conditions (including Diablo wind events), steep and varied terrain, and a wide range of different vegetation types. Of the variables that comprise the wildland fire

environment (weather, terrain, and fuels or vegetation), vegetation is the only variable that can be managed. Lessons learned from the 1991 Tunnel Fire and other more recent, devasting wildfires in Northern California highlight the importance of managing vegetation to reduce wildfire hazard.

The City, in close coordination with the Oakland Fire Department (OFD), developed the Revised Draft VMP to reduce fire hazards on City-owned land and critical access/egress routes in City-designated Very High Fire Hazard Severity Zone (VHFHSZ) areas, reduce the likelihood of ignitions and extreme fire behavior to enhance public and firefighter safety, avoid or minimize impacts to natural resources, and contribute to regional efforts to reduce wildfire hazard in the Oakland Hills. The Revised Draft VMP includes descriptions of City-owned parcels and roadsides located within the City's VHFHSZ, natural resources at these locations, vegetation management techniques to reduce fire hazards, maintenance standards for the different types of treatment areas, and practices to avoid and minimize potential environmental impacts when conducting vegetation management work. The City of Oakland ~~Vegetation Management Plan~~Revised Draft VMP is the "Project" for this CEQA analysis.

ES.2.1 VMP Background

OFD has been actively managing vegetation on City-owned property since 2003 to minimize wildfire hazard in the VMP area, utilizing various techniques, including grazing, hand crews, and limited mechanical treatments. Goats have been used in large treatment areas, on City park land and open space where manual labor is cost prohibitive or areas are inaccessible to mowing equipment or too steep for hand crews. OFD has historically used hand labor to manage vegetation on urban and residential parcels, roadsides, and small treatment areas within larger parks or open space areas. Mechanical equipment has also been used, typically to grade or disk fire trails, reduce ladder fuels (e.g., removing small trees), control highly flammable/rapidly spreading species, reduce surface fuels (e.g., mowing grasses), chip and spread trimmings and down material, thin vegetation, and maintain reduced or target fuel loads.

Between 2004 and 2017, OFD conducted vegetation management activities throughout the Wildfire Prevention Assessment District (WPAD), a City-funded special assessment district that coincides with the City's VHFHSZ. This district financed the costs and expenses related to vegetation management, yard waste disposal, wildfire prevention education, and fire patrols in the Oakland Hills. The WPAD was disbanded in June 2017. Although OFD has continued to conduct vegetation management activities on City-owned properties and along roads since 2017, due to funding constraints, these have been conducted to a lesser degree than when the WPAD was in place.

ES.2.2 Revised Draft VMP Development Process

Development of the Revised Draft VMP included a detailed field assessment of wildfire hazard, which was used to identify and classify existing vegetation community and land cover types into fuel models, and map areas with high ignition potential or where extreme wildfire behavior would be expected given current terrain and fuel conditions. Revised Draft VMP development also included assessment and processing of geographic information system (GIS) datasets for variables influencing wildfire hazard in the VMP area, coordination with OFD personnel, fire

behavior modeling, and significant public and stakeholder outreach to better understand current vegetation management activities in the VMP area.

Public and Stakeholder Input on Draft VMP

Several public and stakeholder engagement meetings were conducted to support development of the VMP~~.~~ and Revised Draft VMP. Six workshops/meetings were conducted during development of the Draft VMP. A status update was provided to the Oakland City Council, Public Safety Committee on July 17, 2018. As an outcome of that meeting and at the direction of the Public Safety Committee, two additional public meetings were held in November 2018.

Volunteers and stakeholder groups that provided input during the VMP development process are identified in Appendix K of the Revised Draft VMP. In addition to the identified stewardship groups in Appendix K, the Oakland Wildland Stewards (OWLS) is a coalition of stewardship groups operating in the VMP area, and individual members provided input during the stakeholder meetings.

In addition, one public meeting was held on December 16, 2020, to receive oral comments on the prior 2020 DEIR.

Development of Vegetation Treatment Projects

Based on coordination with OFD personnel, fire behavior modeling, and public input received throughout the Revised Draft VMP development process, vegetation treatment projects were identified and prioritized based on proximity to structures, roads, ridgelines, and park access gates within the Revised Draft VMP area where fire behavior is anticipated to be extreme (high flame lengths and/or crown fires), and where continuation of the City's goat grazing program would effectively maintain lower fuel loads. Identified priority projects comprise 1,366 acres within the VMP area's 1,924 total acres. The Revised Draft VMP also prioritizes vegetation management along 30 miles of primary access/ egress routes in the ~~VMP area.~~Revised Draft VMP area and removal of hazard trees on City-owned properties where could strike adjacent roads if they fell. The vegetation treatment projects are provided in Section 9.2 of the Revised Draft VMP.

ES.3 PROPOSED PROJECT

ES.3.1 Project Goals and Objectives

The CEQA Guidelines call for the identification of objectives sought by a proposed project (CEQA Guidelines Section 15124[b]). A statement of objectives helps convey the reasons for considering approval of the Revised Draft VMP, including its intended benefits, and guides the development of a reasonable range of alternatives to evaluate in the EIR. The City has identified the following primary goals for the Revised Draft VMP:

- Reduce wildfire hazard on City-owned land and along critical access/egress routes within the City's VHFHSZ;

- Reduce the likelihood of ignitions and extreme fire behavior to enhance public and firefighter safety;
- Implement practices to avoid or minimize impacts to natural resources;
- Maintain an active role in regional efforts to reduce wildfire hazard in the Oakland hills.

The objectives of the Revised Draft VMP are as follows:

- Reduce the likelihood of catastrophic wildfires by limiting ignition potential, reducing fuel loads, and modifying fuel arrangements on City-owned lands.
- Reduce the likelihood of extreme fire behavior within the Revised Draft VMP area.
- Identify and define vegetation management actions that consider site-specific vegetation type, fuel hazard, treatment effectiveness, and ongoing maintenance requirements.
- Identify and prioritize fuel treatment areas based on fuel loads and arrangements, terrain, topographic exposure, and proximity to roads and structures.
- Retain vegetation where feasible to reduce wind exposure, retain soil and surface fuel moisture, and reduce the potential for soil erosion.
- Develop management recommendations that enable OFD to make informed, adaptive decisions on an annual basis (or more often as necessary) regarding vegetation management within the Revised Draft VMP area, considering the benefits of treatment, potential environmental effects, and treatment costs.
- Avoid, minimize, and/or reduce potential adverse effects of vegetation management on sensitive biological resources, water resources, aesthetics, soils, and slope stability.
- Increase the ability of OFD and other responding agencies to suppress wildfire in the VMP area in order to minimize wildfire impacts to Revised Draft VMP area resources.
- Routinely evaluate the effectiveness and implementation frequency of vegetation management actions within the VMP area.

ES.3.2 Revised Draft VMP Area

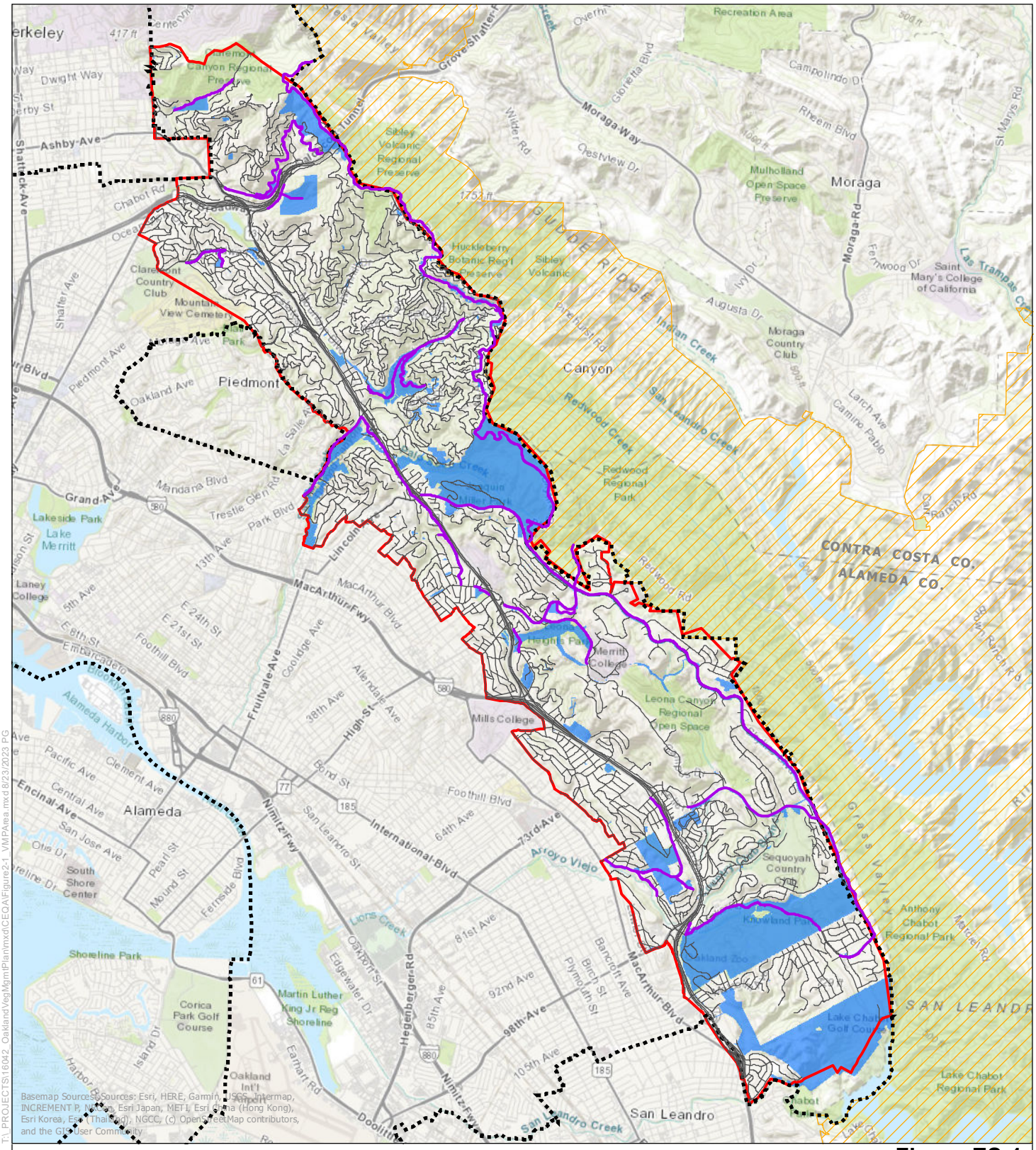
The Revised Draft VMP area encompasses City-owned parcels and areas within 30 feet of the edge of roadsides located within the City's VHFHSZ, as designated by the California Department of Forestry and Fire Protection (CAL FIRE) and defined in Section 4904.3 of the Oakland Fire Code (Oakland Municipal Code Chapter 15.12). ~~Specifically, as shown in Figure ES-1~~The Revised Draft VMP area also encompasses the area within 30-100 feet of the edge of roadsides in the City's VHFHSZ where dead and dying trees (as determined by a Certified Arborist, Licensed Forester, or Fire Safety Expert) are present on City-owned property and could strike the road if they fell. As described in Section 9 of the Revised Draft VMP, the goal of fuel treatment is to alter the structure, composition, and spacing of retained vegetation to moderate potential fire

behavior. Retained vegetation can reduce wind exposure, retain soil and surface fuel moisture, and reduce the potential for soil erosion. Specifically, as shown in **Figure ES-1**, the VMP area includes 419 City-owned parcels, ranging in size from <0.1 acre to 235 acres and totaling 1,924 acres. For the Revised Draft VMP planning purposes, parcels have been divided into the following categories: urban and residential, canyon areas, ridgetop areas, City park lands and open space, -other areas, and road medians. The Revised Draft VMP also includes roadside areas along 308 miles of road within the City's VHFHSZ, including surface and arterial streets, State Routes (SRs) 13 and 24, and Interstate 580 (I-580). **Table ES-1** summarizes the categories, sizes, and quantities of City-owned parcels in the Revised Draft VMP area.

Table ES-1. City-owned Parcels within the Revised Draft VMP Area

Parcel Category	Quantity	Total Acreage
Urban and Residential	152	51.2
Canyon Areas	89	188.7
Ridgetop Areas	11	130.2
City Park Lands and Open Space	91	1,552.9
Other Areas*	43	24.5
Medians	33	6.1
Total:	419	1,923.6

* Other areas are developed City-owned properties in the VMP area that include fire stations (nos. 6, 7, 21, 25, and 28), City facilities (parking lots, police stations), paved areas, and parks and playgrounds.



T:\PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQAFigure2-1_VMPArea.mxd 8/23/2023 PG

Figure ES-1.
Revised Draft Vegetation Management Plan Area

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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ES.3.3 Vegetation Management Standards and Treatment Areas

Vegetation management for fire hazard reduction would vary by location and conditions and would change over time to reflect changing conditions on the ground. Thus, management and maintenance standards described in the Revised Draft VMP are targeted toward fire hazard reduction and are characterized by dominant vegetation community/land cover type: grassland/herbaceous, brush/scrub, tree/woodland/forest, and other combustible material. Specific standards for tree-dominated vegetation types, including eucalyptus, closed-cone pine-cypress, urban (acacia) and urban (mixed tree stands), oak woodland, redwood, and riparian vegetation communities, are described in Section 9.1 of the Revised Draft VMP.

ES.3.4 Priority Ranking of VMP Treatment Areas

In general, treatment areas are organized by urban/residential parcels, canyon areas, City parks and open space areas, roadside treatment areas and medians, and other areas (e.g., parking lots, playground, urban parks). The City would select and prioritize the ultimate treatment projects that will be included in the annual work plan. Section 9.2 of the Revised Draft VMP provides more detail about current management practices and proposed treatments for each treatment area.

The Revised Draft VMP prioritizes vegetation treatment areas and projects into three different categories (Priority 1, 2, and 3) based on proximity to structures, ridgelines, and park access gates; areas along critical access/egress routes; areas subject to increased ignition potential; and areas that exhibit the potential for extreme fire behavior. Priority 1 areas are intended to be accomplished first. Once all Priority 1 areas have been completed or scheduled and budget allows, Priority 2 areas will be completed. Once all Priority 1 and 2 areas have been completed or scheduled and budget allows, Priority 3 areas will be completed.

ES.4 PLAN DESCRIPTION

ES.4.1 Vegetation Management Techniques

Different vegetation management techniques may be more effective at reducing, removing, or altering vegetation, depending on vegetation type, location, condition, and site configuration. Given the dynamic nature of vegetation, a single treatment technique or management approach may not be appropriate for one site over time; therefore, an adaptive approach that provides more flexibility to adjust and select management techniques based on conditions on the ground is the preferred long-term approach. The goal remains to maintain vegetation conditions in accordance with the desired vegetation management standards, but the specific methods may evolve over time.

Four categories of vegetation management techniques are proposed for use under the Revised Draft VMP:

- **Biological Techniques (Grazing)** – Grazing is the primary biological vegetation management technique that uses livestock (e.g., goats, cattle, sheep) to reduce the fuel

loading of live herbaceous growth, shrubs, and new growth of trees and prevent the expansion of brush/scrub into grasslands. Grazing is an effective method in large treatment areas where manual labor would be cost-prohibitive as well as in areas that are inaccessible to mowing equipment or in areas too steep for hand crews. Typically, grazing is conducted from late spring through the end of summer to reduce fine fuels prior to the onset of peak fire season. Grazing management plans consider site-specific conditions, specify management objectives and standards, and identify animal stocking rates and use levels (typically measured in pounds per acre of residual dry matter), grazing season, and monitoring requirements and performance criteria.

- **Hand Labor Techniques** – Hand labor techniques involve pruning, cutting, or removing trees, shrubs, and grasses by hand or using handheld equipment. Other hand labor treatments involve bark pulling, removing dead wood and litter, and mulching. Hand labor allows for selective management, pruning, thinning, or removal of targeted vegetation and is most effective for spot application on small areas or areas with difficult access or areas with sensitive species. The use of hand labor is focused on reducing ladder fuels, controlling highly flammable/rapidly spreading species (e.g., French broom), reducing surface fuels (e.g., grasses, weeds, down material), thinning vegetation, maintaining fuel loads, and pruning tree canopies. Compared to other vegetation management techniques, hand labor techniques typically have a lower potential for adverse environmental effects because the work is specifically targeted and implemented, although heavy foot traffic associated with hand labor can result in surface soil compaction and increase erosion potential.

- **Mechanical Techniques** – Mechanical techniques include fuel reduction methods that use motorized heavy equipment to remove or alter grass/herbaceous material (e.g., mowers, diskers) or woody material (e.g., masticators, feller-bunches). Mechanical treatment techniques rearrange vegetation structures, compact or chip/shred material, reduce ladder fuels, control highly flammable/rapidly spreading species, reduce surface fuels (e.g., mowing), and move material to staging areas for either reuse, off-site disposal, or composting; or burn piles. Constraints to mechanical equipment use include steep slopes, dense tree cover that prohibits access, saturated soils, and dry, high-fire hazard weather conditions where equipment use could result in ignition. Mechanical equipment is also typically not used for selective plant removal due to the large size of equipment. Typical mechanical equipment techniques to reduce fuel loads include grading, mowing, disking, mechanical cutting/crushing, chipping, tree removal, yarding, and creating fire and fuel breaks.

- **Chemical Techniques (Herbicide)** – Chemical techniques involve the use of herbicides to kill vegetation or prevent growth and are typically used in combination with other types of fuel reduction treatments, such as mowing, trimming, pruning, and grazing. Herbicides have a high kill rate and prevent treated plants from setting seed. They can be applied selectively, minimizing impacts to seeds of other species residing in the soil. Application of herbicides and other chemicals is typically performed by hand and can include sponging, spraying, or dusting chemicals onto unwanted vegetation. The cut-and-daub treatment is another method that is effective to control regrowth and kill the portion of the plant remaining belowground. This treatment method involves cutting the plant stalks or trunks and then directly applying the herbicide with a brush, sponge,

or hand sprayer with a cloth tied around the nozzle to the cambium layer of the freshly cut stump or stem. Herbicides must be applied by a licensed and trained professional to ensure proper and safe use, handling, and storage of chemicals to treat vegetation. Only specific types of herbicides are proposed for use in the Revised Draft VMP. While use of glyphosate is proposed, the Roundup formulation of glyphosate would not be used ~~within~~under the Revised Draft VMP.

ES.4.2 Revised Draft VMP Implementation

Vegetation management activities would occur year-round, as needed, subject to the limitations set forth in the mitigation monitoring and reporting program; however, given the variable nature of vegetation growth through changes in weather and season, the timing for certain treatments would be ~~confined to~~targeted for specific months to achieve optimal effectiveness, reduce the fire danger, and avoid or minimize impacts to special-status species (e.g., nesting birds). For example, treatments in grasslands should occur when grass cures or dries out. Mechanical removal of vegetation should also be conducted when the weather is not too dry or windy as some mechanical equipment has potential to ignite fires.

Maximum Annual Vegetation Management Activities

For the purposes of this EIR, **Table ES-2** summarizes the estimated maximum annual amount of vegetation treatment activities that would occur in a given year (by acreage and technique type). These estimated values are based on vegetation management activities conducted by the City over the last 15 years. This EIR assumes the City may conduct goat grazing on up to 1,100 acres per year and that a combination of hand labor and mechanical treatment methods would be employed at roadside treatment areas for up to 508~~500~~ acres. Roadside treatment acreages, such as manual removal of grasses, are included within the individual categories below.

Table ES-2. Estimated Maximum Areas for Vegetation Treatment Activities

Vegetation Treatment Activities	Maximum Estimated Annual Area (acres)
Manual removal of trees (using chainsaws, chippers)	262~~0~~
Manual removal of shrubs (using chainsaws, rotary mower, chipper)	145
Manual grass removal (rotary mower)	375
Mechanical tree removal (e.g., using feller/buncher, chainsaw, masticator, loader, skidder, chipper)	7~~5~~
Mechanical shrub removal (e.g., using tractor, excavator, rotary mower)	5
Mechanical grass removal (e.g., rotary mower, tractor)	5
Goat grazing	1,100
Herbicide treatment for trees*	20

Vegetation Treatment Activities	Maximum Estimated Annual Area (acres)
Herbicide treatment for shrubs*	15
Herbicide treatment for grasses**	0
Total	1,698

* The maximum annual herbicide treatment value for trees was calculated by adding the acreage of proposed tree herbicide treatments identified in Table 2-5 to determine the total acreage of proposed tree herbicide treatment and dividing by 10 to find the annual value. The same process was used for shrubs.

** Herbicide treatment for grasses is proposed only for spot treatment of pampas/jubata grass; this treatment is captured in the "Herbicide treatment for shrubs" category.

Annual Work Plan Development Process

As described in Section 12 of the VMP, OFD would assess vegetation conditions in the Revised Draft VMP area in the winter or early spring months. Under the Revised Draft VMP, the timing of field assessments would vary each year and would be dependent upon weather conditions such as annual rainfall, number of hot and dry days, and other factors that may affect site ~~condition~~conditions. Typically, treatments would begin in the spring and early summer months, but timing may be adjusted according to weather conditions (e.g., temperature, precipitation) or other site-specific factors. Vegetation treatments may also be conducted more than once annually, depending on the site conditions and results of the field assessment. Treatment method would be dependent upon the dominant vegetation type being treated and the condition of vegetation observed during field assessments.

After conducting field assessments, OFD would develop an annual work plan that identifies priority treatment areas, vegetation treatment techniques, implementation timing, resource needs and availability, funding sources, and monitoring and tracking needs. In addition to the priority ranking criteria described above, the order in which areas or properties are ranked would be dependent upon the level of hazardous conditions and availability of resources (e.g., areas exhibiting more hazardous conditions would be treated first).

The annual work plan is an internal, working document that may be modified throughout the year due to various factors including field conditions, weather, vegetation growth, fire risk, contractor or crew completion rates, staff and resource availability, treatment techniques, permit acquisition needs and emergency conditions, among others. As part of the annual work plan development process, OFD would coordinate with local volunteer/park stewardship groups, other City departments, and other agencies or landowners, as appropriate.

Monitoring, Adaptive Management, and Stakeholder Coordination

The value of monitoring and adaptive management is the gathering of empirical information from treatment sites (before, during, and after treatment) that can help refine the approaches to vegetation treatment that better meet site-specific project objectives, provide effective wildfire risk reduction, and protect the environment. OFD ~~would~~will monitor and inspect vegetation conditions and treatment activities in the VMP area throughout the year and develop an Annual VMP Report summarizing the results of monitoring efforts and any pertinent issues

identified and addressed during vegetation management activities. The Annual VMP Report would assess factors such as which vegetation management activities or techniques are effective or ineffective; whether treatment techniques should be changed or modified; and whether the timing, duration, or priority of treatments on a specific property or within the VMP area should be adjusted.

The Revised Draft VMP recommends continued and ongoing coordination between OFD and local volunteer and stewardship groups that are active in parklands or other portions of the VMP area. The Revised Draft VMP recognizes that effective communication and coordination is the responsibility of both OFD and local stewardship groups, with each making an effort to keep the other party informed and updated. Ongoing communication protocols are recommended in the Revised Draft VMP to maintain coordination between OFD and local stewardship efforts.

ES.5 PUBLIC INVOLVEMENT IN THE CEQA PROCESS

ES.5.1 Scoping Period

A Notice of Preparation of an EIR (NOP) for the VMP was prepared in accordance with the State CEQA Guidelines (CEQA Guidelines Section 15082) and was circulated to the Office of Planning and Research's State Clearinghouse on November 1, 2019. The original scoping period, which ended on December 2, 2019, was extended to December 12, 2019, for a total of 41 days. The NOP presented general background information on the VMP, the scoping process, and the environmental issues to be addressed in the DEIR. Copies of the NOP were distributed by mail and email to a broad range of stakeholders, including state, federal, and local regulatory agencies and jurisdictions, utilities, and interested individuals in the area. In addition, the NOP was published on the City's website. The NOP is included as an appendix to the prior 2020 DEIR.

To provide the public, as well as responsible and trustee agencies, an opportunity to ask questions and submit comments on the VMP and the scope of the DEIR, the City held a meeting on Wednesday, November 20, 2019. Notices of the meeting were mailed to interested parties; in addition, scoping meeting information was published on the City's VMP web page (oaklandca.gov/projects/oakland-vegetation-management-plan). The City accepted verbal and written comments at the meeting.

ES.5.2 Prior 2020 DEIR Distribution and Meeting

The prior 2020 DEIR was released for a 45-day public review and comment period on November 24, 2020. On December 16, 2020, the City Planning Commission, by motion, voted 4-0 to extend the public comment period 15 days from January 7, 2021 to January 22, 2021, for a total of 60 days. The City also conducted a public meeting on the prior 2020 DEIR on December 16, 2020.

ES.5.3 Recirculated DEIR Public Comment Period

The City has prepared this ~~DEIR, as informed by public and agency input received during the VMP development period and public scoping period,~~Recirculated DEIR to disclose environmental impacts associated with the ~~VMP~~ changes to the VMP that are now included in

the Revised Draft VMP. Where any such impacts are significant, feasible mitigation measures and potentially feasible alternatives that would substantially lessen or avoid such effects are identified and discussed. The public review period allows the public an opportunity to provide input to the lead agency on the Recirculated DEIR.

The recirculated portions of the DEIR ~~is~~ are currently undergoing public review for 45 days. During this period, the City will hold one public meeting on ~~December 16, 2020~~November 1 at 3:00 p.m. The meeting will occur during the City of Oakland Planning Commission meeting. ~~and will be hosted on Zoom. For links to the meeting, please visit: www.oaklandca.gov/boards-commissions/planning-commission/ meetings.~~ The meeting~~(s)~~ will occur in the Council Chambers of Oakland City Hall, located at 1 Frank H. Ogawa Plaza, Oakland, CA 94612. The meeting will include a brief overview of the ~~proposed project~~ changes to the Revised Draft VMP and the analysis and conclusions set forth in the Recirculated DEIR, followed by the opportunity for interested members of the public to provide comments regarding the ~~VMP and~~ recirculated portions of the DEIR. Commenters may provide oral comments at the meeting or written/emailed comments to DEIR-comments@oaklandvegmanagement.org at any time during the comment period.

ES.5.4 Preparation of FEIR and Certification

Once the public review period on the Recirculated DEIR is closed, the City will prepare a Final EIR (FEIR). The FEIR will incorporate both the prior 2020 DEIR and this Recirculated DEIR by reference. The FEIR will respond to (a) comments received during the circulation period for the prior 2020 DEIR, and (b) comments received during the recirculation period on the Recirculated DEIR. It will contain ~~all~~those comments ~~submitted on this DEIR~~ (including those made at public meetings), responses to those comments, and any revisions to the text of ~~this~~the DEIR. The FEIR will be reviewed by the City of Oakland Planning Commission and considered for approval by the City Council.

Written/emailed and oral comments received in response to the DEIR will be addressed in the "Responses to Comments" section of the FEIR. Together with the DEIR and any related changes to the substantive discussion in the DEIR, these responses will constitute the FEIR. The FEIR, in turn, will inform the City's exercise of its discretion as a lead agency under CEQA in deciding whether to approve the VMP.

ES.6 AREAS OF KNOWN CONTROVERSY AND ISSUES TO BE RESOLVED

CEQA Guidelines Section 15123(b) requires that an Executive Summary identify "areas of controversy known to a lead agency including issues raised by agencies and the public." To date, while not considered controversial, the following questions or concerns have been raised regarding the initial Draft VMP during the scoping period:

- Potential use of herbicides
- Removal of trees
- Removal of non-native vegetation

- Minimization of impacts on sensitive species

ES.7 ALTERNATIVES CONSIDERED

The purpose of the alternatives analysis in an EIR is to describe a range of reasonable alternatives to the proposed project that could feasibly attain most of the objectives of the proposed project while reducing or eliminating one or more of the proposed project's significant effects. The range of alternatives considered must include those that offer substantial environmental advantages over the proposed project and may be feasibly accomplished in a successful manner considering economic, environmental, social, technological, and legal factors.

A "No Project Alternative" also must be considered. The No Project Alternative is "the existing conditions at the time the notice of preparation is published" as well as "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans" (14 Cal. Code Regs. §15126.6[e][2]). "When the project involves revision of an existing plan, policy, or ongoing operation, the no-project alternative should reflect continuation of the existing plan, policy, or operation." (Kostka & Zischke, *Practice Under the California Environmental Quality Act* (CEB 2020) §15.19, citing CEQA Guidelines Section 15126.6(e)(3)(A).) "In such a situation, the no-project alternative should be described as a continuation of the existing operation." (Kostka & Zischke, *Practice Under the California Environmental Quality Act* (CEB 2020) §15.20, citing *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 254.) The no-project analysis reflects whether failure to approve the project would preserve existing environmental conditions or instead would lead to other changes to the environment." (Kostka & Zischke, *Practice Under the California Environmental Quality Act* (CEB 2020) Section 15.19, citing CEQA Guidelines Section 15126.6(e)(2).) The intent of the No Project Alternative is to allow decision makers to compare the impacts of approving the project against the impacts of not approving the project (CEQA Guidelines Section 15126[e][1]).

The alternatives described below have been evaluated for their feasibility and their ability to achieve most of the VMP's objectives while avoiding, reducing, or minimizing significant impacts identified for the VMP. The full analysis of alternatives is provided in Chapter 5 of the Recirculated DEIR.

ES.7.1 Alternative 1 – No Project Alternative

Under the No Project Alternative, the City would not implement a VMP to guide and direct targeted vegetation management activities to minimize the potential for ignitions, crown fire, and extreme fire behavior on City-owned land and along access/egress routes. Instead, the City would continue to conduct vegetation management activities consistent with existing (2017 and 2018) operations. Under the No Project Alternative, the City would conduct approximately 1,100 acres of goat grazing and approximately 152 acres of roadside treatment and other activities each year, using a combination of hand labor and mechanical techniques. Similar to existing conditions, no chemical techniques (i.e., herbicides) would be used.

It is important to note that the underlying need for increased targeted vegetation management activities proposed under the Revised Draft VMP—to reduce wildfire risk in the City portions of

the VHFHSZ —would remain unaddressed with implementation of the No Project Alternative. Without implementation of the Revised Draft VMP, the City would only be able to address a limited number of vegetation management activities annually based on the Public Works/OFD annual budget.

By reducing the acreage of treatment that occurs in a given year compared to annual treatment acreages under the Revised Draft VMP, the No Project Alternative would fail to meet Revised Draft VMP goals and objectives, particularly reducing wildfire hazard on City-owned land and along critical access/egress routes within the City's VHFHSZ. It would also fail to address the need for wildfire risk reduction identified by the City, OFD, stakeholders, and members of the public throughout the years-long VMP development process.

ES.7.2 Alternative 2 – Reduced Vegetation Management Activities Alternative

Alternative 2 is a modified version of the Revised Draft VMP with reduced annual treatment acreage. Under Alternative 2, the City would conduct approximately 1,100 acres of goat grazing and approximately 300 acres of roadside treatment and other activities using a combination of hand labor, mechanical treatments, and herbicide treatments. Additionally, no vegetation management activities would occur on urban and residential treatment areas, which total 47.5 acres. While vegetation treatment activities would still occur in close proximity to sensitive uses, the use of equipment generating noise of 85 dBA at 50 feet (such as chainsaws) would be prohibited within 90 feet of sensitive receptors, and the use of equipment generating noise of 88 dBA at 50 feet (such as a chipper or excavator) would be prohibited within 130 feet of sensitive receptors.

Alternative 2 was selected as an alternative to the Revised Draft VMP based on public input and because the restriction on equipment use near sensitive receptors would reduce significant and unavoidable noise impacts associated with mechanical treatment activities and the use of chainsaws during hand labor treatments.

Alternative 2, the Reduced Vegetation Management Activities Alternative, would meet some of the goals or objectives of the Revised Draft VMP; however, the reduced annual acreage of treatment would slow OFD's progress in addressing wildfire risk concerns. It would fail to fully address the need for wildfire risk reduction to the level identified by the City, OFD, stakeholders, and members of the public.

ES.7.3 Alternative 3 – No Herbicide Use Alternative

Alternative 3 is a modified version of the Revised Draft VMP that excludes the use of herbicides for vegetation management. Other vegetation management methods described in the Revised Draft VMP (i.e., grazing, hand labor techniques, and mechanical techniques) would be used in lieu of herbicides. Under Alternative 3, the City would conduct approximately 1,100 acres of goat grazing and approximately ~~555~~563 acres of roadside treatment and other activities using a combination of hand labor and mechanical techniques. Under this alternative, no herbicides would be used (compared to an annual maximum of 35 acres of proposed herbicide treatment

under the VMP). All other maintenance activities would be conducted as described in the Revised Draft VMP.

As background, in 2005, the City adopted Resolution 79133, which directed staff to evaluate the selective use of glyphosate and triclopyr for managing vegetation to reduce wildfire hazard in the City's Wildfire Prevention Assessment District. To date, herbicides have not been used for vegetation management on City-owned property or along roadsides in the Revised Draft VMP area. This Revised Draft VMP EIR process evaluates the potential environmental effects of herbicide use. However, the City also received feedback from the public during the initial Draft VMP development and scoping process to consider a "no herbicide" alternative to address concerns about the potential impacts of herbicide use in the City. As such, Alternative 3 reflects public input on early drafts of the VMP.

Alternative 3, the No Herbicide Use Alternative, would meet some of the goals or objectives of the VMP; however, the elimination of herbicide use as an available vegetation management treatment would slow progress toward reducing fuel loads in the Revised Draft VMP area~~.~~ and thereby not reduce the fire risk as well as the proposed project. This alternative would result in additional costs and staffing needs to conduct follow-up treatments in areas where mechanical and hand removal treatments are less effective than herbicide treatments. It would also result in additional impacts related to air pollutants, truck trips, and noise.

ES.7.4 Alternative 4 – Reduced Herbicide Use Alternative

Alternative 4 is a modification of the Revised Draft VMP that would reduce, but not eliminate, herbicide application in the VMP area compared to the proposed Revised Draft VMP. Under Alternative 4, annual herbicide use would be reduced to a maximum of 10 acres of treatment for trees and 7.5 acres of treatment for shrubs (compared to the annual maximum of 20 acres of treatment for trees and 15 acres of treatment for shrubs under the Revised Draft VMP). Additionally, no herbicide application would occur within 100 feet of any creeks. Further, under this alternative, the City would use only non-Roundup™ formulations of glyphosate. In contrast, the VMP allows non-Roundup™ formulations of glyphosate as well as triclopyr and imazapyr. Alternative 4 would only allow application of herbicides using the cut-and-daub application method with a hand brush or sponge; no hand spraying would be conducted under this alternative. The City would conduct approximately 1,100 acres of goat grazing, as with the Revised Draft VMP, along with approximately 580.5~~572.5~~ acres of roadside treatment and other activities (a reduction from 598~~590~~ acres with the Revised Draft VMP) using a combination of hand labor, mechanical, and herbicide techniques.

As described above for Alternative 3, Alternative 4 reflects public input on early drafts of the VMP to consider a "reduced herbicide" alternative.

Alternative 4, the Reduced Herbicide Use Alternative, would meet some of the goals or objectives of the Revised Draft VMP; however, restrictions on the types and amounts of herbicide use as an available vegetation management treatment would slow progress toward improvement of fuel loads in the VMP area compared to the proposed Revised Draft VMP. This alternative would result in additional costs and staffing needs to conduct follow-up treatments in areas where mechanical and hand removal treatments are less effective than herbicide treatments. It would also result in additional impacts related to air pollutants and truck trips.

ES.7.5 Alternative 5: Prior 2019 VMP Alternative

Alternative 5 reflects the 2019 version of the VMP (also referred to as the "initial VMP"), which was analyzed under the prior 2020 DEIR. Alternative 5 would result in slightly reduced annual treatment acreage compared to the revised VMP, as well as changes to the vegetation treatment standards. Under Alternative 5, the City would conduct approximately 1,100 acres of goat grazing and approximately 555 acres of roadside treatment and other activities using a combination of hand labor, mechanical treatments, and herbicide treatments. This alternative would not include treatment of dead and dying trees on City-owned property within 30-100 of roadsides.

Alternative 5 was selected as an alternative to the Revised Draft VMP to provide a comparison to the initial VMP evaluated in the prior 2020 DEIR.

Alternative 5 would partially meet VMP goals and objectives; however, the reduced annual acreage of treatment would slow OFD's progress in addressing wildfire risk concerns. Eliminating treatment of dead and dying trees within 30-100 feet from roadways would increase potential hazards from trees that could fall across roadways during a fire, compared to the Revised Draft VMP. It would fail to fully address the need for wildfire risk reduction to the level identified by the City, OFD, stakeholders, and members of the public. Accordingly, Alternative 5 would not meet most of the stated project objectives.

ES.8 SUMMARY OF THE ENVIRONMENTAL IMPACT ANALYSIS

The environmental impacts of implementing the Revised Draft VMP are discussed in detail in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures.* The chapter also identifies significance conclusions for each impact (described in detail below) and describes mitigation measures that would reduce significant impacts to a less-than-significant level. The following sections of Chapter 3 are recirculated in this document:

- 3.1 Intro to Environmental Analysis
- 3.2 Aesthetics
- 3.3 Air Quality
- 3.4 Biological Resources
- 3.6 Geology, Soils, And Seismicity
- 3.7 Greenhouse Gas Emissions
- 3.9 Hydrology and Water Quality
- 3.11 Recreation
- 3.12 Transportation

This Recirculated DEIR retains the same section numbering as the prior 2020 DEIR, and sections that have not been revised are indicated with the following text: "This section has not been revised; see prior 2020 DEIR." Section 3.14, *Wildfire* has one figure that is being recirculated, but the impact analysis has not changed from the prior 2020 DEIR.

Table ES-3 (located at the end of this Executive Summary) provides an overview of the environmental impacts, mitigation measures, and levels of significance identified in this ~~document.~~ EIR, including for sections of the prior 2020 DEIR that have not been recirculated. For the full impact analysis, refer to the resource sections of Chapter 3.

ES.8.1 Significance Thresholds and Impact Terminology

The CEQA statutes and guidelines require that, for each environmental resource topic, significance criteria are identified to determine whether implementation of the proposed project would result in a significant environmental impact when evaluated against the baseline condition, as described in the environmental setting. The significance criteria vary depending on the environmental resource topic. In general, effects can be either significant or potentially significant (impacts exceed the threshold) or less than significant (impacts do not exceed the threshold). In some cases, a significant impact will be identified as significant and unavoidable if no feasible mitigation measures are available that would reduce the impact to a less-than-significant level. If a project is subsequently adopted despite identified significant impacts that would result from the project, CEQA requires the lead agency to prepare and adopt a statement of overriding considerations describing the social, economic, and other reasons for moving forward with the project despite its significant impacts.

This Recirculated DEIR uses the following terminology to describe environmental effects of the Revised Draft VMP:

- A finding of *no impact* is made when the analysis concludes that the Revised Draft VMP would not affect the particular environmental resource or issue.
- An impact is considered *less than significant* if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation is needed.
- An impact is considered *significant* or *potentially significant* if the analysis concludes that there would be, or could be, a substantial adverse effect on the environment.
- An impact is considered *less than significant with mitigation* if the analysis concludes that there would be no substantial adverse change in the environment with the inclusion of the mitigation measures described.
- An impact is considered *significant and unavoidable* if the analysis concludes that there could be a substantial adverse effect on the environment and that, even with the inclusion of feasible mitigation measures, the impact would not be reduced to a less-than-significant level.
- *Mitigation* refers to specific measures or activities adopted to avoid, minimize, rectify, reduce, eliminate, or compensate for an impact.

- A *cumulative impact* can result when a change in the environment results from the incremental impact of a project when added to other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively substantial projects. The cumulative impact analysis in this Recirculated DEIR (provided in Section 4.2 of Chapter 4) focuses on whether the Revised Draft VMP's incremental contribution to significant cumulative impacts caused by past, present, or probable future projects is cumulatively considerable (i.e., significant).

Because the term "significant" has a specific usage in evaluating impacts under CEQA, it is used only to describe the level of significance of impacts and is not used in other contexts within this document. Synonyms such as "substantial" have been used when not discussing the significance of an environmental impact.

Significant and Unavoidable Impact

CEQA requires that the Executive Summary to an EIR identify any environmental impacts that, even with mitigation, cannot be feasibly reduced to a less-than-significant level. As described in Section 3.10, "Noise and Vibration," and summarized in Table ES-3, the following significant and unavoidable impact would occur under the Revised Draft VMP:

- Impact NOI-1: Generate Substantial Temporary or Periodic Increase in Ambient Noise Levels; or Generate Noise in Violation of the City of Oakland Municipal Code, in Excess of General Plan Standards, California Noise Insulation Standards, or Applicable Standards Established by a Regulatory Agency

Table ES-3. Summary of Environmental Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Aesthetics (Recirculated)			
AES-1: Substantial Adverse Effects on Public Scenic Vistas	S	**AES-1**: Conduct Visual Reconnaissance Prior to Implementing Tree Removal Activities to Determine if Vegetation Relocation or Thinning of Publicly Visible Treatment Areas is Necessary	LSM
AES-2: Substantial Damage to Scenic Views, Including Those within a State or Locally Designated Scenic Highway	S	**AES-1**: Conduct Visual Reconnaissance Prior to Implementing Tree Removal Activities to Determine if Vegetation Relocation or Thinning of Publicly Visible Treatment Areas is Necessary	LSM
AES-3: Short-term Degradation of Visual Character or Quality of Public Views	S		LSM
Grazing	LTS	None required	LTS
Mechanical and Hand Labor Treatments	S	**AES-2:** Staging (VMP BMP GEN-4)	LSM
Herbicides	LTS	None required	LTS
AES-4: Long-term Degradation of Visual Character or Quality of Public Views	S	**AES-1**: Conduct Visual Reconnaissance Prior to Implementing Tree Removal Activities to Determine if Vegetation Relocation or Thinning of Publicly Visible Treatment Areas is Necessary	LSM
Air Quality (Recirculated)			
AQ-1: Conflict with or Obstruct Implementation of Applicable Air Quality Plans	LTS	None required	LTS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
AQ-2: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation, or Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region Is in Nonattainment	S	**AQ-1:** Fugitive Dust BMPs **GEO-1:** Minimize Area of Disturbance (Revised from VMP BMP GEN-2) **HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8) **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2)	LSM
AQ-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations	S		LSM
Mechanical and Hand Labor Treatments	S	**AQ-1:** Fugitive Dust BMPs **AQ-2:** Comply with Asbestos ATCM by Obtaining an Approved Asbestos Dust Mitigation Plan or Exemption **GEO-1:** Minimize Area of Disturbance (Revised from VMP BMP GEN-2)	LSM
Grazing	LTS	None required	LTS
Herbicides	S	**HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements	LSM
AQ-4: Result in Other Emissions Such as Odors Adversely Affecting a Substantial Number of People	LTS	None required	LTS
Biological Resources (Recirculated)			
BIO-1: Potential Adverse Effects on Special-Status Plant Species	S		LSM
~~BIO-1A: State-Listed and/or Federally Listed Special-Status Plants~~	~~S~~		~~LSM~~

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Mechanical and Hand Labor Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-2a:** Avoid Special-Status Plant Species (revised from VMP BMP BIO-3) **BIO-2b:** Provide Compensatory Mitigation for Special-Status Plant Species **BIO-3:** Seeding with Native Species (VMP BMP BIO-10) **BIO-4:** Avoid Presidio Clarkia Sensitive Time Periods **GEO-1:** Minimize Area of Disturbance (Revised from VMP BMP GEN-2)	LSM
Grazing	S	**BIO-2a:** Avoid Special-Status Plant Species (revised from VMP BMP BIO-3) **BIO-5:** Grazing (revised from VMP BMP BIO-6)	LSM
Herbicides	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-2a:** Avoid Special-Status Plant Species (revised from VMP BMP BIO-3) **HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2)	LSM
~~BIO-1B: CRPR 1B or 2 Plants~~	~~S~~		~~LSM~~
~~**Mechanical and Hand Labor Treatments**~~	~~S~~	~~BIO-1: Provide Biologist Review and Worker Training~~ ~~BIO-2a: Avoid Special-Status Plant Species (revised from VMP BMP BIO-3)~~ ~~BIO-2b: Provide Compensatory Mitigation for Special-Status Plant Species~~ ~~BIO-3: Seeding with Native Species (VMP BMP BIO-10)~~	~~LSM~~

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~GEO-1: Minimize Area of Disturbance (VMP BMP GEN-2)~~	
~~Grazing~~	~~S~~	~~BIO-2a: Avoid Special-Status Plant Species (revised from VMP BMP BIO-3)~~ ~~BIO-5: Grazing (revised from VMP BMP BIO-6)~~	~~LSM~~
~~Herbicides~~	~~S~~	~~BIO-1: Provide Biologist Review and Worker Training~~ ~~BIO-2a: Avoid Special-Status Plant Species (revised from VMP BMP BIO-3)~~ ~~BIO-2b: Provide Compensatory Mitigation for Special-Status Plant Species~~ ~~HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides~~ ~~HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)~~	
~~**BIO-1C: CRPR 3 or 4 Plants and Plants Listed in the CNPSEB Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties Database with an A rank**~~	~~S~~	~~BIO-1: Provide Biologist Review and Worker Training~~ ~~BIO-2a: Avoid Special-Status Plant Species (revised from VMP BMP BIO-3)~~ ~~BIO-2b: Provide Compensatory Mitigation for Special-Status Plant Species~~ ~~BIO-3: Seeding with Native Species (VMP BMP BIO-10)~~ ~~BIO-5: Grazing (revised from VMP BMP BIO-6)~~ ~~GEO-1: Minimize Area of Disturbance (VMP BMP GEN-2)~~ ~~HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides~~ ~~HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)~~	~~LSM~~
BIO-2: Potential Adverse Effects on Special-Status Wildlife Species	S		LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
BIO-2A: Potential Adverse Effects on Special-Status Amphibians and Reptiles	S		LSM
All Treatments	S	**BIO-6:** Trash Removal (revised from VMP BMP BIO-7) **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3)	LSM
Mechanical and Hand Labor Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-7:** Protection of Alameda Whipsnake (revised from VMP BMP BIO-5) **BIO-8:** Protection of California Red-legged Frogs and Western Pond Turtles (based on VMP BMP BIO-4)	LSM
Grazing	S	**BIO-5:** Grazing (revised from VMP BMP BIO-6)	LSM
Herbicides	S	**BIO-9:** Protection of California Red-legged Frogs from Herbicide Use (VMP BMP BIO-2) **HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2) **HYD/WQ-1:** Work Windows (VMP BMP GEN-1)	LSM
BIO-2B: Potential Adverse Effects on Special-Status Birds and Other Protected Bird Nests			LSM
All Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-6:** Trash Removal (revised from VMP BMP BIO-7)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		BIO-10: Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures (revised from VMP BMP BIO-1)	
Mechanical and Hand Labor Treatments	S	**BIO-10:** Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures (revised from VMP BMP BIO-1)	LSM
Grazing	S	**BIO-5:** Grazing (revised from VMP BMP BIO-6)	LSM
Herbicides	S	**BIO-10:** Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures (revised from VMP BMP BIO-1) **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2)	LSM
BIO-2C: Potential Adverse Effects on Special-Status Mammals and CEQA-relevant Bat Species	S		LSM
Mechanical and Hand Labor Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-11:** Protection of Bat Colonies (VMP BMP BIO-8) **BIO-12:** Protection of Dusky-footed Woodrats (VMP BMP BIO-9)	LSM
Grazing	LTS	None required	LTS
Herbicides	S	**HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2) **HYD/WQ-1:** Work Windows (VMP BMP GEN-1)	LSM
BIO-2D: Potential Adverse Effects on Special-Status Invertebrates	S		
All Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-13:** Avoid Monarch Butterfly Host Plants and Overwintering Sites	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Mechanical and Hand Labor Treatments	S	**BIO-13:** Avoid Monarch Butterfly Host Plants and Overwintering Sites **BIO-14**: Avoid Crotch Bumble Bee Nests **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2)	LSM
Grazing	S	**BIO-13:** Avoid Monarch Butterfly Host Plants and Overwintering Sites	LSM
Herbicides	S	**BIO-1:** Provide Biologist Review and Worker Training **HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2) **BIO-13:** Avoid Monarch Butterfly Host Plants and Overwintering Sites	LSM
BIO-3: Potential Adverse Effects on Riparian Habitat or Other Sensitive Natural Communities Identified in Local or Regional Plans, Policies, Regulations or by CDFW, USFWS, or NMFS	S		LSM
BIO-3A: Impacts on Riparian Habitat or Other Sensitive Natural Communities	S		LSM
All Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **HYD/WQ-1:** Work Windows (VMP BMP GEN-1)	LSM
Mechanical and Hand Labor Treatments	S	**BIO-~~13~~15:** Avoid Riparian Habitat and Develop and Implement a Plan to Replace Affected Riparian Habitat	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Grazing	S	**BIO-5:** Grazing (revised from VMP BMP BIO-6) **BIO-~~13~~15:** Avoid Riparian Habitat and Develop and Implement a Plan to Replace Affected Riparian Habitat	LSM
Herbicides	S	**HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2)	LSM
BIO-3B: Impacts Caused by Non-native and Invasive Species and Pathogens	S		LSM
Mechanical Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-3:** Seeding with Native Species (VMP BMP BIO-10) **BIO-14:** Prevent the Spread of Invasive Plants and Plant Pathogens **HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8)	LSM
Hand Labor Treatments	S	**BIO-~~14~~16:** Prevent the Spread of Invasive Plants and Plant Pathogens	LSM
Grazing	LTS	None required	LTS
Herbicides	S	**BIO-14:** Prevent the Spread of Invasive Plants and Plant Pathogens	LSM
BIO-4: Potential Adverse Effects on Federally Protected or State-Protected Wetlands	S		LSM
Mechanical Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-5:** Grazing (revised from VMP BMP BIO-6) **BIO-6:** Trash Removal (revised from VMP BMP BIO-7)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		BIO-~~15~~17: Avoid Impacts on Federally Protected and State-Protected Wetlands and Waters, as Feasible **BIO-~~16~~18:** Provide Compensatory Mitigation for Unavoidable Impacts on Waters of the United States and the State **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3) **HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8) **HAZ-2:** Vehicle and Equipment Fueling (VMP BMP GEN-9) **HAZ-3:** On-Site Hazardous Materials Management (VMP BMP GEN-5) **HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2) **HAZ-6:** Spill Prevention and Response (VMP BMP GEN-7) **HAZ-8:** Existing Hazardous Materials (VMP BMP GEN-6) **HYD/WQ-1:** Work Windows (VMP BMP GEN-1)	
Hand Labor Treatments	S	**BIO-~~15~~17:** Avoid Impacts on Federally Protected and State-Protected Wetlands and Waters, as Feasible **BIO-~~16~~18:** Provide Compensatory Mitigation for Unavoidable Impacts on Waters of the United States and the State **HYD/WQ-1:** Work Windows (VMP BMP GEN-1)	LSM
Grazing	S	**BIO-5:** Grazing (revised from VMP BMP BIO-6)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Herbicides	S	**HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2) **HYD/WQ-1:** Work Windows (VMP BMP GEN-1)	LSM
BIO-5: Potential Interference with Wildlife Movement, Established Wildlife Corridors, or the Use of Native Wildlife Nursery Sites	S		LSM
BIO-5A: Wildlife Movement	LTS	None required; further reduced with **BIO-5:** Grazing (revised from VMP BMP BIO-6)	LTS
BIO-5B: Potential Adverse Effects on Non-special-status Fish	S		LSM
All Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-~~13~~15:** Avoid Riparian Habitat and Develop and Implement a Plan to Replace Affected Riparian Habitat	LSM
Mechanical Treatments	S	**BIO-~~15~~17:** Avoid Impacts on Federally Protected and State-Protected Wetlands and Waters, as Feasible **BIO-~~16~~18:** Provide Compensatory Mitigation for Unavoidable Impacts on Waters of the United States and the State **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3) **HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8) **HAZ-2:** Vehicle and Equipment Fueling (VMP BMP GEN-9) **HAZ-3:** On-Site Hazardous Materials Management (VMP BMP GEN-5)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2) **HAZ-6:** Spill Prevention and Response (VMP BMP GEN-7) **HAZ-8:** Existing Hazardous Materials (VMP BMP GEN-6) **HYD/WQ-1:** Work Windows (VMP BMP GEN-1)	
Hand Labor Treatments	LTS	None required	LTS
Grazing	S	**BIO-5:** Grazing (revised from VMP BMP BIO-6)	LSM
Herbicides	S	**HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2)	LSM
BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources	S		LSM
All Treatments	S	**BIO-1:** Provide Biologist Review and Worker Training **BIO-2a:** Avoid Special-Status Plant Species (revised from VMP BMP BIO-3) **BIO-2b:** Provide Compensatory Mitigation for Special-Status Plant Species **BIO-3:** Seeding with Native Species (VMP BMP BIO-10) **BIO-4:** Avoid Presidio Clarkia Sensitive Time Periods **BIO-5:** Grazing (revised from VMP BMP BIO-6) **BIO-6:** Trash Removal (revised from VMP BMP BIO-7) **BIO-7:** Protection of Alameda Whipsnake (VMP BMP BIO-5) **BIO-8:** Protection of California Red-legged Frogs and Western Pond Turtles (revised from VMP BMP BIO-4) **BIO-9:** Protection of California Red-legged Frogs from Herbicide Use (VMP BMP BIO-2)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		BIO-10: Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures (revised from VMP BMP BIO-1) **BIO-11:** Protection of Bat Colonies (VMP BMP BIO-8) **BIO-12:** Protection of Dusky-footed Woodrats (VMP BMP BIO-9) **BIO-~~–~~13:** Avoid Monarch Butterfly Host Plants and Overwintering Sites **BIO-14**: Avoid Crotch Bumble Bee Nests**BIO-15:** Avoid Riparian Habitat and Develop and Implement a Plan to Replace Affected Riparian Habitat **BIO-~~14~~16:** Prevent the Spread of Invasive Plants and Plant Pathogens **BIO-~~15~~17:** Avoid Impacts on Federally Protected and State-Protected Wetlands and Waters, as Feasible **BIO-~~16~~18:** Provide Compensatory Mitigation for Unavoidable Impacts on Waters of the United States and the State **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3) **HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8) **HAZ-2:** Vehicle and Equipment Fueling (VMP BMP GEN-9) **HAZ-3:** On-Site Hazardous Materials Management (VMP BMP GEN-5) **HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2) **HAZ-6:** Spill Prevention and Response (VMP BMP GEN-7)	

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		HAZ-8: Existing Hazardous Materials (VMP BMP GEN-6) **HYD/WQ-1:** Work Windows (VMP BMP GEN-1)	
Herbicides	LTS	None required	LTS
BIO-7: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan	NI	None required	NI
Cultural Resources (This section has not been revised; see prior 2020 DEIR)			
CUL-1: Adverse Change in Significance of Historical Resources of the Historic Era and Built Environment	LTS	None required	LTS
CUL-2: Adverse Change in Significance of Archaeological Sites that Are Historical Resources	S	**CUL-1:** Provide Sensitivity Training, Assess Archaeological Sensitivity, and Survey Areas of High or Highest Sensitivity **CUL-2:** Avoid Use of Techniques that Cause Ground Disturbance within Known Archaeological Historical Resources **CUL-3:** Response Measures for Potential Unknown Archaeological Resources and Tribal Cultural Resources	LSM
CUL-3: Disturb Human Remains, Including Those Interred Outside of Dedicated Cemeteries	S	**CUL-4:** Stop Work if Human Remains Are Unearthed during Project Activities	LSM
Geology, Soils, and Seismicity			
GEO-1: Result in Substantial Erosion or Loss of Topsoil	S		LSM
Grazing	S	**BIO-5:** Grazing (revised from VMP BMP BIO-6)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Mechanical Treatments	S	**AES-2:** Staging (VMP BMP GEN-4) **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3) **GEO-3:** Geotechnical Evaluation **HYD/WQ-1:** Work Windows (VMP BMP GEN-1)	LSM
Hand Labor Treatments	S	**GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3)	LSM
Herbicides	LTS	None required	LTS
GEO-2: Substantial Adverse Effects Involving Landslides	S		LSM
Grazing	S	**BIO-5:** Grazing (revised from VMP BMP BIO-6)	LSM
Hand Labor Treatment	LTS	None required	LTS
Mechanical Treatments	S	**AES-2:** Staging (VMP BMP GEN-4) **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3) **GEO-3:** Geotechnical Evaluation	LSM
Herbicides	LTS	None required	LTS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
GEO-3: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature	S	**GEO-4:** Stop Work if Paleontological Resources Are Unearthed during VMP Treatment Activities	LSM
Greenhouse Gas Emissions			
GHG-1: Generate GHG Emissions	LTS	None required	LTS
GHG-2: Potential to Conflict with an Applicable Plan, Policy or Regulation Adopted for the Purpose of Reducing the Emissions of GHGs	LTS	None required	LTS
GHG-3: Result in Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources or Conflict with a State or Local Plan for Renewable Energy or Energy Efficiency	S	**AQ-1:** Fugitive Dust BMPs	LSM
GHG-4: Reduction in Carbon Sequestration	LTS	None required	LTS
Hazards and Hazardous Materials (This section has not been revised; see prior 2020 DEIR)			
HAZ-1: Create a Significant Hazard to the Public or the Environment from the Routine Transport, Use, or Disposal of Hazardous Materials	S		LSM
Grazing	S	**HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8) **HAZ-2:** Vehicle and Equipment Fueling (VMP BMP GEN-9)	LSM
Hand Labor Techniques	S	**HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8) **HAZ-2:** Vehicle and Equipment Fueling (VMP BMP GEN-9)	LSM
Mechanical Techniques	S	**HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		HAZ-2: Vehicle and Equipment Fueling (VMP BMP GEN-9) **HAZ-3:** On-Site Hazardous Materials Management (VMP BMP GEN-5)	
Herbicides	S	**HAZ-3:** On-Site Hazardous Materials Management (VMP BMP GEN-5) **HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2)	LSM
HAZ-2: Create a Significant Hazard to the Public or the Environment through the Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment	S	**HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8) **HAZ-2:** Vehicle and Equipment Fueling (VMP BMP GEN-9) **HAZ-3:** On-Site Hazardous Materials Management (VMP BMP GEN-5) **HAZ-6:** Spill Prevention and Response (VMP BMP GEN-7)	LSM
HAZ-3: Create a Significant Hazard to the Public through the Storage or Use of Acutely Hazardous Materials near Sensitive Receptors	S	**HAZ-3:** On-Site Hazardous Materials Management (VMP BMP GEN-5) **HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2)	LSM
HAZ-4: Emit Hazardous Emissions or Handle Hazardous or Acutely Hazardous Materials, Substances, or Wastes within 0.25 Mile of an Existing or Proposed School	S	**HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
HAZ-5: Be Located on a Site that Is Included on a List of Hazardous Materials Sites Compiled Pursuant to California Government Code Section 65962.5, and as a Result, Create a Significant Hazard to the Public or the Environment	S	**HAZ-7:** Review Proximity of Proposed Treatment Sites to Known Hazardous Materials Clean-up Sites and Implement Safety Measures **HAZ-8:** Existing Hazardous Materials (VMP BMP GEN-6) **HAZ-9:** Proper Handling and Disposal of Contaminated Soil and Groundwater	LSM
HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	S	**TRA-1:** Maintain Traffic Flow **TRA-2:** Traffic Control and Public Safety	LSM
Hydrology and Water Quality (Recirculated)			
HYD/WQ-1: Violate Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Water Quality or Conflict with or Obstruct the Implementation of a Water Quality Control Plan or Conflict with the City of Oakland Creek Protection Ordinance through Hand Labor, Herbicide Application, or Mechanical Techniques	S	**HYD/WQ-1:** Work Windows (VMP BMP GEN-1) **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3) **HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8) **HAZ-2:** Vehicle and Equipment Fueling (VMP BMP GEN-9) **HAZ-3:** On-Site Hazardous Materials Management (VMP BMP GEN-5) **HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2) **HAZ-6:** Spill Prevention and Response (VMP BMP GEN-7) **HAZ-8:** Existing Hazardous Materials (VMP BMP GEN-6)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
HYD/WQ-2: Violate Water Quality Standards or Waste Discharge Requirement or Otherwise Substantially Degrade Water Quality or Conflict with or Obstruct the Implementation of a Water Quality Control Plan or Conflict with the City of Oakland Creek Protection Ordinance through Grazing	S	**BIO-5:** Grazing (revised from VMP BMP BIO-6) **GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3)	LSM
HYD/WQ-3: Substantially Alter Existing Drainage Pattern of Site or Area, or Create or Contribute Runoff Water that Exceeds Capacity of Stormwater Systems, or Results in Substantial Erosion or Exposes People or Structures to a Substantial Risk of Loss, Injury, or Death as a Result of Flooding or Inundation by Mudflow	S	**BIO-5:** Grazing (revised from VMP BMP BIO-6) **HYD/WQ-1:** Work Windows (VMP BMP GEN-1) **GEO-1:** Minimize Soil Disturbance (VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3) ~~**HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8)~~ ~~**HAZ-2:** Vehicle and Equipment Fueling (VMP BMP GEN-9)~~ ~~**HAZ-3:** On-Site Hazardous Materials Management (VMP BMP GEN-5)~~ ~~**HAZ-5:** Standard Herbicide Use Requirements (VMP BMP VEG-2)~~ ~~**HAZ-6:** Spill Prevention and Response (VMP BMP GEN-7)~~ ~~**HAZ-8:** Existing Hazardous Materials (VMP BMP GEN-6)~~	LSM
HYD/WQ-4: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge Such That There Would Be a Net Deficit in Aquifer Volume or a Lowering of the Local Groundwater Table Level	LTS	None required	LTS

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
~~Noise~~Noise (This section has not been revised; see prior 2020 DEIR)			
NOI-1: Generate Substantial Temporary or Periodic Increase in Ambient Noise Levels; or Generate Noise in Violation of the City of Oakland Municipal Code, in Excess of General Plan Standards, California Noise Insulation Standards, or Applicable Standards Established by a Regulatory Agency			
Grazing and Herbicide Treatments	LTS	None required	LTS
Hand Labor Treatments	S	**NOI-1:** Limit Work Near Sensitive Receptors **NOI-2:** Notify Sensitive Receptors Near Treatment Areas	SU
Mechanical Treatments	S	**NOI-1:** Limit Work Near Sensitive Receptors **NOI-2:** Notify Sensitive Receptors Near Treatment Areas	SU
NOI-2: Generate Groundborne Vibration or Groundborne Vibration Levels that Exceed FTA Criteria	LTS	None required	LTS
Recreation (Recirculated)			
REC-1: Increased Use of Recreational Facilities Such that Substantial Physical Deterioration Would Occur	LTS	None required	LTS
REC-2: Temporary Disruption of the Use of, or Access to, Recreational Facilities	S	**REC-1:** Provide Notification of Temporary Trail Closures **HAZ-4:** Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Transportation (Recirculated)			
TRA-1: Conflict with a Program Applicable Plan, Ordinance or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle and Pedestrian Facilities			
Roadside Treatment Areas and Medians	S	**TRA-1:** Maintain Traffic Flow **TRA-2:** Traffic Control and Public Safety	LSM
Ridgetop Areas	S	**TRA-1:** Maintain Traffic Flow **TRA-2:** Traffic Control and Public Safety	LSM
Canyon Areas	S	**TRA-1:** Maintain Traffic Flow **TRA-2:** Traffic Control and Public Safety	LSM
City Parks and Open Space Areas	S	**TRA-1:** Maintain Traffic Flow **TRA-2:** Traffic Control and Public Safety	LSM
Urban and Residential Parcels	LTS	None required	LTS
Other Areas	LTS	None required	LTS
TRA-2: Result in Substantial Increase in Vehicle Miles Traveled	LTS	None required	LTS
TRA-3: Substantially Increase Hazards due to a Design Feature or Incompatible Uses	S	**TRA-1:** Maintain Traffic Flow **TRA-2:** Traffic Control and Public Safety	LSM
TRA-4: Result in Inadequate Emergency Access	S	**TRA-1:** Maintain Traffic Flow **TRA-2:** Traffic Control and Public Safety	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Tribal Cultural Resources (This section has not been revised; see prior 2020 DEIR)			
TCR-1: Substantial Adverse Change in the Significance of a Tribal Cultural Resource	S	**CUL-1:** Provide Sensitivity Training, Assess Archaeological Sensitivity, and Survey Areas of High or Highest Sensitivity **CUL-2:** Avoid Use of Techniques that Cause Ground Disturbance within Known Archaeological Historical Resources **CUL-3:** Response Measures for Potential Unknown Archaeological Resources and Tribal Cultural Resources **CUL-4:** Stop Work if Human Remains Are Unearthed during Project Activities	LSM
~~Wildfire~~Wildfire (This section has not been revised; see prior 2020 DEIR)			
WLD-1: Substantially Exacerbate Wildfire Risk and Expose People to Uncontrolled Spread of a Wildfire	S	**HAZ-1:** Vehicle and Equipment Maintenance (VMP BMP GEN-8) **WLD-1:** Fire Prevention	LSM
WLD-2: Expose People or Structures to Substantial Risks Related to Post-Fire Landslides or Flooding			
Mechanical Treatments	S	**GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3) **GEO-3:** Geotechnical Evaluation	LSM
Hand Labor Treatments	S	**GEO-1:** Minimize Soil Disturbance (Revised from VMP BMP GEN-2) **GEO-2:** Erosion and Sediment Control Measures (VMP BMP GEN-3)	LSM

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Grazing	LTS	None required	LTS
Herbicides	LTS	None required	LTS
Cumulative Impacts (Recirculated)			
Cum-BIO-1: Cumulative Effects on Biological Resources	S	BIO-1 through BIO-16	LSM
Cum-NOI-1: Cumulative Effects Related to Noise	S	NOI-1 and NOI-2	SU

Notes: LSM = less than significant with mitigation; LTS = less than significant; NI = no impact; S = significant; SU = significant and unavoidable

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Chapter 1
Introduction

1.1 Background and Overview of the VMP Environmental Process to Date

The City of Oakland (City) has developed a Revised Draft Vegetation Management Plan (Revised Draft VMP) that describes the actions that the Oakland Fire Department (OFD) would continue to ~~take~~ conduct over the plan's 10-year timeframe to reduce fire hazard on 1,924 acres of City-owned land and along 308 miles of roadways in the City's designated Very High Fire Hazard Severity Zone (VHFHSZ). The Revised Draft VMP has been developed to meet the City's stated goals to ~~of~~ reduce~~ing~~ wildfire hazard on City-owned land and along critical access/egress routes, reduce~~ing~~ the likelihood of ignitions and extreme fire behavior to enhance public and firefighter safety, avoid~~ing~~ or minimizing impacts to natural resources, and contribute~~ing~~ to regional efforts to reduce wildfire hazard in the Oakland Hills.

The California Environmental Quality Act (CEQA) requires all state and local government agencies to consider the environmental consequences of projects over which they have discretionary authority before approving or carrying out those projects. As the lead agency for the VMP project under CEQA, the City has prepared this Recirculated Draft Environmental Impact Report (Recirculated DEIR) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of implementing the Revised Draft VMP. This Recirculated DEIR was prepared in compliance with the requirements of CEQA (as amended) and the CEQA Guidelines (California Code of Regulations [Cal. Code Regs.], tit. 14, Section 15000 et seq.).

A DEIR was prepared and circulated for public review in November 2020. That document is referred to herein as the "prior 2020 DEIR." In addition to comments received during the prior 2020 DEIR public review period, OFD received additional comments on the VMP from City representatives and the public. Since then, OFD revised the initial Draft VMP further to address this additional guidance. The City has prepared this Recirculated DEIR to evaluate the environmental impacts of changes made to the Revised Draft VMP since 2020.

The main revision in the Revised Draft VMP is to expand the vegetation management areas from 30 feet to 100 feet wide along roadsides in the City's VHFHSZ where dead and dying trees are present on City-owned property. In addition, some of the maintenance standards have been revised to expand vegetation management activities around habitable structures to provide more defensible space around these structures. These updates to the Revised Draft VMP are considered "significant new information" that require recirculation under CEQA.

The City has revised Chapter 2, *Program Description,* of the Recirculated DEIR to reflect the changes to the initial Draft VMP. The City screened the prior 2020 DEIR to determine which sections should be revised based on changes to the initial Draft VMP and determined that the

following chapters and sections should be revised: Aesthetics, Air Quality, Biological Resources, Greenhouse Gas Emissions, Hydrology and Water Quality, Recreation, Transportation, and Alternatives. The City is not required to revise the remaining chapters or sections of the DEIR, as the City determined that the changes to the Project Description do not affect the remaining chapters. Pursuant to CEQA Guidelines Section 15088.5 (Cal. Code Regs., tit. 14, Section 15088.5), the City is only required to recirculate the chapters or portions of the EIR that have been modified: "If the revision is limited to a few chapters or portions of the EIR, the lead agency need only recirculate the chapters or portions that have been modified." This Recirculated DEIR retains the same section numbering as the prior 2020 DEIR, and chapters or sections that have not been revised are indicated with the following text "This chapter/section has not been revised; see prior 2020 DEIR." Revisions are shown in underline (to indicate additions) and ~~strikeout~~ (to show deletions). Note that some headers are shown in underline formatting that are not additions.

This Recirculated DEIR is intended to provide the public with a meaningful opportunity to comment on the additional information and analysis included in the recirculated portions of the DEIR. The Recirculated DEIR will be available for public review and comment for 45 days. The City requests that reviewers limit their comments to the revised portions of the DEIR. After reviewing these comments, the City will prepare a final environmental impact report (FEIR). The FEIR will respond to (1) comments received during the circulation period for the prior 2020 DEIR, and (2) comments received during the recirculation period on the Recirculated DEIR.

This Recirculated DEIR describes and summarizes the proposed actions of the Revised Draft VMP in Chapter 2, *Project Description*, and the environmental resource sections of Chapter 3. More detail is provided in the Revised Draft VMP, which is provided in its entirety in **Appendix A**, *Revised Draft Vegetation Management Plan,* of this DEIR.

1.2 KEY FEATURES INCLUDED IN THIS RECIRCULATED DEIR

1.2.1 Revisions to the Project Description

This Recirculated DEIR has been prepared to evaluate the environmental impacts of changes made to the VMP, in accordance with CEQA (Public Resources Code [Pub. Res. Code] Section 21000 et seq.) and the CEQA Guidelines (Pub. Res. Code Section 15000 et seq.).

In the Revised Draft VMP, the City has (among other things) made the following changes:

- Expanded the Revised Draft VMP area to encompass the area from 30 feet to 100 feet of the edge of roadsides in the City's VHFHSZ where dead and dying trees (as determined by a Certified Arborist, Licensed Forester, or Fire Safety Expert) are present on City-owned property and could strike the road if they fell.
- Updated the vegetation management standards as follows:
  - Expanded the zone recommended for 3-inch maximum height of grasslands after treatment from 30 feet to 75 feet from habitable structures.

- Clarified that, where feasible, horizontal crown spacing should adhere to the California Department of Forestry and Fire Protection's (CAL FIRE's) most recent defensible space standards (presently codified in Pub. Res. Code Section 4291).
- Updated treatment standards for eucalyptus stands to increase the trunk diameter of single-stem eucalyptus recommended for removal from 8 inches to 10 inches, and to recommend removal of trees that pose an unreasonable fire and/or life safety risk, based on the determination of a Certified Arborist, Licensed Forester, or Fire Safety Expert.
- Updated treatment standards for closed-cone pine-cypress stands to include removal of trees that pose an unreasonable fire and/or life safety risk, based on the determination of a Certified Arborist, Licensed Forester, or Fire Safety Expert.

This is only a brief summary of the additional information including in the revised Project description. Chapter 2, *Project Description* of this Recirculated DEIR provides a clear record of what the City has added to and deleted from the prior Project Description.

The revisions to Chapter 2, *Project Description,* of the Recirculated DEIR do not alter the City's conclusions about the significant impacts of the VMP as a whole.

1.2.2 Revisions to Resource Sections

This section provides a brief summary of the main changes to the recirculated resource sections.

Section 3.1, *Introduction to the Environmental Analysis*: This section was revised to provide a summary and description of the six resource topics that were analyzed in the prior 2020 DEIR but did not require recirculation based on the changes to the Revised Draft VMP. The sections that are not recirculated are Cultural Resources; Geology, Soils, and Seismicity; Hazards and Hazardous Emissions; Noise and Vibration; Tribal Cultural Resources; and Wildfire.

Section 3.2, *Aesthetics*: This section was revised to include analysis of removal of dead and dying trees within 100 feet of roadways.

Section 3.3, *Air Quality:* This section was revised to update air quality calculations based on the increased treatment area acreage in the Revised Draft VMP.

Section 3.4, *Biological Resources*: This section was revised to include analysis of removal of dead and dying trees within 100 feet of roadways. Other updates include revisions to the analysis of impacts to special-status plants and evaluation of impacts to special-status invertebrates (including monarch butterfly and Crotch bumble bee) that have been designated as having special status since the time the prior 2020 DEIR was prepared.

Section 3.6, Geology, Soils, And Seismicity: This section was revised to provide additional clarification to **Mitigation Measure GEO-1 (Minimize Area of Disturbance).**

Section 3.7, *Greenhouse Gas Emissions*: This section was revised to update greenhouse gas emissions calculations based on the increased treatment area acreage in the Revised Draft VMP, as well as to address changes to regulations.

Section 3.9, *Hydrology and Water Quality*: This section was revised to include analysis of removal of dead and dying trees within 100 feet of roadways and the associated increase in annual treatment areas.

Section 3.11, *Recreation*: This section was revised to include analysis of removal of dead and dying trees within 100 feet of roadways, as well as temporary recreation impacts related to implementation of mitigation measures.

Section 3.12, *Transportation*: This section was revised to include analysis of removal of dead and dying trees within 100 feet of roadways and changes to vehicle miles traveled (VMT) from the increase in annual treatment areas.

The revisions to the recirculated portions of the Recirculated DEIR do not alter the City's conclusions about the significant impacts of the VMP as a whole.

1.3 OAKLAND FIRE DEPARTMENT

~~The Oakland Fire Department (~~OFD~~)~~ has been actively managing vegetation on City-owned property since 2003 to minimize wildfire hazard in the Revised Draft VMP area~~,~~ utilizing various techniques, including grazing, hand crews, and limited mechanical treatments. Goats have been used in large treatment areas, on City park land and open space (e.g., King Estate Open Space Park, Joaquin Miller Park, Knowland Park, Sheffield Village Open Space, Shepherd Canyon, and London Road) where manual labor is cost-prohibitive or areas are inaccessible to mowing equipment or too steep for hand crews. OFD has historically used hand labor to manage vegetation on urban and residential parcels, roadsides, and small treatment areas within larger parks or open space areas. Mechanical equipment has also been used on an as-needed basis typically to grade or disk fire trails, reduce ladder fuels (e.g., removing small trees), control highly flammable/rapidly spreading species, reduce surface fuels (e.g., mowing grasses), chip and spread trimmings and down material, thin vegetation, and maintain reduced or target fuel loads.

Between 2004 and 2017, OFD conducted vegetation management activities throughout the Wildfire Prevention Assessment District (WPAD), a City-funded special assessment district that coincides with the City's ~~Very High Fire Hazard Severity Zone (~~VHFHSZ~~)~~. This district financed the costs and expenses related to vegetation management, yard waste disposal, wildfire prevention education, and fire patrols in the Oakland Hills. The WPAD was disbanded in June 2017 due to funding constraints. Although OFD has continued to conduct vegetation management activities on City-owned properties and along roads since 2017, these activities have been conducted to a lesser degree than when the WPAD was in place.

1.4 PLAN BACKGROUND

The Oakland Hills is the location of one of the state's most destructive historic wildfires, the 1991 Tunnel Fire, which destroyed 2,900 structures, injured more than 150 people, and killed 25 people. The Oakland Hills represents a complex wildfire environment that presents a significant risk to public and firefighter safety and to the built and natural environment due to local extreme wind and weather conditions (including Diablo wind events), steep and varied terrain,

and a wide range of different vegetation types. Of the variables that comprise the wildland fire environment (weather, terrain, and fuels or vegetation), vegetation is the only variable that can be managed. Lessons learned from the 1991 Tunnel Fire and other more recent, devasting wildfires in Northern California highlight the importance of managing vegetation to reduce wildfire hazard.

Many jurisdictions in the region have developed management plans and programs to improve vegetation management, reduce fire fuel loads, and minimize wildfire hazard. These efforts include the City's Local Hazard Mitigation Plan; plans developed by the WPAD; and management plans and environmental documents prepared by Chabot Space and Science Center, East Bay Regional Park District, University of California at Berkeley, U.S. Fish and Wildlife Service, Alameda County, California Department of Forestry and Fire Protection/Santa Clara Unit, and Federal Emergency Management Agency, among others. The City, in close coordination with OFD, regional partners described above, and a broad range of stakeholder groups, developed the initial Draft VMP and now the Revised Draft VMP to reduce fire hazards on City-owned land and critical access/egress routes in City-designated VHFHSZ areas, reduce the likelihood of ignitions and extreme fire behavior to enhance public and firefighter safety, avoid or minimize impacts to natural resources, and contribute to regional efforts to reduce wildfire hazard in the Oakland Hills. The Revised Draft VMP (provided in Appendix A) includes descriptions of City-owned parcels and roadsides located within the City's VHFHSZ, natural resources at these locations, vegetation management techniques to reduce fire hazards, maintenance standards for the different types of treatment areas, and practices to avoid and minimize potential environmental impacts when conducting vegetation management work.

1.5 OVERVIEW OF CEQA REQUIREMENTS

As described in Pub. Res. Code Section 21000, CEQA has several basic purposes:

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

With certain, strictly limited exceptions, CEQA requires all state and local government agencies to consider the environmental consequences of projects over which they have discretionary authority before approving or carrying out those projects. CEQA establishes procedural and substantive requirements that agencies must satisfy to meet CEQA's objectives. For example, the agency with principal responsibility for approving or carrying out a project (the lead agency) must first assess whether a proposed project would result in significant environmental impacts. If there is substantial evidence that the project would result in significant environmental impacts, CEQA requires that the agency prepare an Environmental Impact Report (EIR) analyzing

both the proposed project and a reasonable range of potentially feasible alternatives. The VMP is the project for this CEQA analysis and the City is the lead agency under CEQA.

As described in the CEQA Guidelines (Cal. Code Regs., tit. 14, Section 15121, subd. [a]), an 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 to implement and monitor 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 used in the planning and decision-making process, an EIR's purpose is not to recommend either approval or denial of a project. Note that an EIR does not expand or otherwise provide independent authority for the lead agency to impose mitigation measures or avoid project-related significant environmental impacts beyond the authority already within the lead agency's jurisdiction.

1.6 SCOPE AND INTENT OF THIS DOCUMENT

The City is the lead agency for the CEQA process and has discretionary review and approval authority for project activities that are subject to CEQA (CEQA Guidelines Section 15378). The City will use the analyses presented in this Recirculated DEIR, and the public response to them, to evaluate the proposed Program's environmental impacts. The City of Oakland Planning Commission will be responsible for considering the potential certification of ~~this~~ the ~~D~~EIR.

The intent of this Recirculated DEIR is to evaluate in detail the vegetation management activities to be conducted under the Revised Draft VMP, including the changes to VMP treatment activities since the prior 2020 DEIR. The analysis in the Recirculated DEIR has been prepared at a project level in accordance with CEQA Guidelines Section 15161. Accordingly, this Recirculated DEIR focuses on the changes in the environment that could result during all phases of the project, including maintenance planning and implementation, such that the Recirculated DEIR adequately satisfies all CEQA requirements to support project implementation without the need for further CEQA documentation.

1.7 CEQA PROCESS

The following discussion explains the steps in the CEQA process.

1.7.1 Notice of Preparation

A Notice of Preparation of an EIR (NOP) for the VMP was prepared in accordance with the State CEQA Guidelines (CEQA Guidelines Section 15082) and was circulated to the Office of Planning and Research's State Clearinghouse on November 1, 2019. The original scoping period started on November 1, 2019 for 31 days, ending on December 2, 2019. However, the scoping period was extended to December 12, 2019, to allow the public and interested parties additional time to comment on the scope of the prior 2020 DEIR and to correct the contact name and email address of Angela Robinson Piñon, the person receiving comments during the scoping period. Thus, the scoping period extended for a total of 41 days. The NOP presented general background information on the VMP, the scoping process, and the environmental issues to be

addressed in the DEIR. Copies of the NOP were distributed by mail and email to a broad range of stakeholders, including state, federal, and local regulatory agencies and jurisdictions, utilities, and interested individuals in the area. In addition, the NOP was published on the City's website (oaklandca.gov/documents/oakland-vegetation-management-plan-comment-period-extension). The NOP is included in ~~this~~ the prior 2020 DEIR in **Appendix B**, *Scoping Summary*.

1.7.2 Scoping Comments and Meeting

As described in more detail in Section 2.3.2, several public and stakeholder engagement meetings were conducted to support development of the initial Draft VMP and Revised Draft VMP. Six workshops/meetings were conducted in 2017 and 2018 during development of the initial Draft VMP. In addition to the public meetings, a number of additional phone calls, meetings, and on-site field meetings were held with stakeholders interested in the VMP to collect additional public input. The Oakland City Council, Public Safety Committee further directed the VMP development team to conduct additional outreach to park volunteer/stewardship groups to receive information on current activities being conducted in City parks that occur in the Revised Draft VMP area with the intent of incorporating volunteer/stakeholder input into annual vegetation management planning efforts described in the VMP. In total, 11 additional group meetings were held in spring 2019 with stakeholders interested in the initial Draft VMP and Revised Draft VMP.

To provide the public, as well as responsible and trustee agencies, an opportunity to ask questions and submit comments on the initial Draft VMP and the scope of the prior 2020 DEIR, the City held a public scoping meeting during the public scoping period. As described above, notices of the meeting were mailed to interested parties; in addition, scoping meeting information was published on the City's website prior to the event (oaklandca.gov/projects/oakland-vegetation-management-plan).

The scoping meeting was held before the Oakland Planning Commission on Wednesday, November 20, 2019, at 6:00 p.m. at Oakland City Hall, 1 Frank H. Ogawa Plaza, Oakland.

The City also presented an update on the initial Draft VMP and prior 2020 DEIR as an item to the Oakland City Council, Public Safety Committee on Tuesday, December 3, 2019.

The City accepted verbal and written comments at the scoping meeting and the Public Safety Committee meeting, and accepted both written and electronic comments (via email) during the 41-day scoping period. During the scoping period, 41 comment letters were received. These comments were considered in this CEQA evaluation and are summarized in **Appendix B** of the prior 2020 DEIR.

1.7.3 Prior 2020 DEIR Distribution and Meeting

The prior 2020 DEIR was released for a 45-day public review and comment period on November 24, 2020. On December 16, 2020, the City Planning Commission, by motion, voted 4-0 to extend the public comment period 15 days from January 7, 2021 to January 22, 2021, for a total of 60 days. The City also conducted a public meeting on the prior 2020 DEIR on December 16, 2020.

1.7.4 Recirculated DEIR Distribution and Meeting

The City has prepared this Recirculated DEIR ~~, as informed by public and agency input received during the scoping period,~~ to disclose environmental impacts associated with the changes to the VMP. Where any such impacts are significant, feasible mitigation measures and potentially feasible alternatives that would substantially lessen or avoid such effects are identified and discussed. The public review period allows the public an opportunity to provide input to the lead agency on the Recirculated DEIR.

The recirculated portions of the Recirculated DEIR are ~~is~~ currently undergoing public review for 45 days. During this period, the City will hold one public meeting to receive comments on the recirculated portions of the Recirculated DEIR on November 1, 2023~~December 16, 2020~~ at 3:00 p.m. The meeting will occur during the City of Oakland Planning Commission meeting ~~and will be hosted on Zoom. For links to the meeting, please visit: https://www.oaklandca.gov/boards-commissions/planning-commission/meetings~~. The meeting will begin with a brief overview of the changes to the ~~proposed project~~ Revised Draft VMP and the analysis and conclusions set forth in the recirculated portions of the Recirculated DEIR. The introductory presentation will be followed by the opportunity for interested members of the public to provide comments to the City regarding the ~~VMP and the~~ recirculated portions of the Recirculated DEIR. Commenters may provide oral comments at the meeting.

1.7.5 Preparation and Certification of the Final EIR

Once the public review period on the Recirculated DEIR is closed, the City will prepare an ~~Final EIR (~~FEIR~~)~~, which~~.~~ ~~The FEIR~~ will incorporate both the prior 2020 DEIR and this Recirculated DEIR by reference. The FEIR will respond to (a) comments received during the circulation period for the prior 2020 DEIR, and (b) comments received during the recirculation period on the Recirculated DEIR. It will contain those ~~all~~ comments ~~submitted on this DEIR~~ (including those made at public meetings), responses to those comments, and any revisions to the text of the ~~this~~ DEIR. The FEIR will be reviewed by the City of Oakland Planning Commission and considered for approval by the City Council.

Written/emailed and oral comments received in response to the Recirculated DEIR will be addressed in the "Responses to Comments" section of the FEIR. ~~Together with the DEIR and any related changes to the substantive discussion in the DEIR, these responses will constitute the FEIR.~~ The FEIR, in turn, will inform the City's exercise of its discretion as a lead agency under CEQA in deciding whether or how to approve the Revised Draft VMP.

1.8 ORGANIZATION OF THE PRIOR 2020 DEIR AND THIS RECIRCULATED DEIR

The following list identifies ~~This DEIR contains~~ the ~~following~~ components of the prior 2020 DEIR and indicates which portions of that document are included in this Recirculated DEIR:

Executive Summary. A summary of the Revised Draft VMP, the issues of concern, project alternatives, environmental impacts, and mitigation measures are provided in this chapter. (*recirculated*)

Chapter 1, *Introduction*. This chapter describes the purpose and organization of the Recirculated DEIR and its preparation, review, and certification process. (*recirculated*)

Chapter 2, *Project Description*. This chapter summarizes the Revised Draft VMP, including a description of the background and development process, Revised Draft VMP Area, purpose and objectives, proposed actions that would be taken under the Revised Draft VMP, and related permits and approvals associated with implementing the Revised Draft VMP. (*recirculated*)

Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*. This chapter contains an introduction to the impact analysis conducted in this Recirculated DEIR and identifies resource topic areas determined not to be affected by the Revised Draft VMP (Section 3.1). ~~Sections 3.2 through 3.14~~ The recirculated sections describe the environmental resources and potential environmental impacts of the Revised Draft VMP. Each of these sections describes the existing setting and background information for the particular resource topic. The purpose of providing this background is to give the reader an understanding of the resources that could be affected by the Revised Draft VMP. Each of these resource sections includes a discussion of the criteria used to determine the significance levels of the Revised Draft VMP's potential impacts. Each section also provides mitigation measures to reduce, where possible, any adverse effects from potentially significant impacts. The following sections are included in this Recirculated DEIR:

- 3.1 Intro to Environmental Analysis
- 3.2 Aesthetics
- 3.3 Air Quality
- 3.4 Biological Resources
- 3.6 Geology, Soils, And Seismicity
- 3.7 Greenhouse Gas Emissions
- 3.9 Hydrology and Water Quality
- 3.11 Recreation
- 3.12 Transportation

Sections where the revisions to the Draft VMP did not affect the analysis have not been recirculated. Section 3.14, *Wildfire* has one figure that is being recirculated, but the impact analysis has not changed from the prior 2020 DEIR.

Chapter 4, *Other Statutory Considerations*. This chapter addresses the Revised Draft VMP's potential to have growth-inducing impacts or contribute to cumulative impacts, defined as the incremental impact of the Revised Draft VMP when added to other

related impacts of past, present, and reasonably foreseeable future projects. Any impacts identified as significant and unavoidable are listed in this chapter. (*recirculated*)

Chapter 5, *Alternatives*. This chapter describes the process by which alternatives to the Revised Draft VMP were developed and screened. It also evaluates likely environmental impacts of the potential alternatives and identifies the environmentally superior alternative. (*recirculated*)

Chapter 6, *References*. This chapter provides a bibliography of printed references, websites, and personal communications used in preparing this Recirculated DEIR. (*recirculated*)

Chapter 7, *Report Preparation*. This chapter identifies staff from the City ~~of Oakland~~, OFD, ~~Horizon Water and Environment~~Montrose Environmental, and Dudek who assisted in preparing this Recirculated DEIR. (*recirculated*)

Appendices

Appendices A, C, and D are provided as part of this Recirculated DEIR. This Recirculated DEIR retains the same appendix numbering as the prior 2020 DEIR, and appendices that have not been revised are indicated with the following text: "This appendix has not been revised; see prior 2020 DEIR."

- Appendix A, *Revised Draft Vegetation Management Plan* (*recirculated*)
- ~~Appendix B, Scoping Summary~~
- Appendix C, *Air Quality/Greenhouse Gas/Energy Calculations*
- Appendix D, *Biological Resources Information*
- ~~Appendix E, Cultural Resources Record Search Information~~
- ~~Appendix F, Noise and Vibration~~
- ~~Appendix G, Tribal Cultural Resources~~

1.9 SUBMITTAL OF COMMENTS

The City is recirculating ~~this~~ the Recirculated DEIR for a 45-day public review and the comment period will end on ~~January 8, 2021~~November 4, 2023. As discussed above, the City will host one public meeting during this period at which oral comments will be received. The meeting will be on ~~December 16, 2020~~November 1, 2023 at 3:00 p.m. and occur during the City of Oakland Planning Commission meeting. The meeting will occur in the Council Chambers of Oakland City Hall, located at 1 Frank H. Ogawa Plaza, Oakland, CA 94612~~The meeting will be hosted on Zoom. For links to the meeting, please visit: https://www.oaklandca.gov/boards-commissions/planning-commission/meetings~~. In accordance with CEQA Guidelines Section 15088.5(f)(2), the City requests that review and comment on the Recirculated DEIR be limited to the Recirculated DEIR. The purpose of public circulation and the public meeting is to provide agencies and interested individuals with opportunities to comment on or express concerns regarding the contents of ~~this~~ the Recirculated DEIR.

Oral comments concerning the Recirculated DEIR can be submitted at the public meeting described above; ~~or~~ written/emailed comments may be submitted to

DEIR-comments@oaklandvegmanagement.org at any time during the ~~DEIR~~ public review period. All comments must be received by 5:00 p.m. on ~~January 8, 2021~~November 4, 2023 and directed to the name and address listed below:

Contact Name: Ken Schwarz

Address: Montrose Environmental ~~Horizon Water and Environment~~
1 Kaiser Plaza, Suite 340 ~~266 Grand Avenue, Suite 210~~
Oakland, CA 94612~~0~~

Phone Number: (510) 986-1851

Email: DEIR-comments@oaklandvegmanagement.org

Submittal of written comments by e-mail (Microsoft Word or portable document format [PDF]) would be greatly appreciated. Written comments received in response to the Recirculated ~~this~~ DEIR during the public review period will be addressed in the "Responses to Comments" section of the FEIR.

All documents mentioned herein or related to ~~this project~~ the Revised Draft VMP can be reviewed online at the City's website (https://www.oaklandca.gov/projects/oakland-vegetation-management-plan).

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Chapter 2
Project Description

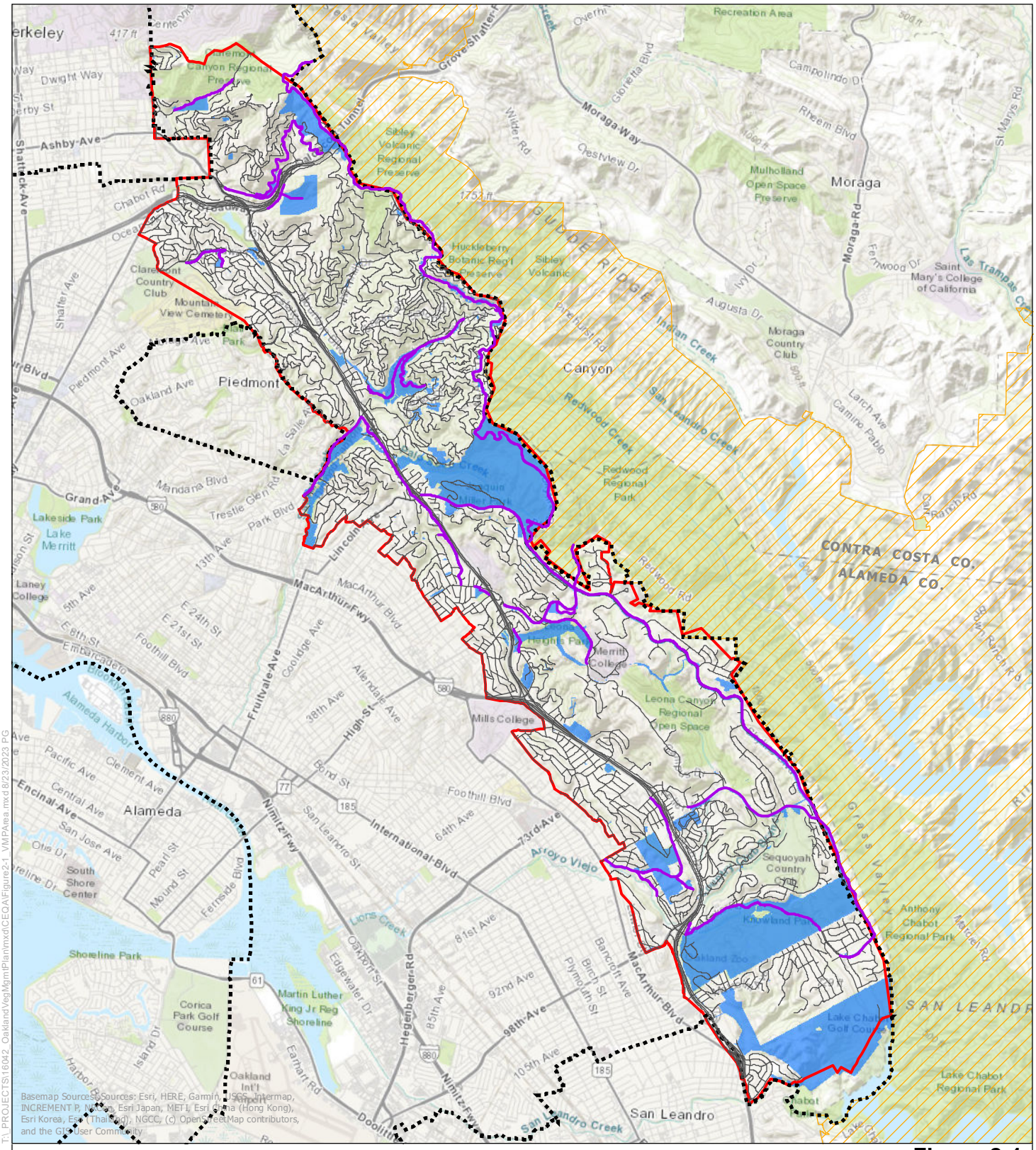
2.1 INTRODUCTION

This chapter describes objectives and key components of the Revised Draft VMP, including specific treatment projects, vegetation techniques, necessary equipment, and the general timeline for implementing proposed treatment projects. The ~~Executive Summary of the~~Revised Draft VMP is provided in **Appendix A***, Revised Draft Vegetation Management Plan,* of this Recirculated DEIR~~; the complete Draft VMP can be viewed at the following link: oaklandvegmanagement.org/wp-content/uploads/2019/11/Oakland-VMP_Revised-Draft_NOV-1-2019.pdf~~.

2.2 REVISED DRAFT VMP AREA

The Revised Draft VMP area encompasses City-owned parcels and areas within 30 feet of the edge of roadsides located within the City's ~~Very High Fire Hazard Severity Zone (~~VHFHSZ~~),~~ as designated by ~~the California Department of Forestry and Fire Protection (~~CAL FIRE~~)~~ and defined in Section 4904.3 of the Oakland Fire Code (Oakland Municipal Code Chapter 15.12). The Revised Draft VMP area also encompasses the area within 30-100 feet of the edge of roadsides in the City's VHFHSZ where dead and dying trees (as determined by a Certified Arborist, Licensed Forester, or Fire Safety Expert) are present on City-owned property and could strike the road if they fell. As described in Section 9 of the Revised Draft VMP, the goal of fuel treatment is to alter the structure, composition, and spacing of retained vegetation to moderate potential fire behavior. Retained vegetation can reduce wind exposure, retain soil and surface fuel moisture, and reduce the potential for soil erosion. Specifically, as shown in **Figure 2-1**, the Revised Draft VMP area includes 419 City-owned parcels, ranging in size from <0.1 acre to 235 acres and totaling 1,924 acres. For Revised Draft VMP planning purposes, parcels have been divided into the following categories: urban and residential, canyon areas, ridgetop areas, City park lands and open space, other areas, and road medians. The Revised Draft VMP also includes roadside areas along 308 miles of road within the City's VHFHSZ, including surface and arterial streets, State Routes (SRs) 13 and 24, and Interstate 580 (I-580). **Table 2-1** summarizes the categories, sizes, and quantities of City-owned parcels in the Revised Draft VMP area.

City parks, recreational and open space areas considered in the Revised Draft VMP include Beaconsfield Canyon, Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Complex, Grizzly Peak Open Space, City Stables, Sheffield Village Open Space, Knowland Park and Arboretum, King Estate Open Space Park, Joaquin Miller Park, Tunnel Road Open Space, Marjorie Saunders Park, and Oak Knoll.



T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure2-1_VMPArea.mxd 8/23/2023 PG

Figure 2-1.
Revised Draft Vegetation Management Plan Area

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

MONTROSE ENVIRONMENTAL

Table 2-1. City-owned Parcels within the Revised Draft VMP Area

Parcel Category	Quantity	Total Acreage
Urban and Residential	152	51.2
Canyon Areas	89	188.7
Ridgetop Areas	11	130.2
City Park Lands and Open Space	91	1,552.9
Other Areas*	43	24.5
Medians	33	6.1
Total:	419	1,923.6

* Other areas are developed City-owned properties in the Revised Draft VMP area that include fire stations (nos. 6, 7, 21, 25, and 28), City facilities (parking lots, police stations), paved areas, and parks and playgrounds.

The pattern of development and land uses within the Revised Draft VMP area (and VHFHSZ) creates conditions that can be described as representing either a wildland urban interface or a wildland urban intermix. Areas where urban development abuts vegetative fuels are known as the wildland urban interface (WUI). This condition exists within the Revised Draft VMP area where structures abut City parklands and open space. Areas where the density of housing units and structures is lower and/or the space between structures consists of vegetative fuels capable of propagating fire are more typically characterized as a wildland urban intermix (Intermix). This condition exists throughout the Revised Draft VMP area, most commonly where smaller undeveloped lots covered by vegetative fuels are situated between structures.

2.3 BACKGROUND AND PLAN DEVELOPMENT PROCESS

2.3.1 Background

California has faced a dramatic increase in the number and severity of wildfires. Since 2000, ~~15~~18 of the 20 most destructive wildfires in the state's history have occurred and ~~ten~~13 of these have occurred ~~since 2015.~~in the past 10 years (CAL FIRE 2022a). During development of the initial Draft VMP and Revised Draft VMP, numerous significant, catastrophic wildfires have occurred in California, including several in Northern California. The 2017 Nuns, Tubbs, and Pocket Fires in Napa and Sonoma Counties collectively burned over 110,000 acres, destroyed over 6,800 structures, and resulted in 25 fatalities. The 2018 Carr Fire in Shasta County burned nearly 230,000 acres, destroyed over 1,600 structures, and resulted in 8 fatalities. ~~Finally, the~~The 2018 Camp Fire in Butte County burned over 153,000 acres, destroyed nearly 19,000 structures, and resulted in 85 fatalities.

The ~~2018~~2020 and 2021 wildfire ~~season was~~seasons saw nine of the ~~deadliest and most destructive wildfire season on record~~top 20 largest wildfires in ~~California~~the state's history:

- 2020 August Complex (1,032,648 acres);
- 2021 Dixie Fire (963,309 acres);

- 2020 SCU Lightning Complex (369,625 acres);
- 2020 Creek Fire (379,895 acres);
- 2020 LNU Lightning Complex (363,220 acres);
- 2020 North Complex (318,935 acres);
- 2021 Monument Fire (223,124 acres);
- 2021 Caldor Fire (221,835 acres); and
- 2021 River Complex (199,359 acres) (CAL FIRE ~~2018~~2022b).

Collectively, these wildfires in 2020 and 2021 destroyed 7,214 structures and resulted in 24 fatalities (CAL FIRE 2022b). While these fires occurred under extreme climatic conditions, preliminary research indicates that proper planning and preemptive vegetation management can aid in wildfire resiliency[1].

The Oakland Hills present a complex wildfire environment that presents a significant risk to public and firefighter safety and to the built and natural environment. The region has been subject to numerous damaging wildland fires, is influenced by local extreme wind and weather conditions (including Diablo wind events), has steep and varied terrain, and encompasses a wide range of different vegetation types. This area is one of the highest risk areas in the country for devastating WUI fires. It is also the location of one of the state's most destructive historic wildfires, the 1991 Tunnel Fire which destroyed 2,900 structures, injured more than 150 people, and killed 25 people (CAL FIRE ~~2019~~2022a). Most wildfires in Oakland have burned in the months of September, October, or November when vegetation has lower fuel moistures and Diablo winds return to the Revised Draft VMP area.

Of the variables that comprise the wildland fire environment (weather, terrain, and fuels or vegetation), vegetation is one variable that can be managed. As described further in Section 2.4.1, the goal of vegetation management in the Revised Draft VMP is not the wholesale removal of all vegetation. Instead, the Revised Draft VMP proposes targeted vegetation management activities to minimize the potential for ignitions, crown fires, and extreme fire behavior; create potential fire breaks; and help retain safe evacuation routes. This is accomplished by reducing and maintaining reduced fuel loads and altering the structure, composition, and spacing of retained vegetation.

Current and Recent Vegetation Management Activities led by Oakland Fire Department

OFD's Fire Prevention Bureau currently operates a vegetation inspection program that covers approximately 26,000 public and private property inspections annually in the VHFHSZ portion of

[1] Wildfire resiliency generally includes adaptation strategies that can help wildfire-prone communities become more resilient to wildfire.

the City. Inspections are mandated by City of Oakland Ordinance No. 11640. On an annual basis, fire companies and vegetation management inspectors inspect these properties to identify those that are out of compliance with the City's defensible space standards (refer to Fire Code Section 4907 of the Oakland Municipal Code Chapter 15.12). Repeat inspections are conducted until properties are brought to compliance.

OFD has been actively managing vegetation on City-owned property since 2003 to minimize wildfire hazard in the Revised Draft VMP area, utilizing various techniques including grazing, hand crews, and limited mechanical treatments. Approximately 3,000 goats have been utilized annually (typically between May and August) to manage fine fuels on approximately 600-1,100 acres of City-owned property, typically on larger City park land and open space (e.g., King Estate Open Space Park, Joaquin Miller Park, Knowland Park, Sheffield Village Open Space, Shepherd Canyon, and London Road). Goats have been used in large treatment areas where manual labor is cost-prohibitive to treat vegetation in areas that are inaccessible to mowing equipment or in areas too steep for hand crews.

In addition, OFD has historically used hand labor for managing vegetation on urban and residential parcels, roadsides, and small treatment areas within larger parks or open space areas. OFD annually contracts with private contractors to manage vegetation on urban and residential parcels. The use of hand labor is focused on reducing ladder fuels[2], controlling highly flammable/rapidly spreading species (e.g., broom), reducing surface fuels (e.g., grasses, weeds, down material), thinning vegetation, maintaining fuel loads, and pruning tree canopies. Lastly, mechanical equipment is used on an as-needed basis to grade or disk fire trails, reduce ladder fuels (e.g., small tree removal), control highly flammable/rapidly spreading species, reduce surface fuels (e.g., mowing grasses), chip and spread trimmings and down material, thin vegetation, and maintain reduced or target fuel loads.

Between 2004 and 2017, OFD conducted vegetation management activities throughout the WPAD, a City-funded special assessment district that coincides with the City's VHFHSZ, which financed the costs and expenses related to vegetation management, yard waste disposal, wildfire prevention education and fire patrols in the Oakland hills. The District was disbanded in June 2017. Since 2017, OFD has continued to conduct vegetation management activities on City properties and along roads, albeit at a lesser degree than when the WPAD was in place due to funding constraints. Absent approval of the Revised Draft VMP, those activities are intended to continue at current levels under the Public Works/OFD annual budget. Refer to Chapter 3, Table 3.1-1 for a more detailed breakdown of goat grazing and roadside treatment activities conducted ~~over the last 15 years~~ between 2005 and 2018.

2.3.2 VMP Development Process

Development of the Revised Draft VMP included a detailed field assessment of wildfire hazard, which was used to identify and classify existing vegetation community and land cover types into fuel models, and map areas with high ignition potential or where extreme wildfire behavior would be expected given current terrain and fuel conditions. The Revised Draft VMP development also included assessment and processing of geographic information system (GIS)

[2] Ladder fuel is fuel that can carry a fire burning in low-growing vegetation to taller vegetation.

datasets for variables influencing wildfire hazard in the Revised Draft VMP area, coordination with OFD personnel, fire behavior modeling, and significant public and stakeholder outreach to better understand current vegetation management activities in the Revised Draft VMP area.

Field Assessments

OFD's consultant team (Montrose Environmental [formerly Horizon Water and Environment ~~[Horizon~~] and Dudek) conducted a series of field assessments in support of the Revised Draft VMP. Field assessments were conducted to map and classify the existing vegetation communities and land cover types present in the Revised Draft VMP area, which include coast oak woodland, redwood, valley/foothill riparian, closed-cone pine-cypress, eucalyptus, coastal scrub, mixed chaparral, freshwater emergent wetland, perennial grassland, annual grassland, and urban land covers. Figures 4.1 through 4.10 of the Revised Draft VMP (see Appendix A of this Recirculated DEIR) show the distribution of these vegetation communities within the Revised Draft VMP area.

Field assessments were conducted between December 2016 and August 2017 to evaluate existing fuel load conditions and understand general fuel hazard conditions and current maintenance practices being conducted by OFD within the Revised Draft VMP area. In addition, field assessments were also used to identify and classify vegetation community types into fuel models. Table 3 of the Revised Draft VMP summarizes how vegetation community or land cover types present in the Revised Draft VMP area were assigned to specific fuel models; Appendix C of the Revised Draft VMP provides a more detailed discussion of fuel models. Collectively, the field assessment of existing vegetation and land cover types, assessment of fuel load conditions, and identification of how vegetation types aligned with existing fuel models served as the basis for the proposed vegetation management projects described in the Revised Draft VMP. A list of high fire hazard plant species is included in Appendix D of the Revised Draft VMP (provided in Appendix A of this Recirculated DEIR) and is derived from plant lists developed by the City of Oakland (2017) and Moritz and Svihra (1998) and those identified as highly flammable/rapidly spreading plants in Section 2.3.1.4 of the Revised Draft VMP.

Fire Behavior Model

The FlamMap (version 5.0.3) software package was used to identify portions of the Revised Draft VMP area that may be subject to extreme fire behavior, considering weather, fuels, and terrain variables. FlamMap is a GIS-driven computer program that incorporates fuels, weather, and topography data in generating static fire behavior outputs, including values associated with flame length and crown fire[3] activity, among others. Historical weather data for the Revised Draft VMP area was used to determine appropriate fire behavior modeling inputs. For the Revised Draft VMP analysis, 97th percentile fuel moisture and wind speed values were derived from Remote Automated Weather Station (RAWS) data from the Oakland (North) and Oakland (South) RAWS. **Table 2-2** summarizes location information and available data ranges for these two RAWS. To determine weather-related modeling inputs, RAWS fuel moisture and wind speed data were downloaded, processed, and analyzed using the FireFamilyPlus version 4.2

[3] A crown fire is a forest fire that advances, often at great speed, from treetop to treetop.

(FireFamilyPlus 2016) software package to determine 97th percentile (extreme) fire weather conditions.

Table 2-2. Remote Automated Weather Station Characteristics

Station Characteristic	Oakland (North)	Oakland (South)
Latitude	37° 51' 54"	37° 47' 10"
Longitude	-122° 13' 15"	-122° 08' 41"
Elevation	1,403 feet	1,095 feet
Data Years	1981, 1984, 1988, 1995-2016	1995-2016

Source: Appendix A of this Recirculated DEIR

The calculations that come from FlamMap are based on the BehavePlus fire modeling system algorithms but result in geographically distinct datasets based on GIS inputs. The FlamMap model outputs are intended to allow wildland managers to evaluate anticipated fire behavior and were used to model flame length and crown fire activity for a portion of the Revised Draft VMP area. A detailed discussion of the FlamMap modeling process and results are included in the Revised Draft VMP. This particular fire behavior modeling system was selected given its capabilities for mapping potential fire behavior using GIS. In addition, the BehavePlus software package (version 6.0.0) was used to highlight the difference in fire behavior characteristics for each of the different fuel models utilized for analyzing fire behavior for ~~this~~the Revised Draft VMP. Finally, research findings from Project VESTA (Gould et al. 2007), a system used for modeling potential wildfire in Australia, were used to assess fuel characteristics in different eucalyptus forest understories and to identify better fuel parameters to input into the FlamMap fire models conducted in support of the initial draft VMP.

To confirm that weather conditions in recent years would not substantially affect the modeling conducted to support development of the initial draft VMP, weather station data was reanalyzed in July 2023 to include data through 2021. This analysis showed that only one value used in the modelling would change (100-hour fuel moisture would drop from 8 to 7 percent). It is not anticipated that this would alter the initial draft VMP modeling results substantially. Additionally, there was no change to the maximum recorded wind speed value, which was 39 mph from 2012.

Public Engagement

Several public and stakeholder engagement meetings were conducted to support development of the initial draft VMP and Revised Draft VMP. Six workshops/meetings were conducted during development of the initial Draft VMP, as summarized in **Table 2-3~~Table 2-2~~**. A status update was provided to the Oakland City Council, Public Safety Committee on July 17, 2018. As an outcome of that meeting and at the direction of the Public Safety Committee, two additional public meetings were held in November 2018.

Table 2-33. Public and Stakeholder Engagement in the initial Draft VMP Development Process

Date	Location/Group	Meeting Type
Initial Public Engagement (VMP Development)		
March 29, 2017	Dunsmuir Estate	Workshop to introduce the scope and purpose of the initial Draft VMP and receive public input and feedback
March 30, 2017	Trudeau Center	Workshop to introduce the scope and purpose of the initial Draft VMP and receive public input and feedback
June 29, 2017	Trudeau Center	Workshop to provide an update on the initial Draft VMP development process and receive public input and feedback
May 23, 2018	Oakland City Hall	Workshop to present the First Draft VMP and receive public input and feedback
Additional Public Engagement (Public Safety Committee)		
November 15, 2018	Trudeau Center	Workshop to receive input from the public, targeted toward park stewardship and volunteer groups working on City-owned parcels
November 20, 2018	Oakland City Hall	Workshop to receive input from the public, focused on increased specificity of the initial Draft VMP
Additional Stakeholder/Volunteer Input		
March 22, 2019	Friends of Dimond Park	Reviewed site conditions and management recommendations in Dimond Park
March 22, 2019	Knowland Park Adopt-a-Spot	Reviewed site conditions and management recommendations in the northeast portion of Knowland Park, and along the frontage road that parallels Skyline Boulevard
March 23, 2019	Oakland Landscape Committee	Reviewed site conditions and management recommendations at the North Oakland Regional Sports Field
March 29, 2019	Friends of Joaquin Miller Park and Friends of Sausal Creek	Reviewed site conditions and management recommendations at Beaconsfield Canyon and Joaquin Miller Park

Date	Location/Group	Meeting Type
April 5, 2019	Garber Park Stewards and Claremont Canyon Conservancy	Reviewed site conditions and management recommendations at Garber Park
April 6, 2019	Friends of Sausal Creek	Reviewed site conditions and management recommendations at Dimond Canyon and Dimond Park
April 12, 2019	Friends and Knowland Park and East Bay Native Plant Society	Reviewed site conditions and management recommendations at Knowland Park
April 18, 2019	Friends of Montclair Railroad Trail	Reviewed site conditions and management recommendations at the Montclair Railroad Trail in Shepherd Canyon
May 1, 2019	Oak Knoll Neighborhood Improvement Association	Reviewed site conditions and management recommendations at King Estate Open Space Park
May 3, 2019	Shepherd Canyon Homeowners Association	Reviewed site conditions and management recommendations at Shepherd Canyon Park
May 17, 2019	Coalition to Defend East Bay Forests, Forest Action Brigade, and Hills Conservation Network	Reviewed management recommendations throughout the initial Draft VMP area

Volunteers and stakeholder groups that provided input during the initial Draft VMP and Revised Draft VMP development process are identified in Appendix K of the Revised Draft VMP. In addition to the identified stewardship groups in Appendix K, the Oakland Wildland Stewards (OWLS) is a coalition of stewardship groups operating in the Revised Draft VMP area, and individual members provided input during the stakeholder meetings.

In addition, one public meeting was held on December 16, 2020, to receive oral comments on the prior 2020 DEIR.

Development of Vegetation Treatment Projects

Based on coordination with OFD personnel, fire behavior modeling, and public input received throughout the initial Draft VMP and Revised Draft VMP development process, vegetation treatment projects were identified and prioritized based on proximity to Revised Draft VMP area structures, roads, ridgelines, and park access gates where fire behavior is anticipated to be extreme (high flame lengths and/or crown fires), and where continuation of the City's goat grazing program would effectively maintain lower fuel loads. Identified priority projects total

1,366 acres within the Revised Draft VMP area's 1,924 total acres. The Revised Draft VMP also prioritizes vegetation management along 31~~30~~ miles of primary access/egress routes in the Revised Draft VMP area and removal of hazard trees on City-owned properties where could strike adjacent roads if they fell. The vegetation treatment projects are provided in Section 9.2 of the Revised Draft VMP (see Appendix A of this Recirculated DEIR). The Revised Draft VMP treatment areas and priority rankings are described in Sections 2.4.4 and 2.4.5, below.

2.4 PROPOSED PROJECT

2.4.1 Goals and Objectives

The CEQA Guidelines call for the identification of objectives sought by a proposed project (CEQA Guidelines Section 15124[b]). A statement of objectives helps convey the reasons for considering approval of the Revised Draft VMP, including its intended benefits, and guides the development of a reasonable range of alternatives to evaluate in the EIR. The City has identified the following primary goals for the Revised Draft VMP:

- Reduce wildfire hazard on City-owned land and along critical access/egress routes within the City's VHFHSZ;
- Reduce the likelihood of ignitions and extreme fire behavior to enhance public and firefighter safety;
- Implement practices to avoid or minimize impacts to natural resources;
- Maintain an active role in regional efforts to reduce wildfire hazard in the Oakland hills.

The objectives of the Revised Draft VMP are as follows:

- Reduce the likelihood of catastrophic wildfires by limiting ignition potential, reducing fuel loads, and modifying fuel arrangements on City-owned lands.
- Reduce the likelihood of extreme fire behavior within the Revised Draft VMP area.
- Identify and define vegetation management actions that consider site-specific vegetation type, fuel hazard, treatment effectiveness, and ongoing maintenance requirements.
- Identify and prioritize fuel treatment areas based on fuel loads and arrangements, terrain, topographic exposure, and proximity to roads and structures.
- Retain vegetation where feasible to reduce wind exposure, retain soil and surface fuel moisture, and reduce the potential for soil erosion.
- Develop management recommendations that enable OFD to make informed, adaptive decisions on an annual basis (or more often as necessary) regarding vegetation management within the Revised Draft VMP area, considering the benefits of treatment, potential environmental effects, and treatment costs.

- Avoid, minimize, and/or reduce potential adverse effects of vegetation management on sensitive biological resources, water resources, aesthetics, soils, and slope stability.
- Increase the ability of OFD and other responding agencies to suppress wildfire in the Revised Draft VMP area in order to minimize wildfire impacts to Revised Draft VMP area resources.
- Routinely evaluate the effectiveness and implementation frequency of vegetation management actions within the Revised Draft VMP area.

2.4.2 Revised Draft VMP Structure and Contents

The Revised Draft VMP includes the following sections:

Section 1, *Introduction*. This section introduces the Revised Draft VMP by describing its need and purpose, defining the location of the Revised Draft VMP area, identifying the Revised Draft VMP's goals and objectives, and providing a summary of the various sections of the Revised Draft VMP.

Section 2, ~~VMP~~*Plan Area Description*. This section provides a description of the Revised Draft VMP area, including the climate, topography, vegetation types, fire history, and fire hazard severity zoning and wildland urban interface/intermix designations. This section also provides detailed maps of the terrain and vegetation types located in the Revised Draft VMP area.

Section 3, *Wildfire Hazard Assessment*. This section provides a description of the wildfire hazard assessment methodology used to develop the Revised Draft VMP and prioritize fuel treatment areas.

Section 4, *Codes and Standards*. This section describes existing City, County, and State codes and standards relevant to vegetation management activities in the Revised Draft VMP area or the City's VHFHSZ.

Section 5, *Management Plans and Programs*. This section describes the existing land or resource management plans and programs relevant to vegetation management activities in the Revised Draft VMP area or the City's VHFHSZ that were consulted during development of the Revised Draft VMP.

Section 6, *Public Engagement*. This section describes the public and stakeholder engagement efforts that were conducted during the development of the draft and revised draft VMP. This section also summarizes the key comments and recommendations that helped guide development of the revised draft VMP.

Section 7, ~~VMP~~*Plan Area Resources*. This section summarizes the biological, ecological, and community resources found in the Revised Draft VMP area, including vegetation communities, special-status species, streams and water resources, hillslopes and soils, and community resources (e.g., buildings, districts, and other features with significant interest or value).

Section 8, *Vegetation Management Techniques*. This section describes the four primary vegetation treatment techniques used to modify or remove vegetation (i.e., biological, hand

labor, mechanical, and chemical) as well as best management practices (BMPs) for each technique.

Section 9, *Vegetation Management and Maintenance Standards*. This section outlines vegetation management and maintenance standards by dominant vegetation type and specifically describes the measurable guidelines to achieve the desired vegetation condition to reduce fire hazard. This section also describes OFD's current vegetation management practices and specific recommendations for key areas based on site-specific conditions and describes the procedures to be taken by OFD for evaluating, prioritizing, and planning annual vegetation management activities. This section also includes figures depicting the parcel types and priority treatment areas (ranked as Priority 1, 2, and 3) in the Revised Draft VMP area.

Section 10, *Practices to Avoid/Minimize Impacts*. This section includes additional BMPs intended to avoid or minimize potential impacts associated with vegetation treatment or removal.

Section 11, *Plan Coordination and Partnerships*. This section describes OFD's partnerships with other City departments, other large landowners and land managers, and stakeholder and volunteer groups that routinely treat vegetation for fire hazard reduction purposes. This section includes recommendations for improving coordination with other City departments that also have an interest or otherwise manage vegetation on City-owned properties in the Revised Draft VMP area and improving on-going coordination with local volunteer and stewardship groups that are active in parklands or other areas in the Revised Draft VMP area.

Section 12, *Plan Implementation*. This section outlines the methods for implementing the vegetation management recommendations included in the Revised Draft VMP over the 10-year VMP timeframe, including annual reporting and monitoring metrics, and documentation for VMP implementation performance. This section also includes an estimated range of implementation and maintenance costs associated with vegetation management techniques recommended in the Revised Draft VMP. Additionally, this section includes a table summarizing recommended projects by general priority (i.e., Priority, 1, 2, or 3).

2.4.3 Vegetation Management Standards

Vegetation management for fire hazard reduction would vary by location and conditions and would change over time to reflect changing conditions on the ground. Thus, management and maintenance standards described in the Revised Draft VMP are derived from principles of vegetation management for fire hazard reduction and are broken down by dominant vegetation community/land cover type, including grassland/herbaceous, brush/scrub, tree/woodland/forest, other combustible material. ~~Table 2-3~~**Table 2-4** summarizes the general vegetation management standards and goals for each dominant vegetation type. Specific standards for tree-dominated vegetation types including eucalyptus, closed-cone pine-cypress, urban (acacia) and urban (mixed tree stands), oak woodland, redwood, and riparian vegetation communities are described in Section 9.1 of the ~~VMP~~ Revised Draft VMP. Treatment standards for eucalyptus stands have been updated to increase the trunk diameter of single-stem eucalyptus recommended for removal from 8 to 10 inches, as well as to recommend removal of trees that pose an unreasonable fire and/or life safety risk, based on the determination of a Certified Arborist, Licensed Forester, or Fire Safety Expert. Treatment standards for closed-cone pine-

cypress stands have also been updated to include removal of trees that pose an unreasonable fire and/or life safety risk, based on the determination of a Certified Arborist, Licensed Forester, or Fire Safety Expert.

Table 2-44. Vegetation Management Standards and Goals by Dominant Vegetation Type

Dominant Vegetation Type	Vegetation Management Standards	Vegetation Management Goals
Grassland/Herbaceous (annual and perennial grasslands)	▪ Heights of grasses, weeds and thistles shall not exceed 3 inches within ~~30~~75 feet of habitable structures (within or outside of City-owned property). ▪ Heights of grasses, weeds and thistles shall not exceed 18 inches beyond ~~30~~75 feet from a habitable structure (recommended height is below 6 inches). ▪ Leave cut grass on the ground to protect soil but must not exceed 6 inches in height. ▪ Remove or chip/spread on-site all dead or dying surface vegetation. ▪ Remove or treat/spread as mulch on site all dead branches, limbs, etc. from overstory. ▪ Spread all mulch or chipped material to a depth not to exceed 6 inches. ▪ Dispose of all removed material appropriately per City standards.	Reduce vegetation height to create a shorter and more compact surface fuel layer that is less ignitable and less likely to sustain fire spread.
Brush/Shrub (mixed chaparral and coastal scrub)	▪ Remove all dead brush/shrub. ▪ Remove all dead and dying growth from brush/shrub. ▪ Separate individual shrub crowns/shrub groupings horizontally from adjacent shrubs, shrub groupings, or trees by at least two times the height of the shrub crown. ▪ Groupings of shrubs should not exceed 8 feet in diameter.	▪ Reduce surface fuel loading and flame lengths and slow fire spread by increasing the horizontal spacing between retained shrubs. ▪ Increase the vertical spacing between shrub and tree canopies to reduce crown fire transition potential.

Dominant Vegetation Type	Vegetation Management Standards	Vegetation Management Goals
	▪ Vertical separation between the top of the shrub and lowest tree branch will be at least 3 times the height of the shrub crown or 8 feet, whichever is greater in locations where brush/shrub is located within the dripline. ▪ Prioritize for removal individual, isolated highly flammable trees located within brush/shrub stands. ▪ Cut shrubs at or near the ground surface and leave root systems intact to minimize soil erosion. ▪ Remove or treat/spread on site all vegetative material from brush/shrub removal or trimming. ▪ Spread all chipped material to a depth no greater than 6 inches. ▪ Dispose of all removed material appropriately per City standards. ▪ Prioritize removal of highly flammable plants over fire resistant plants where brush/shrub removal is necessary.	
Tree/Woodland/Forest (coast oak woodland, closed-cone pine cypress, eucalyptus, redwood, valley/foothill riparian, urban (acacia), urban mixed tree stand)	▪ Remove all dead trees, consistent with the Oakland Fire Code. ▪ Remove all dead/dying growth and litter from trees. ▪ Prune tree crowns that extent within 10 feet of any structure or outlet of a chimney to maintain a minimum horizontal clearance of 10 feet. ▪ Prune tree crowns to maintain 13.5 feet vertical clearance above the road surface per Oakland Fire Code Section 4907.5.	▪ Increase the horizontal spacing between retained trees to reduce the potential for crown fire spread. ▪ Remove fuel ladders by increasing the vertical spacing between surface fuels and tree canopies.

Dominant Vegetation Type	Vegetation Management Standards	Vegetation Management Goals
	▪ Where feasible, horizontal crown spacing should adhere to CAL FIRE's most current defensible space standards (presently codified in Pub. Res. Code Section 4291). Crown spacing distances are subject to change in accordance with updated state or local regulations and will be reviewed by OFD in alignment with Revised Draft VMP Section 12.4 (Adaptive Management). ▪ Prune tree limbs located less than 6 feet above the ground surface on trees located within 100 feet of habitable structures per Oakland Fire Code Section 4907.3.1.3. ▪ Vertical separation between the top of the retained shrub and lowest tree branch should be at least 3 times the height of the shrub crown or 8 feet, whichever is greater in locations where brush/shrub is located within the dripline of a tree. ▪ Leave stumps from removed trees ~~that~~and shrubs, such that stumps heights do not exceed 6 inches to minimize soil erosion. ▪ Remove or treat/spread all vegetative material from tree removal or trimming on site (logs no smaller than 8 inches in diameter may be retained on the soil surface). ▪ Spread all chipped material to a depth no greater than 6 inches. ▪ Maintain trail networks to facilitate access and to create breaks in surface fuels. ▪ Dispose of all removed material appropriately per City standards. ▪ Prioritize removal of highly flammable plants over fire resistant plants where tree removal is necessary.	▪ Create more fire resilient tree stands by reducing surface fuel loads, reducing ladder fuels, and reducing tree crown density through crown thinning.

Source: Appendix A of this Recirculated DEIR

2.4.4 VMP Treatment Areas

The following subsections summarize current and proposed vegetation management activities by treatment area type. In general, treatment areas are organized by urban/residential parcels, canyon areas, City parks and open space areas, roadside treatment areas and medians, and other areas (e.g., parking lots, playground, urban parks) (**Figure 2-2**, sheets 1 through 10). **Figure 2-3**, sheets 1 through 6 show these treatment areas by priority (1, 2, and 3). ~~Table 2-8,~~**Table 2-9**, presented at the end of this chapter, provides more detail on proposed treatment techniques at each treatment area and proposed specific projects within those treatment areas. Note that the proposed treatment techniques listed in Table 2-9~~8~~ represent those that are deemed most appropriate ~~and most conservative~~ to attain the City's objectives at the time this ~~EIR~~Recirculated DEIR was prepared. The information in Table 2-9~~8~~ is intended to assist the City in selecting and prioritizing the ultimate treatment projects that will be included in the City's annual work plan. Section 9.2 of the Revised Draft VMP provides more detail about current management practices and proposed treatments for the below-described treatment areas. In this EIR, the term "current vegetation treatments" refers to those treatments that are currently conducted by the City and are represented within baseline conditions, as described in Section 3.1.2.

Urban and Residential Parcels

Urban and residential parcels are generally smaller than 1 acre in size and are distributed throughout the Revised Draft VMP area. These parcels are mapped as containing the following vegetation communities/land cover types: annual grassland (2.4 acres), closed-cone pine-cypress (8.9 acres), coastal oak woodland (18.4 acres), coastal scrub (2.4 acres), eucalyptus (10.7 acres), redwood (0.2 acre), urban (7.9 acres), and urban (acacia) (0.2 acre).

Current Vegetation Treatments

Current management practices for these parcels include manual vegetation treatment techniques (hand labor or mechanical) to reduce ladder fuels, control invasive species (e.g., broom), reduce surface fuels (e.g., grasses, weeds, down material), maintain reduced fuel loads, and prune tree canopies. Grazing is another treatment method typically conducted in areas where multiple City-owned parcels abut each other, creating a larger area for treatment.

Proposed Vegetation Treatments

Because all urban and residential parcels include land entirely or largely within 100 feet from existing structures, these treatment areas are considered Priority 1 treatment areas (as defined below in Section 2.4.5). All urban and residential treatment areas are classified as project URB-1 and the treatment area totals 47.5 acres. Table 2-9~~8~~ summarizes proposed treatments on parcels identified as project URB-1 by dominant vegetation community type.

Canyon Areas

Canyon areas include multiple adjacent parcels that are situated within and along canyons and drainages in the Revised Draft VMP area. Four canyon areas are present in the Revised Draft

VMP area, including: Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, and Beaconsfield Canyon. A brief description and summary of proposed vegetation management treatments within each canyon area are provided below. Table 2-98 below and Section 9.2 of the Revised Draft VMP provides more detail about these treatment areas.

Garber Park

Garber Park is collectively 14.3 acres in size and situated mostly along the south side of Claremont Canyon at the bottom of Claremont Canyon (Figure 2-2, sheet 1). The park primarily consists of a north-facing slope and is mapped as containing the following vegetation communities/land cover types: coast oak woodland (13.4 acres), eucalyptus (0.7 acre), and freshwater emergent wetland (0.1 acre). There are scattered eucalyptus, acacia, and pine trees within the mapped coast oak woodland. Garber Park Stewards and the Claremont Canyon Conservancy actively conduct vegetation management efforts in this park.

Given Garber Park's position in the lower part of the canyon and its north-facing slope, fuel moistures are relatively higher and fire hazard is relatively lower compared to other areas in the Revised Draft VMP. However, depending on annual rainfall, conditions may be dry during the late summer and fall. The plant pathogen Sudden Oak Death (SOD) is known to be present in Garber Park (UC Berkeley 20192016), increasing the potential for dead oak trees to be present in this park. Downed tree branches and other woody debris located in gullies and on slopes in the park are a fire hazard.

Current Vegetation Treatments

Current vegetation management activities conducted at Garber Park include limited flashy fuel (e.g., grasses, weeds) treatment along Claremont Avenue to minimize ignition potential through the use of hand labor or mechanical techniques.

Proposed Vegetation Treatments

Through consultation with the Garber Park Stewards, the primary stewardship group that conducts vegetation management efforts in Garber Park, the following vegetation management treatments are proposed to reduce fire risk at Garber Park:

- Maintain the existing trail networks to facilitate access and to create breaks in surface vegetation.
- Clear downed wood and other debris from gullies and remove dead limbs.

Proposed specific projects at Garber Park (GAR-1, GAR-2, and GAR-3) are summarized in Table 2-8Table 2-9 and described below.

- **GAR-1**: Manage vegetation along adjacent roadside (Claremont Avenue) and near trailheads/entry points to minimize ignition potential. Treatment width should be based on field observations, but not to exceed 30 feet. Specifically, trees hanging down on powerlines are a fire hazard and should be prioritized for treatment.This page intentionally left blank

Garber Park

Grizzly Peak Open Space

Tunnel Road Open Space

North Oakland Regional Sports Field

Parcel Category

- Urban and Residential
- Canyon Areas
- Ridgetop Areas
- City Park Lands and Open Space
- Other Areas
- Medians
- Plan Area Roads
- Priority Roadsides
- Oakland City Limits

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2023

Prepared by: MONTROSE ENVIRONMENTAL

N

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Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area (sheet 1 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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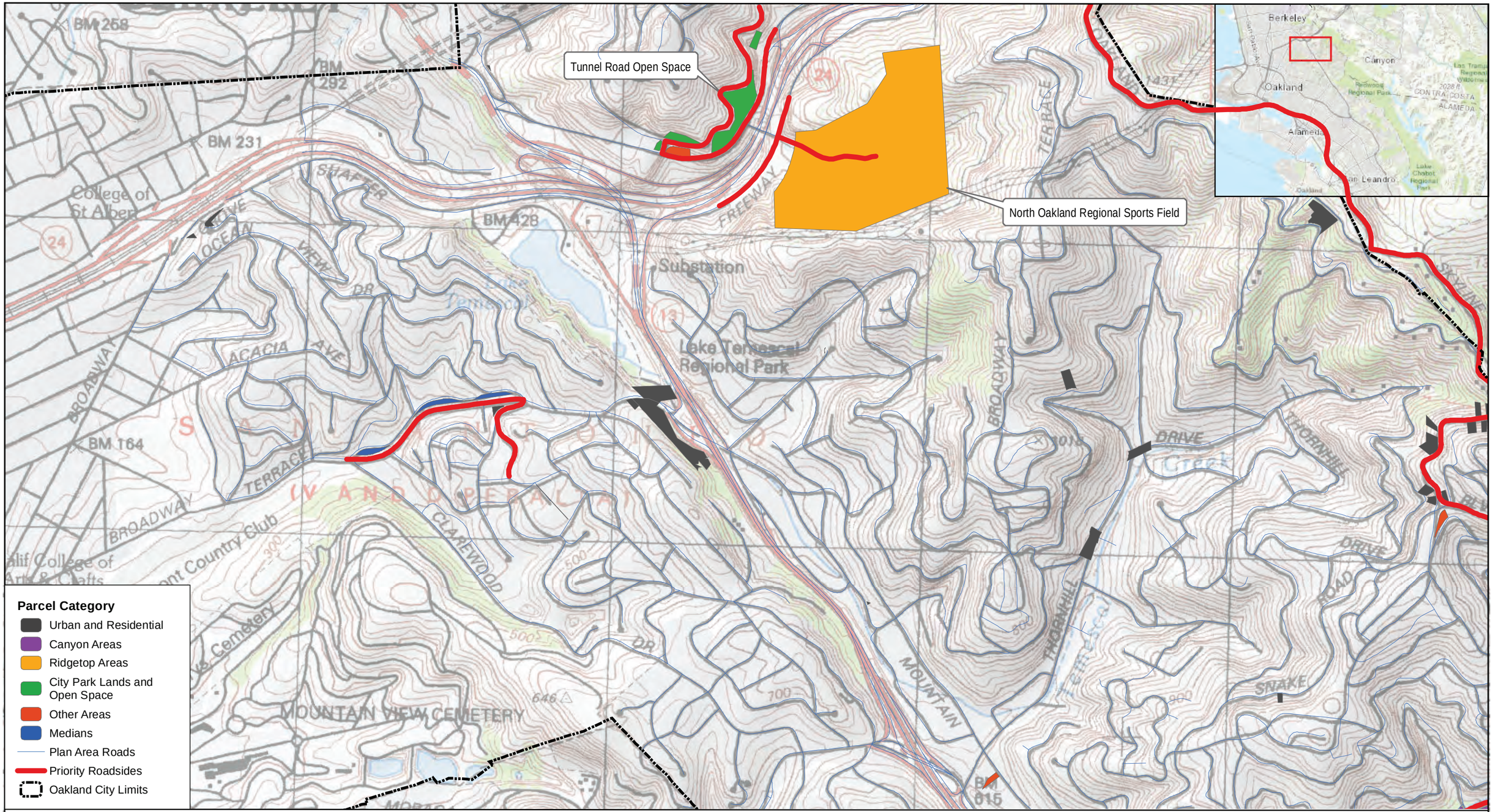

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2019

Prepared by:
MONTROSE ENVIRONMENTAL

Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area (sheet 2 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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North Oakland Regional Sports Field

Parcel Category

- Urban and Residential
- Canyon Areas
- Ridgetop Areas
- City Park Lands and Open Space
- Other Areas
- Medians
- Plan Area Roads
- Priority Roadsides
- Oakland City Limits

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2023

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Prepared by:
MONTROSE ENVIRONMENTAL

Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area
(sheet 3 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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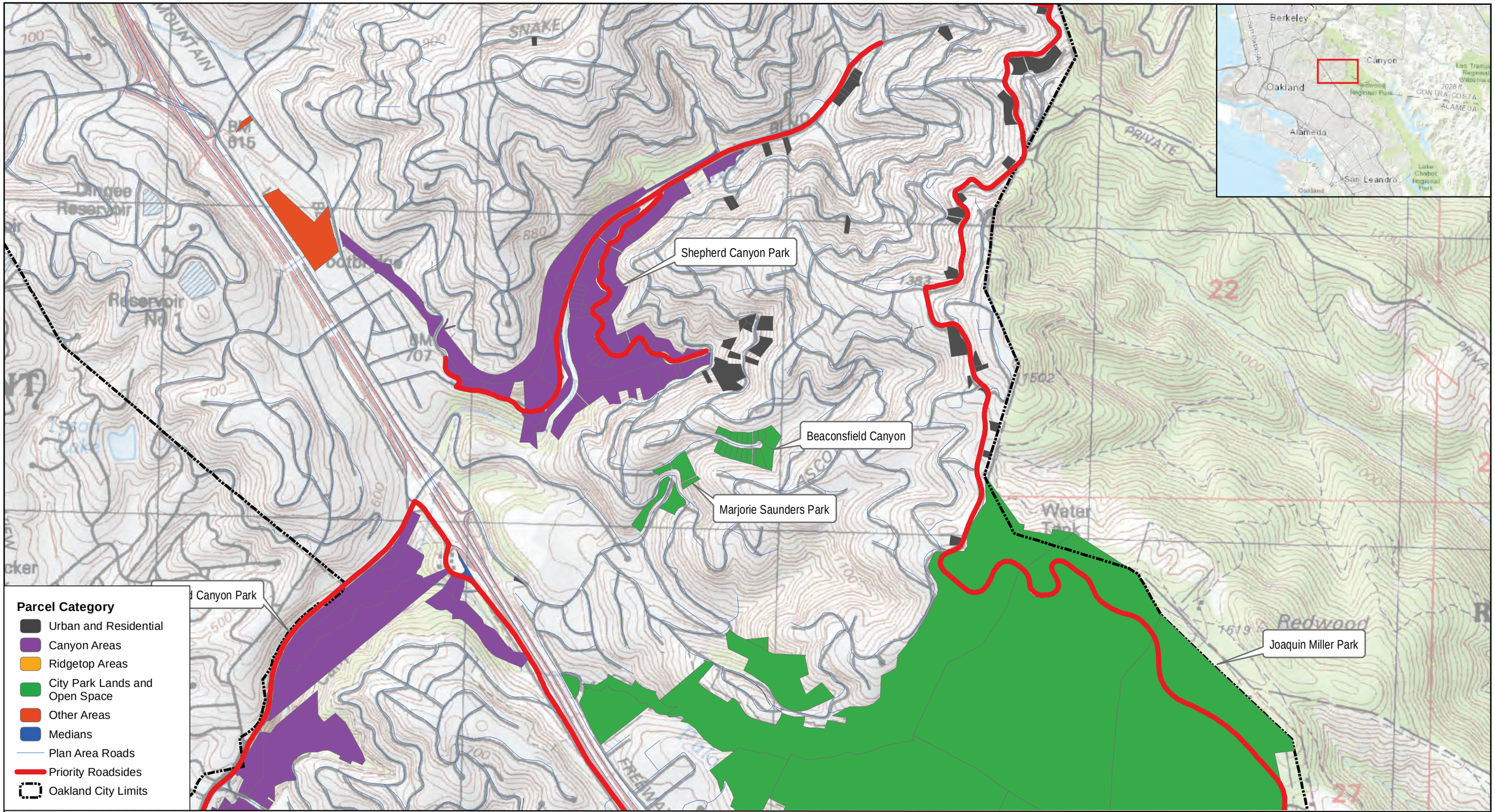

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2023

Prepared by:
MONTROSE ENVIRONMENTAL

Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area
(sheet 4 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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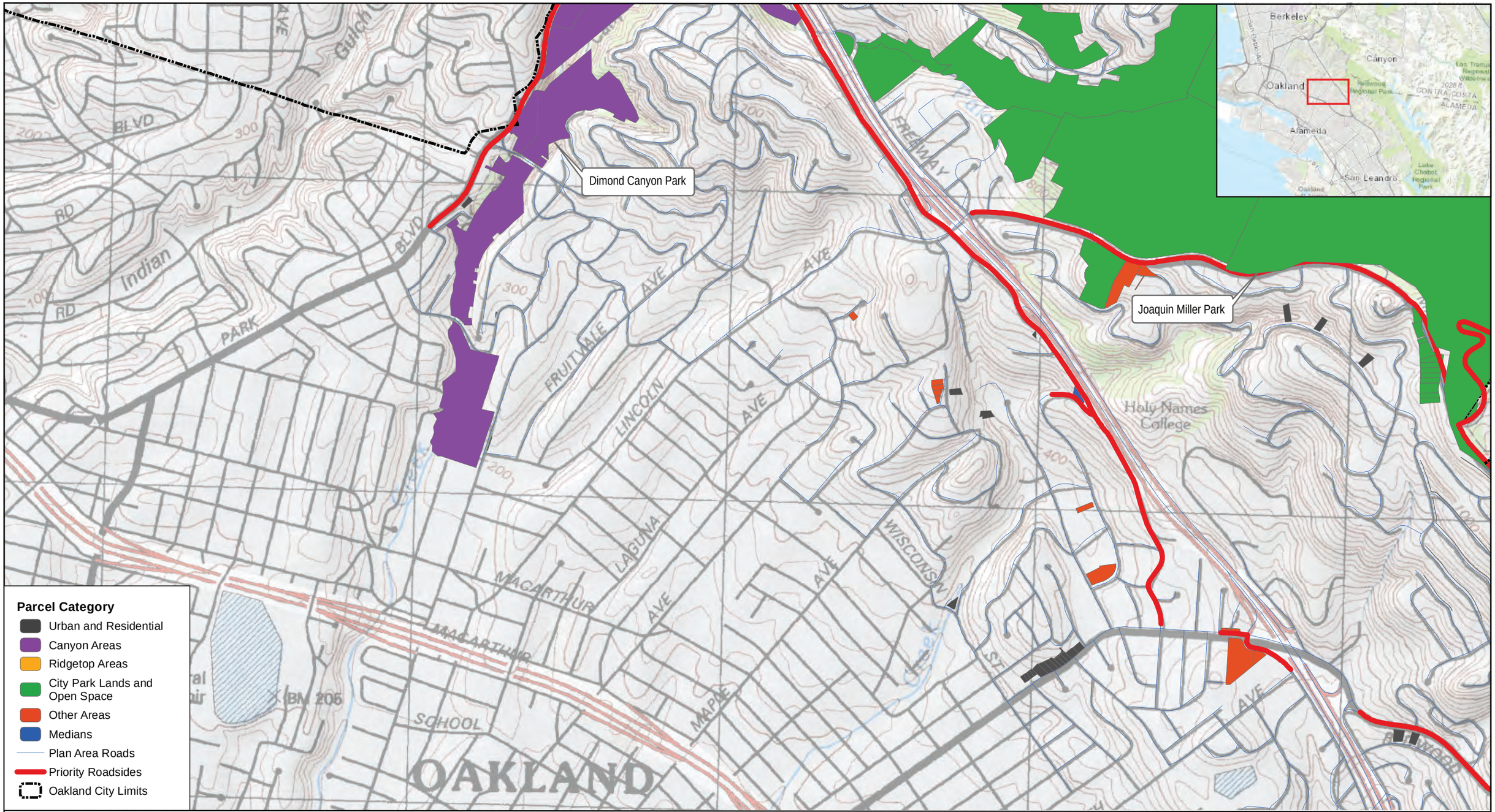

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2023

Prepared by:
MONTROSE ENVIRONMENTAL

Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area
(sheet 5 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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Joaquin Miller Park

Leona Heights Park

Holy Names College

FREEWAY

SKYLINE

REGIONAL PA

Redwood

Berkeley

Oakland

Alameda

San Leandro

Canyon

CONTRA COSTA

ALAMEDA

Parcel Category

- Urban and Residential
- Canyon Areas
- Ridgetop Areas
- City Park Lands and Open Space
- Other Areas
- Medians
- Plan Area Roads
- Priority Roadsides
- Oakland City Limits

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2023

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Prepared by:
MONTROSE ENVIRONMENTAL

Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area
(sheet 6 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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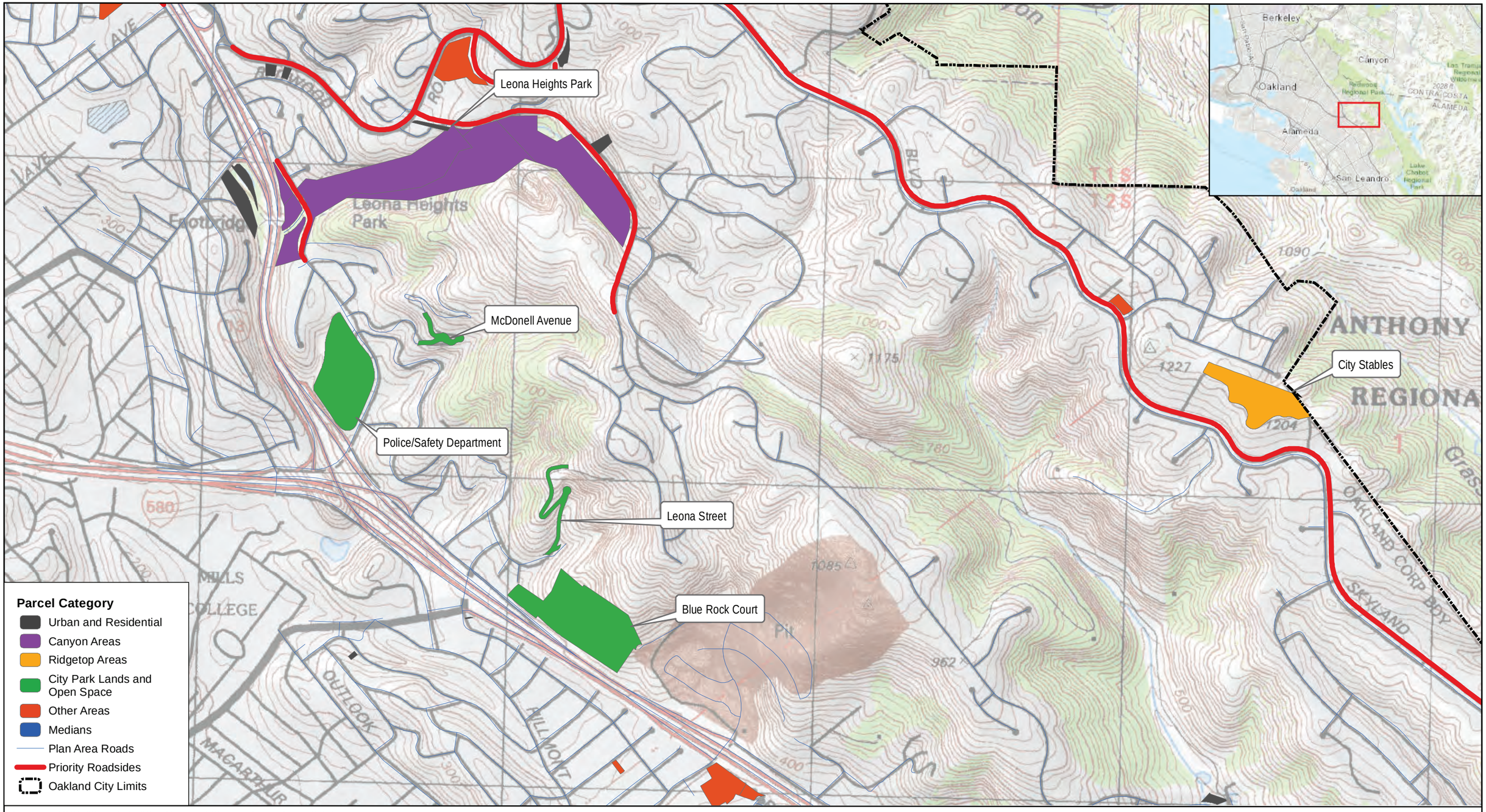

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2023

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Prepared by:
MONTROSE ENVIRONMENTAL

Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area (sheet 7 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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Blue Rock Court

Oak Knoll

King Estate Open Space Park

Parcel Category

- Urban and Residential
- Canyon Areas
- Ridgetop Areas
- City Park Lands and Open Space
- Other Areas
- Medians
- Plan Area Roads
- Priority Roadsides
- Oakland City Limits

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2023

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Prepared by:
MONTROSE ENVIRONMENTAL

Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area
(sheet 8 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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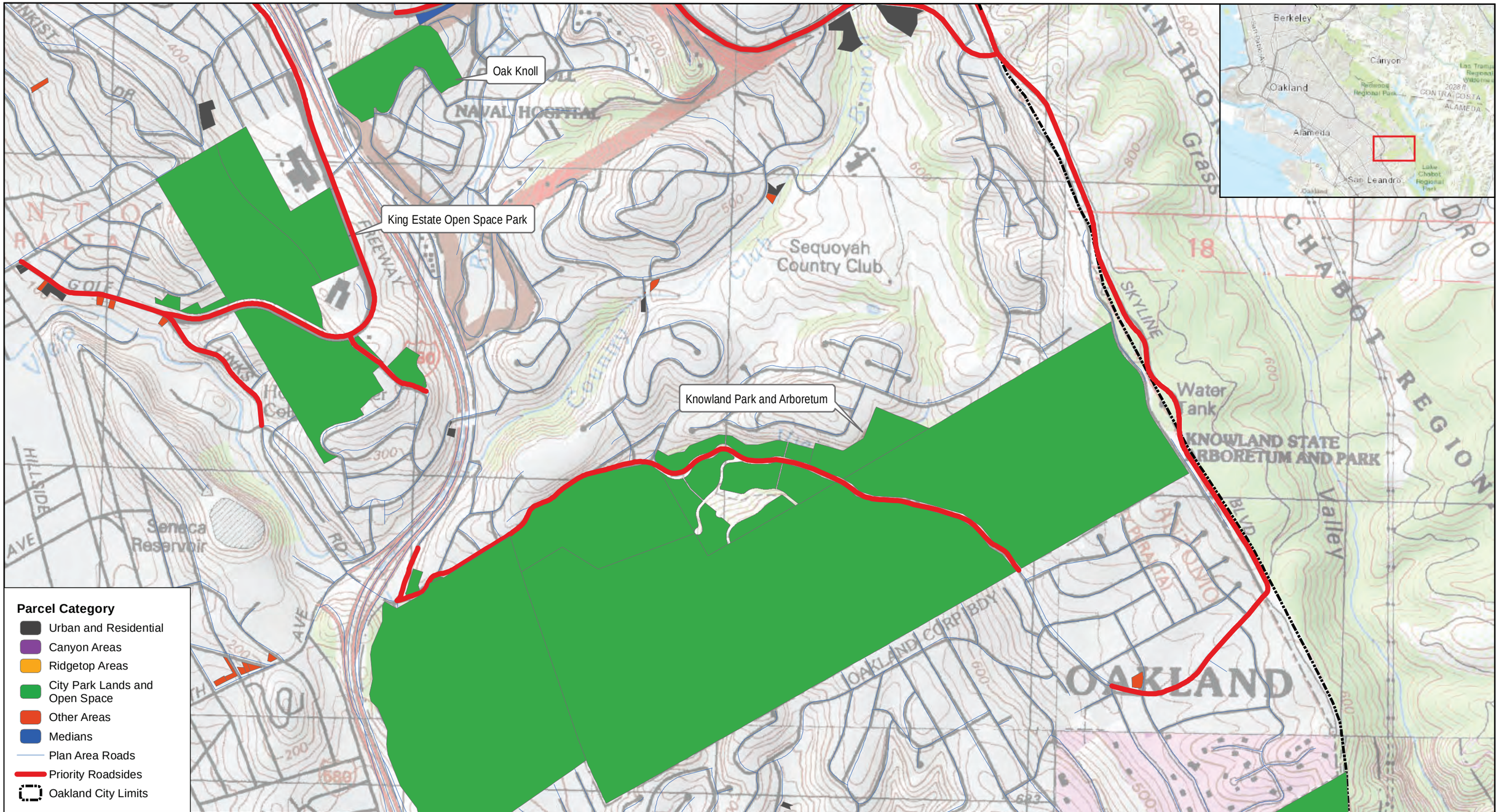

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2023

Prepared by:
MONTROSE ENVIRONMENTAL

Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area
(sheet 9 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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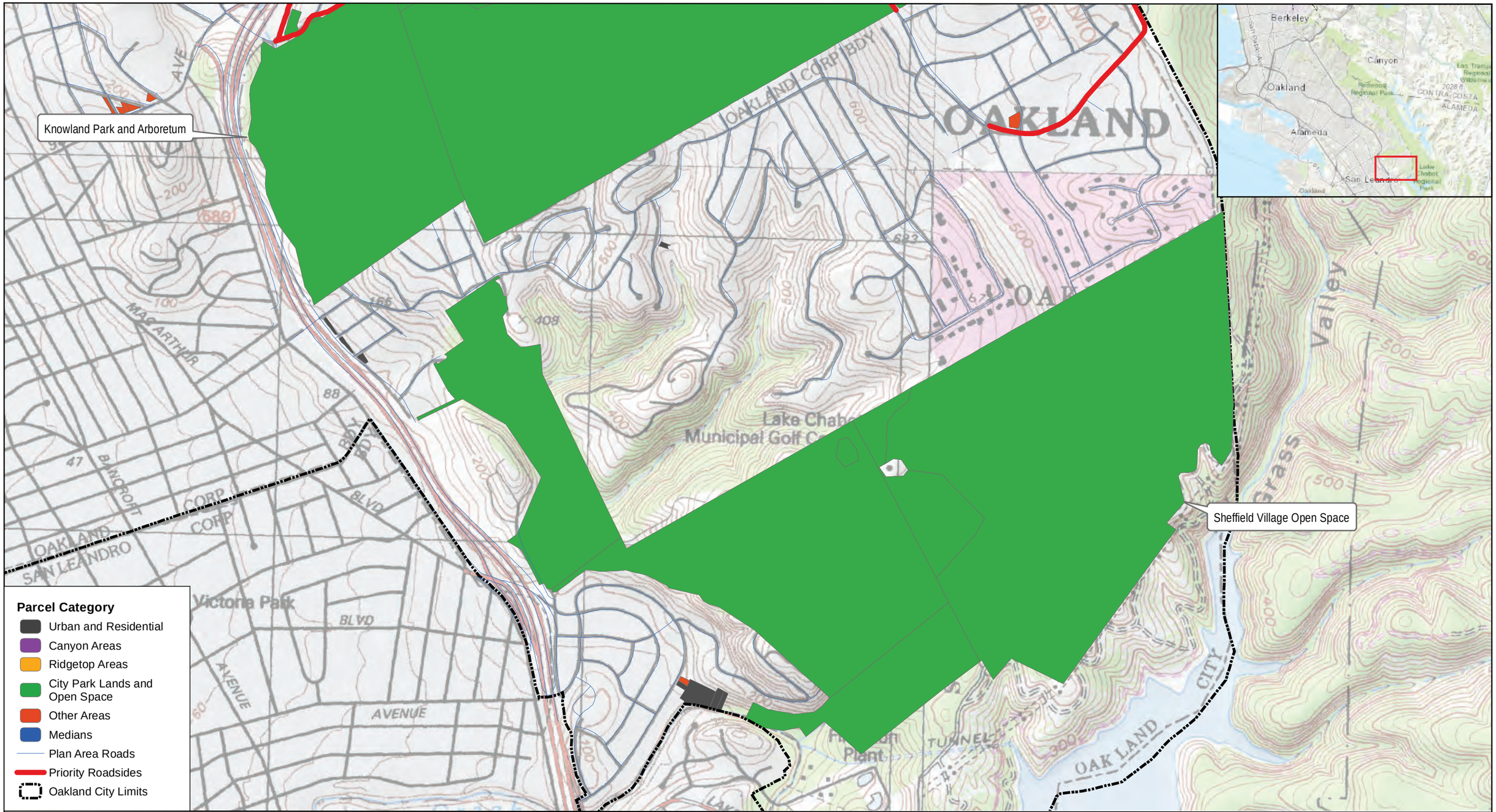

Sources: USGS 2017, ESRI 2017, Oakland 2016 as cited in Dudek 2023

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Prepared by:
MONTROSE ENVIRONMENTAL

Figure 2-2.
City-owned Parcel and Roadside Categories in Plan Area
(sheet 10 of 10)

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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Garber Park

GAR-1

GAR-2

GAR-3

Grizzly Peak Open Space

GPO-1

GPO-2

GPO-3

GPO-4

North Oakland Sports Field

NOR-1

NOR-2

NOR-3

Skyline Boulevard

TRO-1

MEDIAN

24

13

Project Priority Ranking

- 1 - URB-1
- 1 - all other priority 1 projects
- 2
- 3
- Priority 1 Roadside Treatment Areas
- VMP Area Roads
- Parcels
- Oakland City Limits
- **NOR-1** VMP Treatment Project Number

N

0 0.25 0.5

Miles

Figure 2-3.
Revised Draft VMP Treatment Projects (Sheet 1 of 6)
Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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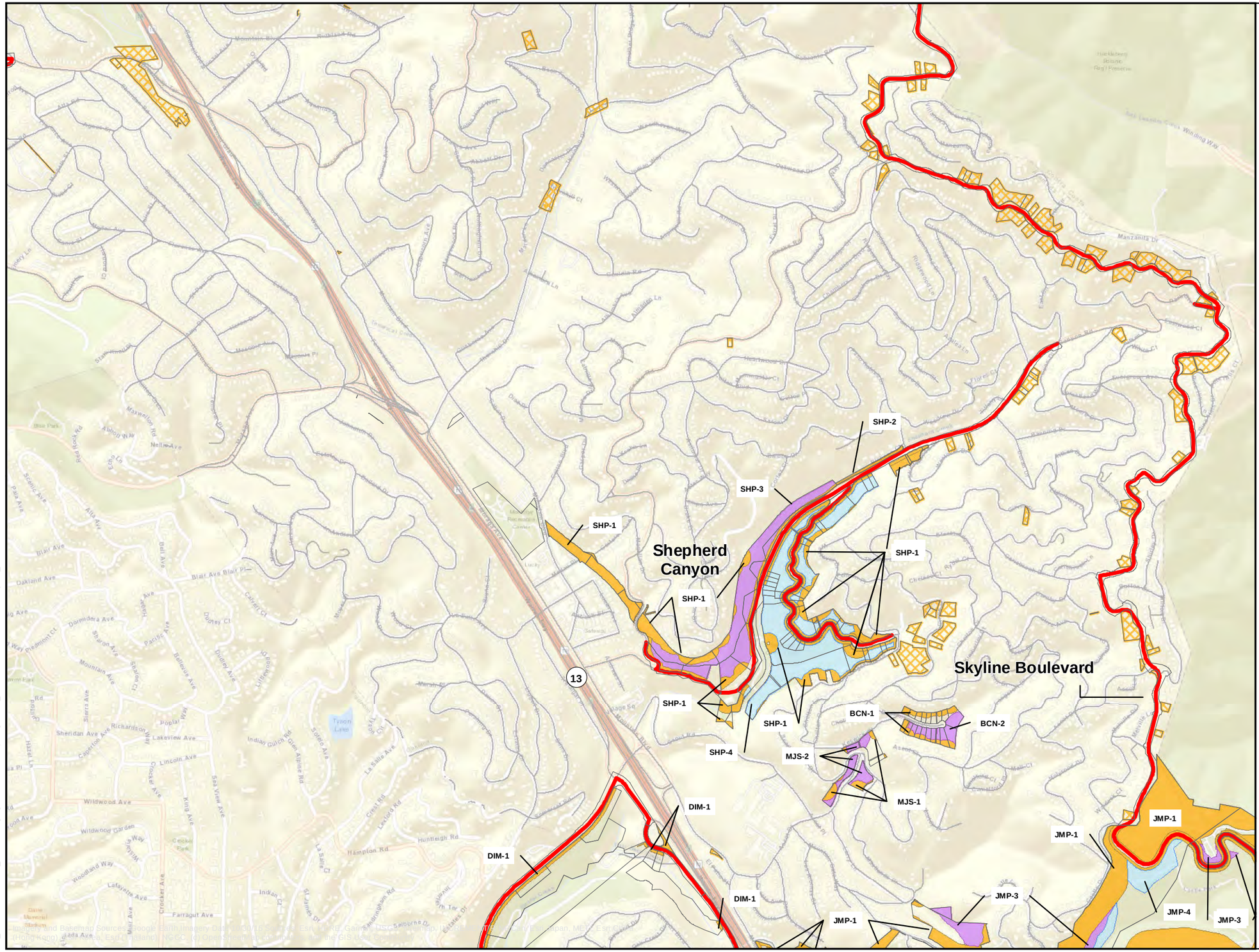

Project Priority Ranking

- 1 - URB-1
- 1 - all other priority 1 projects
- 2
- 3
- Priority 1 Roadside Treatment Areas
- VMP Area Roads
- Parcels
- Oakland City Limits
- **NOR-1** VMP Treatment Project Number

N

0 0.25 0.5

Miles

Figure 2-3.
Revised Draft VMP Treatment Projects (Sheet 2 of 6)
Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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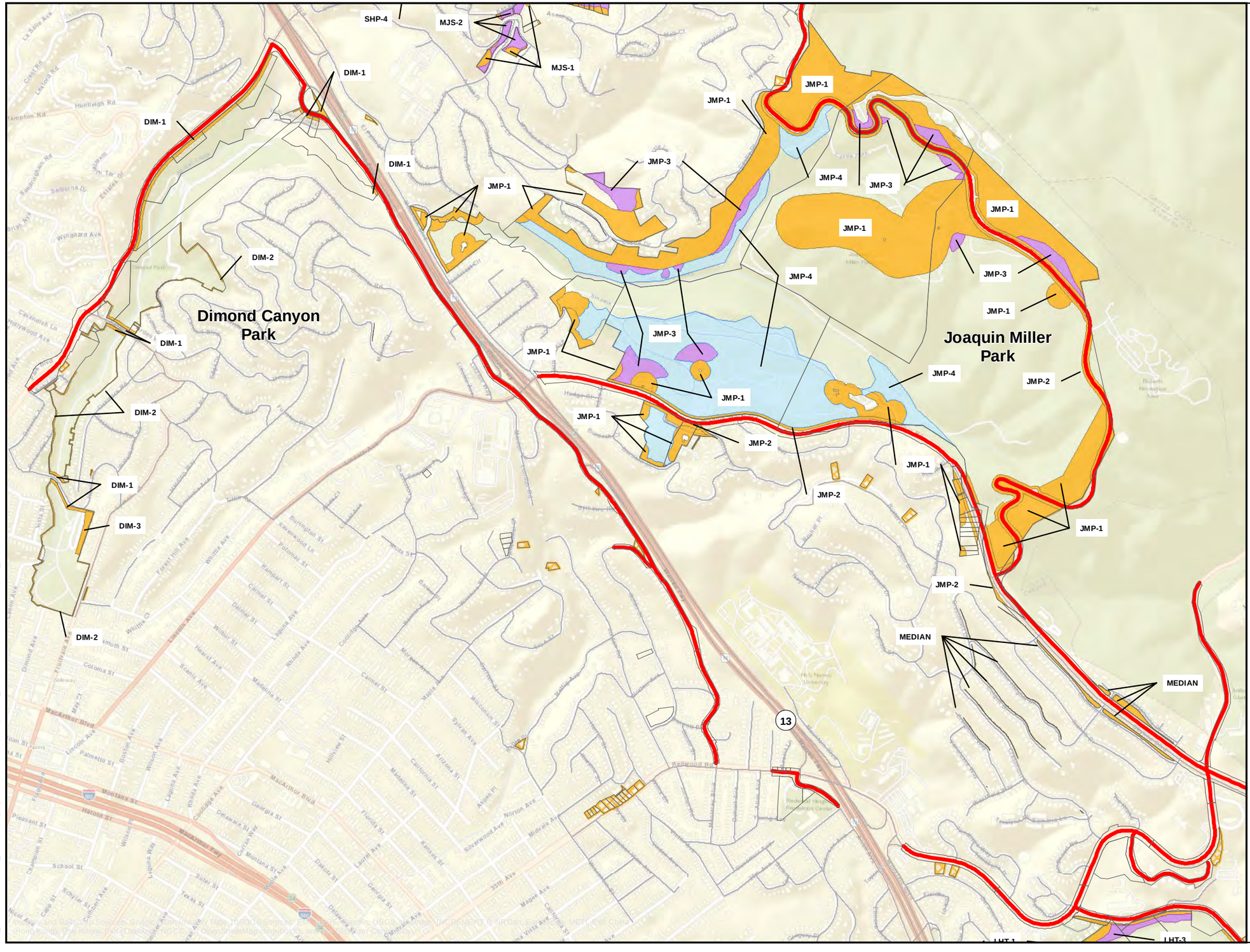

Project Priority Ranking

- 1 - URB-1
- 1 - all other priority 1 projects
- 2
- 3
- Priority 1 Roadside Treatment Areas
- VMP Area Roads
- Parcels
- Oakland City Limits
- NOR-1 VMP Treatment Project Number

N

0 0.25 0.5

Miles

Figure 2-3.
Revised Draft VMP Treatment Projects (Sheet 3 of 6)
Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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Sources: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS | Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS User Community

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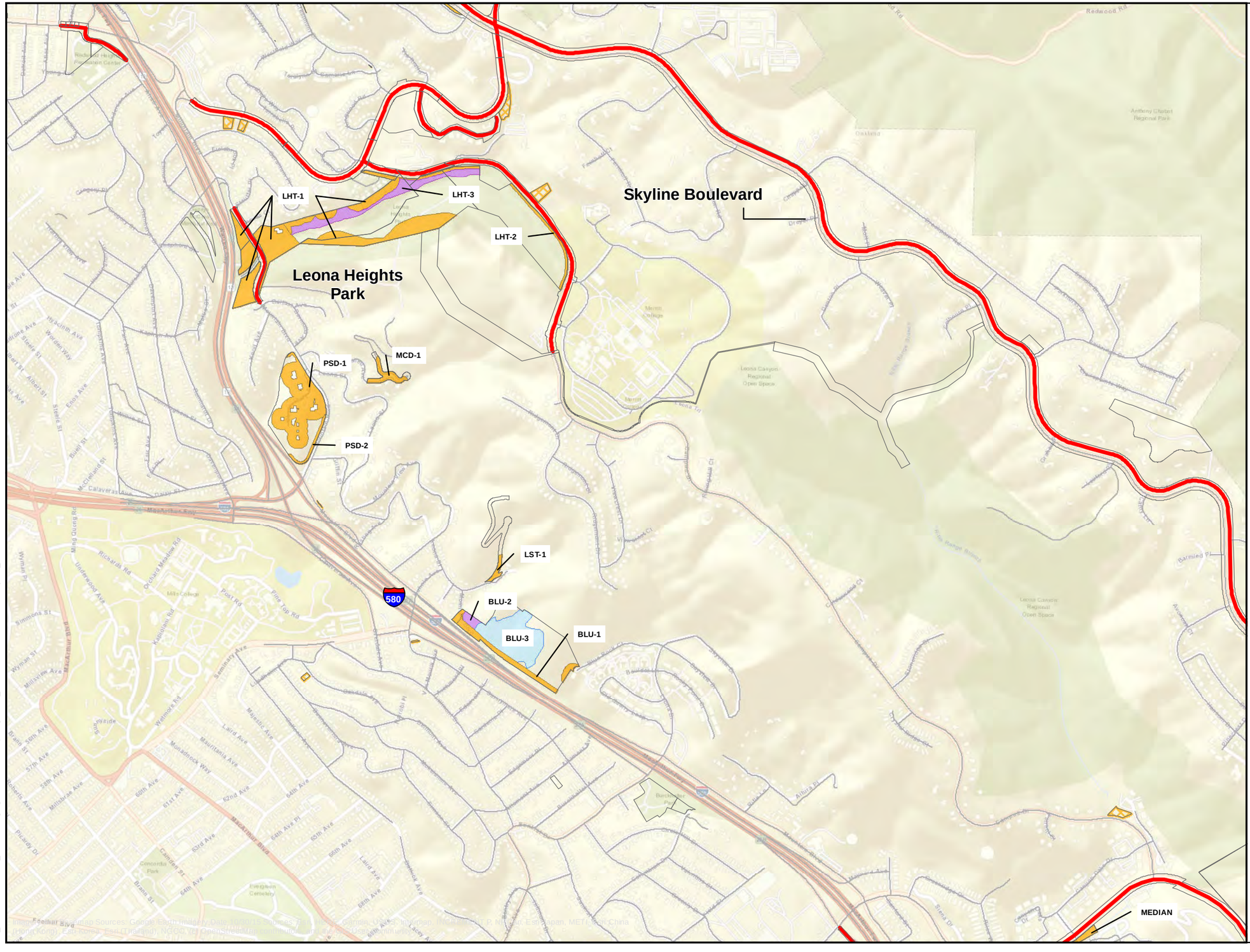

Project Priority Ranking

- 1 - URB-1
- 1 - all other priority 1 projects
- 2
- 3
- Priority 1 Roadside Treatment Areas
- VMP Area Roads
- Parcels
- Oakland City Limits
- **NOR-1** VMP Treatment Project Number

N

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Miles

Figure 2-3.
Revised Draft VMP Treatment Projects (Sheet 4 of 6)
Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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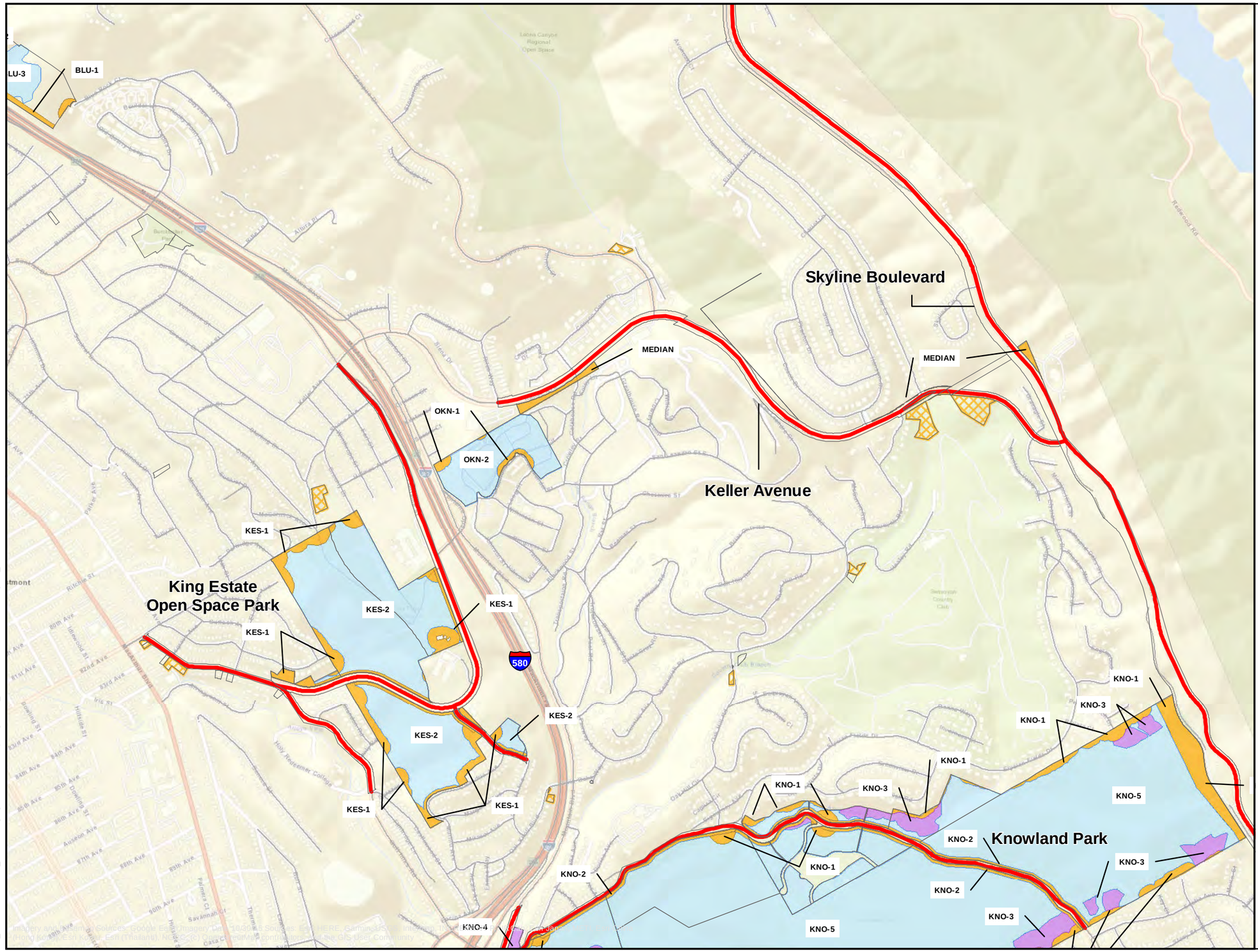

Project Priority Ranking

- 1 - URB-1
- 1 - all other priority 1 projects
- 2
- 3
- Priority 1 Roadside Treatment Areas
- VMP Area Roads
- Parcels
- Oakland City Limits
- **NOR-1** VMP Treatment Project Number

N

0 0.25 0.5
Miles

Figure 2-3.
Revised Draft VMP Treatment Projects (Sheet 5 of 6)
Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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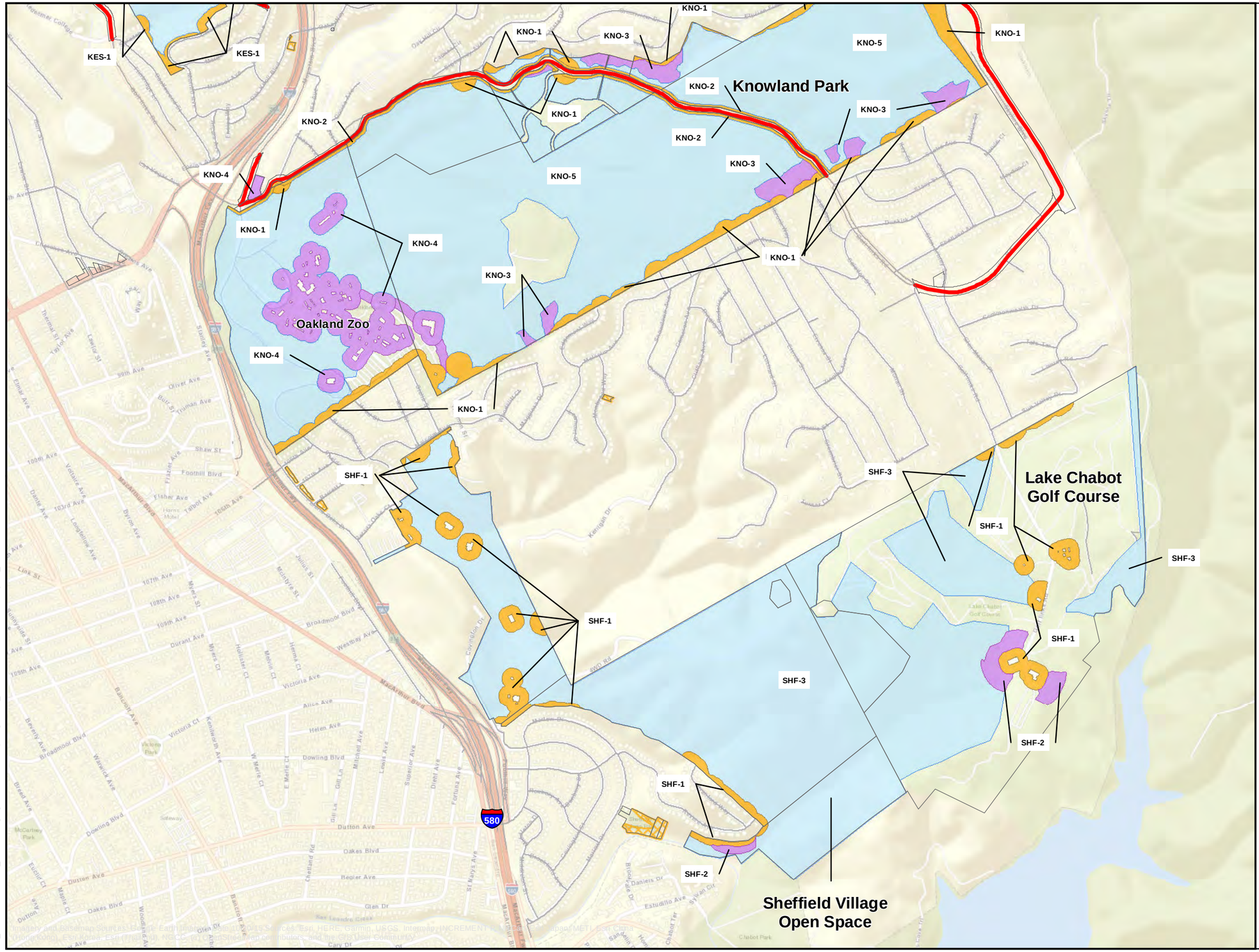

Project Priority Ranking

- 1 - URB-1
- 1 - all other priority 1 projects
- 2
- 3
- Priority 1 Roadside Treatment Areas
- VMP Area Roads
- Parcels
- Oakland City Limits
- **NOR-1** VMP Treatment Project Number

N

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Miles

Figure 2-3.
Revised Draft VMP Treatment Projects (Sheet 6 of 6)
Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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- **GAR-2**: Manage vegetation within 10 feet of the south and east property boundary line to facilitate firefighter access according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **GAR-3**: To manage fuel loading rates, remove eucalyptus trees from two locations along the southern park boundary, retaining lower fire risk trees**.**

Dimond Canyon Park

Dimond Canyon Park is collectively 74.7 acres in size and is situated along Sausal Creek, south of State Route (SR) 13. The park includes the creek channel and some upland areas and is mapped as containing the following vegetation communities/land cover types: coast oak woodland (50.5 acres), coastal scrub (0.3 acre), eucalyptus (1.3 acres), redwood (5.5 acres), and urban (17.1 acres). It is primarily surrounded by residential development, with Park Boulevard forming its boundary in the northeast corner and Monterey Boulevard forming its boundary along the north. Leimert Boulevard and El Centro Avenue also bisect the park. Dimond Canyon Park includes both the undeveloped areas north of El Centro Avenue and the more developed Dimond Park. Friends of Sausal Creek, and Friends of Dimond Park, and Oakland Trail are stewardship groups which actively conduct vegetation management efforts in Dimond Canyon Park. Given its position along Sausal Creek, fuel moistures along the lower portion of the park are relatively higher and the fire hazard relatively lower compared to other VMP areas. Drier and more hazardous fire conditions exist in the park's upland areas farther from the creek. Two fires have occurred within Dimond Canyon within the past ~~three~~six years~~.~~ Dead ~~stone pines present on the south-facing hillslope west of Lyman Road in the southern portion of Dimond Park represent a potential fire hazard, as do dead~~ acacia trees present in several areas represent a potential fire hazard. Fire behavior modeling resulted in primarily surface fire throughout the property, although small pockets of active crown fire were modeled in the coastal oak woodland area along Park Boulevard with grass/shrub understory and in a few small areas within the drainage with high slope gradients.

Current Vegetation Treatments

Current vegetation management practices are primarily limited to roadside treatment along Park Boulevard and Monterey Boulevard through use of hand labor or mechanical techniques. Dead stone pines present on the south-facing hillslope west of Lyman Road in the southern portion of Dimond Park were removed by the City in 2019.

Proposed Vegetation Treatments

Through consultation with the stewardship groups Friends of Sausal Creek and Friends of Dimond Park, both of which actively conduct vegetation management efforts in Dimond Canyon Park, the following vegetation management treatments are proposed to reduce fire risk for Dimond Canyon Park:

- Maintain the existing trail networks to facilitate access and to create breaks in surface vegetation. Trail maintenance should seek to provide unobstructed (horizontal and vertical) access for people traveling on foot.

- Continue to monitor the park for dead or dying trees, and remove dead or dying trees where they pose a fire hazard.

Proposed specific projects at Dimond Canyon Park (DIM-1, DIM-2, and DIM-3) are summarized in ~~Table 2-8~~Table 2-9 and described below.

- **DIM-1:** Manage vegetation along adjacent roadsides (Park Boulevard, Monterey Boulevard, Leimert Boulevard, El Centro Avenue) and near trailheads/entry points to minimize ignition potential. Treatment width should be based on field observations, but not to exceed 30 feet.

- **DIM-2:** Manage vegetation within 10 feet of property boundary lines where the park abuts residential structures to facilitate firefighter access according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **DIM-3:** Manage vegetation in the area between the parking lot located to the east of the pool and the adjacent residential structures (approximately 50 feet in width).

Shepherd Canyon Park and Montclair Railroad Trail

Shepherd Canyon Park is collectively 57.9 acres in size and is situated along Shepherd Creek in Shepherd Canyon, northeast of SR 13. The park includes the creek channel and some upland areas and is mapped as containing the following vegetation communities/land cover types: annual grassland (2.0 acres), closed-cone pine-cypress (1.5 acres), coastal oak woodland (31.9 acres), eucalyptus (16.6 acres), and urban (5.9 acres). For the purposes of this EIR, the discussion of this park also includes the Montclair Railroad Trail property that runs south from Montclair Village, then bends east and then northeast into Shepherd Canyon, southeast of the Snake Road pedestrian crossing. Significant amounts of broom exist in the park, primarily along Shepherd Canyon Road and the Montclair Railroad Trail. The broom is primarily surrounded by residential development and is bounded primarily on the west by Montclair Railroad Trail.

Given its position along Shepherd Creek, fuel moistures along the lower portions of the park are relatively higher and fire hazard relatively lower than other VMP areas; however, drier and more hazardous conditions exist in the park's upland areas, moving up the slopes above the canyon floor. Fire behavior modeling resulted in active and passive crown fire concentrated along the western side of Shepherd Canyon Road and along Montclair Railroad Trail where broom exists beneath eucalyptus tree canopies and surface fire throughout the remainder of the property. Dead and dying trees in the park (e.g., near Bishops Court and near the Escher fire road) also represent a potential fire hazard. Homeless encampments also pose an ignition risk.

Current Vegetation Treatments

Current vegetation management practices include roadside treatment along Shepherd Canyon Road through the use of hand labor or mechanical techniques, and hand labor treatment, mechanical treatment, or grazing throughout the park to reduce ladder fuels, control invasive species, and reduce and maintain surface fuel loads. Approximately 9 acres of the park are currently grazed annually. Much of the park falls within the 100-foot buffer from existing structures or within 30 feet of existing roads.

Proposed Vegetation Treatments

Stewardship groups that actively manage vegetation in Shepherd Canyon Park include the Friends of Sausal Creek, Shepherd Canyon Homeowners, and the Friends of Montclair Railroad Trail. The following vegetation management treatments were developed in consultation with these stewardship groups to reduce the fire risk at Shepherd Canyon Park:

- Maintain the existing trail networks to facilitate access and to create breaks in surface vegetation. Existing fire roads (e.g., the Escher fire road) should be treated to maintain access~~;~~.

- Manage vegetation consistent with the schedule for clearance of private parcels in the same geographic area, if feasible.

Proposed specific projects at Shepherd Canyon Park (SHP-1, SHP-2, SHP-3, and SHP-4) are summarized in ~~Table 2-8~~Table 2-9 and are described below.

- **SHP-1:** Manage vegetation within 100 feet of structures and within 150 feet of the park access gates, including the Montclair Railroad Trail access gate at the City of Oakland Municipal Service Yard to maintain firefighter access, according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **SHP-2:** Manage vegetation along adjacent roadsides (Shepherd Canyon Road, Escher Drive, Snake Road, and Bagshotte Drive) to minimize ignition potential. Manage vegetation along the unpaved access ramp to the Montclair Railroad Trail across from Escher Drive to the standards outlined in Section 9.1 of the Revised Draft VMP to maintain firefighter access. Treatment width should be based on field observations, but not to exceed 30 feet, unless dead or dying trees are present within 30-100 feet from the roadside.

- **SHP-3:** Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **SHP-4:** Continue to manage vegetation via grazing throughout the remainder of the park to maintain fuel loads. Grazing should be conducted later in the season after perennial grasses go to seed.

Leona Heights Park

Leona Heights Park is collectively 42.3 acres in size and is situated along Horseshoe Creek, a tributary to Lion Creek, south of Redwood Road and Campus Drive and east of SR 13. The park includes Horseshoe Creek, a constructed drainage along the Horseshoe Creek alignment in the upstream (east/southeast) end of the park, and some upland areas and also extends south of the Merritt College parking lot located west of Campus Drive. The downstream portion of the creek is more natural, with earthen bed and banks. Leona Heights Park is mapped as containing the following vegetation communities/land cover types: annual grassland (0.3 acre), coastal oak woodland (25.7 acres), eucalyptus (2.1 acres), redwood (13.8 acres), and urban (0.5 acre). The park is largely inaccessible given its steep terrain, with the exception of some trails. The Friends

of Leona Heights Park stewardship group has historically been active in vegetation management efforts in Leona Heights Park, and more recently the Oakland Trails group has also been working in the park.

Fire behavior modeling indicate active and passive crown fire in coastal oak woodlands in upland areas in the eastern and northern portions of the park and primarily surface fire within redwood stands along the drainage bottom. Some isolated active crown fire was modeled in areas with steep slope gradients while only surface fire was modeled in the managed eucalyptus and oak stands at the park's western edge.

Current Vegetation Treatments

Current vegetation management practices are limited to roadside treatment along Campus Drive through the use of hand labor or mechanical techniques, and hand labor treatment, mechanical treatment, or grazing in the lower portion of the park (approximately 9 acres) to reduce ladder fuels, control invasive species, and reduce and maintain surface fuel loads. A portion of the park is within 100 feet of existing structures along its northern and western boundaries.

Proposed Vegetation Treatments

Proposed specific projects at Leona Heights Park (LH-1, LH-2, and LH-3) are summarized in ~~Table 2-8~~Table 2-9 and described below.

- **LHT-1:** Manage vegetation within 100 feet of structures, within 300 feet of ridgelines, and within the current 9-acre management area according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **LHT-2:** Manage vegetation along adjacent roadside (Campus Drive) to minimize ignition potential. Treatment width should be based on field observations, but not to exceed 30 feet, unless dead or dying trees are present within 30-100 feet from the roadside.

- **LHT-3:** Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1 of the Revised Draft VMP.

Beaconsfield Canyon

Beaconsfield Canyon is collectively 4.3 acres and is located at the end of Keswick Court, southeast of Shepherd Canyon Park. Beaconsfield Canyon is mapped as containing the following vegetation communities/land cover types: closed-cone pine-cypress (1.4 acres), coastal oak woodland (1.4 acres), and coastal scrub (1.5 acres). Grasses are present in the understory of these communities. Active and passive crown fires were modeled in coastal scrub where overstory trees are present. Surface fire only was modeled throughout the remainder of the property. The Friends of Beaconsfield Canyon Park stewardship group is active in vegetation management efforts on the Beaconsfield Canyon property.

Current Vegetation Treatments

Current vegetation management activities that occur at Beaconsfield Canyon include annual goat grazing of seasonal weeds and grasses on approximately 2-3 acres of hillside. The frequency of goat grazing activities depends on observed springtime growth. The Friends of Sausal Creek and Beaconsfield Canyon Volunteers stewardship groups also conduct an annual volunteer clean-up event that involves hand-removing invasive plant species such as French broom, Himalayan blackberry, and other invasive plants present. Members of these stewardship groups conduct ongoing plant removal by hand throughout the year as part of their stewardship activities.

Proposed Vegetation Treatments

Through consultation with the Friends of Sausal Creek and the Beaconsfield Canyon Volunteers, the following vegetation management treatments were developed for this property:

- Manage vegetation within 100 feet of structures according to standards outlined in Section 9.1 of the Revised Draft VMP.
- Implement brush and tree thinning in areas exhibiting extreme fire behavior and within 300 feet of structures according to standards outlined in Section 9.1 of the Revised Draft VMP.

These proposed specific projects at Beaconsfield Canyon (BCN-1 and BCN-2) are summarized in ~~Table 2-8~~Table 2-9. Follow-up maintenance treatments once BCN-1 and BCN-2 are implemented are anticipated to include goat grazing.

Ridgetop Areas

Ridgetop areas are single parcels or a group of multiple adjacent parcels that are situated at or near the summit of the Oakland Hills in the Revised Draft VMP area. Ridgetop areas present relatively higher fire hazard conditions due to typically lower fuel moistures and the potential for high or erratic winds during wildfire events. The Revised Draft VMP area includes three ridgetop areas where proposed vegetation management treatments have been identified: North Oakland Regional Sports Field, Grizzly Peak Open Space, and the City Stables property (see Figure 2-2, sheets 1, 2, and 7). Establishing fuel breaks at ridgetops is common practice and typically helps moderate fire behavior and provides important fire suppression control points. Though not intended to stop fire spread (strong winds can blow embers across fuel breaks), these features can provide areas of lower fireline intensities, improved firefighter access, and enhanced fireline production rates. A brief description and summary of proposed vegetation management treatments within each ridgetop area is provided below. ~~Table 2-8~~Table 2-9 below and Section 9.2 of the Revised Draft VMP provide more detail about these ridgetop treatment areas.

North Oakland Regional Sports Field

The North Oakland Regional Sports Field property is collectively 53.6 acres in size and is situated to the south of SR 24 immediately south of the Caldecott tunnels. The North Oakland Regional

Sports Field property is mapped as containing the following vegetation communities/land cover types: coastal oak woodland (22.0 acres), coastal scrub (2.1 acres), eucalyptus (19.8 acres), urban (9.1 acres), and valley-foothill riparian (0.6 acre). The Oakland Landscape Committee is active in vegetation management efforts on the North Oakland Regional Sports Field property.

The property is characterized by a secondary eucalyptus stand (along the generally south- and west-facing slopes) in the northern and eastern portions of the site, which burned in the 1991 Tunnel Fire, and a coastal oak woodland stand in the southern half (along the more northerly facing slopes). The eucalyptus stands have a substantial understory of French broom and other highly flammable/rapidly spreading species. The lower, central portion of the property includes a tributary to Temescal Creek, ball fields, and a dirt access road that extends from Broadway in the west, through the eucalyptus stand, toward homes above on Skyline Boulevard. Public use as well as homeless encampments in the lower and upper portions of the property are a potential ignition source. Fire behavior modeling conducted for the Revised Draft VMP resulted in an active crown fire throughout most of the property's tree-dominated vegetation (eucalyptus and coastal oak woodland) and surface fire concentrated in managed areas along the property's dirt access road and in the area between the sports field and the eucalyptus stand.

Current Vegetation Treatments

Current management practices are limited to roadside treatment along the property's dirt access road (using hand and mechanical techniques) to reduce ladder fuels, control invasive species, and to maintain surface fuel loads. Goat grazing also occurred in 2018 and 2019. The property is beyond 300 feet from existing residential structures but includes restroom facility, snack bar/eating area, and wooden bleachers at the ball fields.

Proposed Vegetation Treatments

Through consultation with the Oakland Landscape Committee, the following vegetation management treatments are proposed to reduce fire risk at this property:

- Maintain the site's dirt access road in a serviceable condition, improving roadside drainage where erosion and gullying have deteriorated access road.
- Implement measures to prevent unauthorized vehicle access to the property's dirt access road.
- Continue to manage vegetation via grazing to maintain fuel loads and minimize ignition potential.

Potential specific projects at North Oakland Sports Field (NOR-1, NOR-2, and NOR-3) are summarized in ~~Table 2-8~~Table 2-9 and described further below.

- **NOR-1:** Manage vegetation according to the standards outlined in Section 9.1 of the Revised Draft VMP in the following locations: within 30 feet of the site's dirt access road, within 300- feet of ridgelines, within 150 feet of the park access gate, and within the existing managed area north of the ball fields and parking areas.

- **NOR-2:** Given the upper portion of the property's ridgetop location and the potential for ember generation resulting from crown fire, implement thinning recommendations in the property's eucalyptus stand beyond that treated under project NOR-1 according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **NOR-3:** To reduce fuel loading rates, remove eucalyptus trees and other highly flammable/rapidly spreading species from oak woodland communities, retaining lower fire risk trees.

A phased mosaic approach to Projects NOR-1 and NOR-2 may be appropriate, where 3-5 acres are thinned at a time, and follow-up maintenance occurs. This would limit the impacts to potential soil erosion, biological resources, and also moderate the overall cost over a longer planning period. This approach has been implemented on an approximately 5-acre section of the lower south-facing hillslope.

Grizzly Peak Open Space

The Grizzly Peak Open Space property is collectively 64.5 acres in size and is situated along the southwest side of Grizzly Peak Boulevard, southeast of Marlborough Terrace. The property generally extends between Grizzly Peak Boulevard at the top of the slope down to Bay Forest Drive, Tunnel Road, Buckingham Boulevard, and Westmoreland Drive at the slope bottom. The Grizzly Peak Open Space property is mapped as containing the following vegetation communities/land cover types: closed-cone pine-cypress (25.7 acres), coastal oak woodland (3.2 acres), coastal scrub (33.3 acres), eucalyptus (0.6 acre), and urban (1.6 acres).

The property extends across a steep, southwest-facing slope and abuts residential structures, community assets (communications facility), and a main access/egress route (Grizzly Peak Boulevard). Scenic views from the property increase human presence along Grizzly Peak Boulevard, including at roadside turnouts, and this increases potential ignition sources. Fire behavior modeling resulted in torching of tree canopies along the upper, northeastern portion of the property and active crown fire along the lower, southwestern portion of property in pine and eucalyptus stands. Fire behavior modeling reveals a potential for extreme fire behavior. The upper and lower portions of the property are within 100 feet of existing structures and much of the property is within 300 feet of structures.

Current Vegetation Treatments

Current vegetation management practices include roadside treatment along Grizzly Peak Boulevard through the use of hand labor or mechanical techniques, hand labor or mechanical treatment along Bay Forest Drive in the lower portions of the property, and grazing throughout the property to reduce ladder fuels, control invasive species, and reduce and maintain surface fuel loads.

Proposed Vegetation Treatments

The following vegetation management treatments are proposed to reduce fire risk at Grizzly Peak Open Space:

- **GPO-1:** Manage vegetation within 100 feet of structures, within 300 feet of ridgelines, and within 30 feet of Tunnel Road and Bay Forest Drive, unless dead or dying trees are present within 30-100 feet from the roadside according to standards described in Section 9.1 of the Revised Draft VMP.

- **GPO-2:** Implement brush and tree thinning in areas exhibiting extreme fire behavior and within 300 feet of structures according to standards described in Section 9.1 of the Revised Draft VMP.

- **GPO-3:** To reduce fuel loading rates, remove eucalyptus trees and other highly flammable/rapidly spreading species from oak woodlands, retaining lower fire risk trees.

- **GPO-4:** Continue to implement grazing practices on the remainder of the property to maintain fuel loads.

These proposed specific projects at Grizzly Peak Open Space (GPO-1, GPO-2, GPO-3, and GPO-4) are summarized in ~~Table 2-8.~~Table 2-9.

City Stables

The City stables property is 7.4 acres, located along Skyline Boulevard, and dominated by grassland. The property is largely within 10 feet of existing structures and includes one of the City's remote automated weather stations. Fire behavior modeling resulted in no extreme fire behavior on this property. The property is currently leased to a private contractor who retains responsibility for vegetation management.

Current Vegetation Treatments

Vegetation management on this parcel is focused on reducing surface fuels (e.g., grasses, weeds) and maintaining fuel loads using hand labor, mechanical techniques, or grazing.

Proposed Vegetation Treatments

If the current lease expires within the timeframe of the Revised Draft VMP and the City regains management responsibility, the City would resume management of vegetation on the entire property according to the standards described in Section 2.4.4 above.

No proposed specific projects have been identified on this property at this time.

City Park Lands and Open Space

City park lands and open space areas are collections of multiple adjacent parcels, and are characterized by numerous vegetation types, and typically present high fire hazard conditions due to terrain, vegetation, and increased human presence resulting in increased ignition potential. The Revised Draft VMP area includes four primary park lands and open space areas: Sheffield Village Open Space, Knowland Park and Arboretum, Joaquin Miller Park, and King Estate Open Space Park. A brief description and summary of proposed vegetation management

treatments within each of these areas are provided below. ~~Table 2-8~~Table 2-9 below and Section 9.2 of the Revised Draft VMP provides more detail about these treatment areas.

Sheffield Village Open Space

Sheffield Village Open Space is collectively 455.4 acres in size and is situated at the southeastern-most portion of the Revised Draft VMP area, at the southern end of Golf Links Road and at the northwestern end of Lake Chabot. The property includes the Lake Chabot Golf Course but given the low fire hazard condition of the golf course, no treatments are proposed for that portion of the property. The Sheffield Village Open Space area also includes the historic Dunsmuir Estate. Sheffield Village Open Space is mapped as containing the following vegetation communities/ land cover types: annual grassland (59.4 acres), closed-cone pine-cypress (5.9 acres), coastal oak woodland (143.9 acres), coastal scrub (59.3 acres), eucalyptus (27.9 acres), perennial grassland (0.8 acre), and urban (158.1 acres).

Fire behavior modeling resulted in active crown fire in coastal scrub (where overstory trees are present), oak stands with a heavy shrub understory, and isolated areas within oak woodlands with grass understory where slope gradients are high, and surface fire only throughout the remainder of the property.

Current Vegetation Treatments

Current vegetation management practices include grazing throughout the property (excluding the golf course and developed/landscaped portions of the Dunsmuir Estate) to reduce ladder fuels, control invasive species, and reduce and maintain surface fuel loads. Portions of the southern edge of the property fall within the 100-foot and 300-foot buffers from existing structures. On-site structures include those in the Dunsmuir Estate portion of the property (at the end of Peralta Oaks Court).

Proposed Vegetation Treatments

Vegetation management treatments proposed at this property to reduce fire risk include maintaining the existing trail/road networks to facilitate access and to create breaks in surface vegetation.

Proposed specific projects at Sheffield Village Open Space (SHF-1, SHF-2, and SHF-3) are summarized in ~~Table 2-8~~Table 2-9 and described below.

- **SHF-1:** Manage vegetation within 100 feet of structures, including those in the Dunsmuir Estates portion of the property, and within 150 feet of park access gates, according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **SHF-2:** Manage vegetation within 300 feet of structures in areas that exhibit extreme fire behavior according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **SHF-3:** Continue to manage vegetation via grazing throughout the remainder of the park to maintain fuel loads.

Knowland Park and Arboretum

Knowland Park and Arboretum is collectively 473.5 acres in size and is situated in the southeastern portion of the Revised Draft VMP area. The property extends between Interstate 580 in the southwest and Skyline Boulevard in the northeast and is bisected by Golf Links Road. The property includes the Oakland Zoo at the southwestern edge and a newly constructed gondola between the zoo and a hilltop near the center of the property, where an additional fenced zoo exhibit is now located. The Knowland Park and Arboretum property is mapped as containing the following vegetation communities/land cover types: annual grassland (102.9 acres), mixed chaparral (also known as maritime chaparral) (8.1 acres), closed-cone pine-cypress (9.1 acres), coastal oak woodland (162.0 acres), coastal scrub (61.8 acres), eucalyptus (12.1 acres), freshwater emergent wetland (0.2 acre), perennial grassland (12.5 acres), redwood (0.2 acre), and urban (104.9 acres).

Views from the water tank located along Skyline Boulevard near the property's northeastern boundary increase human presence and thereby increase potential ignition sources. In addition, the Oakland Zoo's "California Trail" operations, including overnight campgrounds, as well as unauthorized motorized vehicle use within the park may increase ignition potential at Knowland Park. Fire behavior modeling resulted in active crown fire in the coastal scrub and chaparral stands in the central and eastern portions of the property (where overstory trees are present) and in the eucalyptus stands in the western portion of the property and surface fire only throughout the remainder of the property.

Current Vegetation Treatments

Current vegetation management practices include roadside treatment along Golf Links Road through the center of the property through the use of hand labor or mechanical techniques and grazing throughout the property to reduce ladder fuels, control invasive species, and reduce and maintain surface fuel loads. Approximately 350 acres of the property are currently grazed annually. Grazing is currently rotated every two years in a checkerboard approach so all areas are covered. The Friends of Knowland Park stewardship group actively conducts vegetation management efforts on the Knowland Park and Arboretum property and have worked with the City's grazing contractor to help minimize impacts on rare plants within the park through exclusion fencing and active management of the goat herd. Most of this property includes lands within 100 and 300 feet from existing structures.

Proposed Vegetation Treatments

The following vegetation management treatments were developed through consultation with the Friends of Knowland Park to reduce fire risk:

- Maintain the existing trail/road networks to facilitate access and to create breaks in surface vegetation.
- Implement measures to prevent unauthorized vehicle access (including two-wheel motorized vehicles) to the property's dirt access roads.

- Install signage at park entrances indicating that Knowland Park and Arboretum is a City of Oakland park, and notifying visitors of Park rules, including that campfires, fireworks, and other fire hazardous activities are prohibited.
- Grass heights following grazing treatment should be targeted to between 4-6 inches in height.
- Goats should be excluded from sensitive areas, such as rock outcrops and the emergent wetland.
- Where feasible, shrubs such as coffeeberry (*Frangula californica*), toyon (*Heteromeles arbutifolia*), and gooseberry (*Ribes* spp.) should be protected from goat grazing.

Proposed specific projects at Knowland Park (KNO-1, KNO-2, KNO-3, KNO-4, and KNO-5) are summarized in Table 2-9~~8~~ and described below.

- **KNO-1:** Manage vegetation within 100 feet of structures, within 150 feet of park access gates, and within 300 feet of ridgelines, which encompasses the area within 30 feet of known human congregation/activity areas along Skyline Boulevard according to the standards outlined in Section 9.1 of the Revised Draft VMP.
- **KNO-2:** Manage vegetation along adjacent roadside (Golf Links Road). Treatment width should be based on field observations, but not to exceed 30 feet, unless dead or dying trees are present within 30-100 feet from the roadside.
- **KNO-3:** Manage vegetation within 300 feet of structures in areas that exhibit extreme fire behavior according to the standards outlined in Section 9.1 of the Revised Draft VMP.
- **KNO-4:** Manage vegetation within 100 feet of on-site structures in the zoo portion of the property and within 100 feet of the zoo/open space interface to minimize ignition potential and modify potential fire behavior near this developed portion of the property.
- **KNO-5:** Continue to manage vegetation via grazing throughout the remainder of the park to maintain fuel loads.

Joaquin Miller Park

Joaquin Miller Park is 454.9 acres in size and is situated in the southeastern portion of the Revised Draft VMP area. The property extends between Joaquin Miller Road in the south, Skyline Boulevard in the east, Castle Drive in the west, and the Oakland Hills ridgeline in the north. Skyline Boulevard runs along the park's western edge then through the northern portion of the park where it exits at the park's northern corner. The southern portion of the park is more developed and includes access roads, parking areas, the Woodminster Amphitheater, a dog park, a nursery, and several structures (including the Community Center, Ranger Station, the historic Joaquin Miller house, Sequoia Lodge, Sequoia Arena, and the Metropolitan Horseman's Association Clubhouse). The northern portion of the park is less developed but

includes numerous trails and dirt roads. Many of the fire roads within the park have not been maintained and are no longer accessible to vehicles due to vegetation growth.

Joaquin Miller Park is mapped as containing the following vegetation communities/land cover types: annual grassland (15.0 acres), closed-cone pine-cypress (109.3 acres), coastal oak woodland (88.0 acres), coastal scrub (5.8 acres), eucalyptus (62.0 acres), redwood (121.0 acres), urban (42.8 acres), urban (acacia) (6.6 acres), urban (mixed tree stand) (3.7 acres), and valley/foothill riparian (0.8 acre). In recent years, Monterey pine trees in the park have been reaching the end of their lifespan and dying, contributing to fuel load in the park.

Known areas for potential ignitions include a roadside turnout area that is prone to garbage and debris dumping from cars along Skyline Boulevard approximately 800 feet up from its intersection with Joaquin Miller Drive, a congregation area at the intersection of Castle Drive and Skyline Boulevard, and a congregation area that has experienced bonfires located at the top of Woodside Glen Court. Fire behavior modeling resulted in active and passive crown fire within the northern and central portions of the park within non-managed oak, pine, eucalyptus, and acacia stands. Active and passive crown fire also modeled within the acacia and mixed tree stands within the southern (lower) portions of the park and only surface fire modeled within redwood stands and throughout the lower, developed and managed portions of the park (except acacia and mixed tree stands). Recently, there has been a die-off of acacia trees in several areas of the park, which represents a potential fire hazard. Trees located along Joaquin Miller Road and Skyline Boulevard could pose obstacles to egress if they fall across these roads during a fire.

Current Vegetation Treatments

Current vegetation management practices include roadside treatment along Joaquin Miller Road along the entire southern edge of the park and along Skyline Boulevard through the park using hand labor or mechanical techniques. Vegetation is also managed by hand labor or mechanical techniques in the areas adjacent to the dirt parking lot to the west of the Chabot Space and Science Center, at the WUI along the park's northwestern boundary, and around structures, the dog park, and the amphitheater in the developed portion of the park. Fire trails within the center of the park are cleared, and vegetation within 20 feet of the trails managed via hand labor. Oakland Trails volunteers, in collaboration with the Oakland Department of Public Works, have typically conducted the majority of trail maintenance work in the park. Adopt a Spot volunteers and groups such as Friends of Sausal Creek and Friends of Joaquin Miller Park maintain vegetation at adopted spots. Grazing is also conducted throughout the park in light, flashy fuel areas (grasslands, disturbed areas) to reduce and maintain surface fuel loads. Approximately 150 acres of the property are currently grazed annually. Fire behavior modeling reveals a potential for extreme fire behavior in the property's pine, eucalyptus, acacia, and mixed tree stands. Much of the southern and western portions of the park's perimeter fall within the 100-foot and 300-foot buffers from existing structures.

Proposed Vegetation Treatments

The following vegetation recommendations, management treatments, and avoidance measures were developed in consultation with the Friends of Sausal Creek and the Friends of Joaquin Miller Park, stewardship groups to reduce fire risk in the park:

- Remove dead trees along roadsides along the perimeter of the park. Dead trees along roadways are high risk for fire ignition.

- Maintain the existing fire trail/dirt road network to facilitate access and to create breaks in surface vegetation.

- Avoid treatment within the pallid manzanita restoration area adjacent to the Chabot Space and Science Center and on both sides of Skyline Boulevard near the Redwood Glen Trailhead, approximately 500 feet west of the Roberts Park main entrance (this is known as the "Big Trees" pallid manzanita population). Also avoid treatment activities in pallid manzanita planting areas adjacent to the nursery.

- Avoid treatment on serpentine roadcuts, in particular the serpentine slopes at the intersection of Joaquin Miller Road and Skyline Boulevard. Rare plants including Tiburon buckwheat are known to occur in this location. Rare plant locations along these serpentine slopes extend along Joaquin Miller road approximately 300 feet northwest from the intersection and along Skyline Boulevard approximately 400 feet from the intersection.

- Removal of acacia and pine seedlings saplings can be targeted in treatment areas.

- Avoid treatment in identified memorial tree planting sites.

- Avoid treatment within the emergent wetland located in the northern portion of Joaquin Miller Park.

- Implement measures to prevent unauthorized vehicle access to the park's dirt access roads.

Potential specific projects at Joaquin Miller Park (JMP-1, JMP-2, JMP-3, and JMP-4) are summarized in Table 2-9~~8~~, and described further below.

- **JMP-1:** Manage vegetation within 100 feet of on and off-site structures, within 300 feet of ridgelines, within 150 feet of park access gates and within 30 feet of known human congregation/activity areas along Skyline Boulevard and the top of Woodside Glen Court according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **JMP-2:** Manage vegetation along adjacent roadsides (Joaquin Miller Road, Skyline Boulevard, and Mountain Boulevard). Treatment width should be based on field observations, but not to exceed 30 feet, unless dead or dying trees are present within 30-100 feet from the roadside.

- **JMP-3:** Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **JMP-4:** Continue to manage vegetation via grazing in flashy fuel areas to maintain fuel loads.

King Estate Open Space Park

The King Estate Open Space Park is collectively 81.3 acres in size and is situated southwest of Interstate 580, south of 82nd Avenue, and bisected by Fontaine Street. The King Estate Open Space Park property is mapped as containing the following vegetation communities/ land cover types: annual grassland (61.1 acres), coastal oak woodland (12.0 acres), coastal scrub (4.3 acres), and urban (4.0 acres). The Oak Knoll Neighborhood Improvement Association is active in vegetation management efforts on the King Estate Open Space Park. The Association has assisted in grazing operations, identifying exclusion areas on the steep western slopes to minimize erosion and slope stability impacts.

Ignitions at King Estate Open Space Park are of concern given the proximity and density of homes in the adjacent neighborhoods and in consideration of large areas of ignitable grasses on the site. Use of fireworks on and around the property is prevalent in the weeks leading up to July 4th annually, with the most fireworks risk occurring on the eve and night of July 4th. Acacia trees located along the western perimeter of the property, and unmaintained vegetation on adjacent private properties to the south and areas owned by Oakland Unified School District also represent a high fuel load. Fire behavior modeling resulted in isolated active crown fire only in coastal scrub where overstory trees are present, and surface fire only throughout the remainder of the property.

Current Vegetation Treatments

Current vegetation management practices include roadside treatment along Fontaine Street and Crest Avenue through the use of hand labor or mechanical techniques, and grazing throughout the property to reduce ladder fuels, control invasive species, and reduce and maintain surface fuel loads. Approximately 88 acres of the property are currently grazed annually. The perimeter of the property falls within the 100-foot and 300-foot buffers from existing structures.

Proposed Vegetation Treatments

The following vegetation management treatments were developed in consultation with the Oak Knoll Neighborhood Improvement Association to reduce fire risk in the park:

- Maintain the existing trail/road networks to facilitate access and to create breaks in surface vegetation.
- Implement measures to prevent unauthorized vehicle access to the property's dirt access roads.
- Coordinate with Oakland Unified School District regarding vegetation management on adjoining property, where appropriate.
- Coordinate with private property owners regarding vegetation management on adjoining property, where appropriate.
- Avoid or minimize grazing on the steep western slopes to minimize erosion and slope stability impacts.

- Install signage at park entrances indicating that King Estate Open Space Park is a City of Oakland park, and notifying visitors of Park rules, including that campfires, fireworks, and other fire hazardous activities are prohibited.

Proposed specific projects at King Estate Open Space Park (KES-1 and KES-2) are summarized in Table 2-9~~8~~ and are described further below.

- **KES-1:** Manage vegetation within 100 feet of structures, within 150 feet of park access gates, and within 30 feet of Fontaine Street and Crest Avenue according to the standards outlined in Section 9.1 of the Revised Draft VMP.

- **KES-2:** Continue to manage vegetation via grazing throughout the remainder of the park to maintain fuel loads and minimize ignition potential, particularly prior to the ~~4th of~~ July 4th holiday.

Other Open Space Areas

Other small City-owned parcels or groups of parcels that are not otherwise classified above but exhibit similar vegetation conditions and are currently managed by the City are summarized below. Current management practices include roadside treatment through the use of hand labor or mechanical techniques, and hand labor treatment, mechanical treatment, or grazing throughout each area to reduce ladder fuels, control invasive species, and reduce and maintain surface fuel loads. The City proposes to continue managing these parcels in accordance with the standards described above in Section 2.4.3. Proposed specific projects at these parcels are summarized in ~~Table 2-8.~~Table 2-9.

- **Blue Rock Court.** This parcel is 15.4 acres and is located immediately north of I-580, northwest of Blue Rock Court. Fire behavior modeling resulted in active and passive crown fire in the eucalyptus stand, surface fire only throughout the remainder of the property.

- **Leona Street.** This parcel is 1.9 acres and is a road extension at the east end of Leona Street. Fire behavior modeling resulted in surface fire only in coastal oak woodland and annual grassland. Active crown fire in eucalyptus stand at the property's southern end.

- **McDonnell Avenue**. This parcel is 1.1 acres and is a road extension at the east end of McDonnell Avenue. Fire behavior modeling resulted in surface fire only.

- **Police/Safety Department Property**. This parcel is 11.3 acres. Fire behavior modeling resulted in surface fire only.

- **Tunnel Road Open Space**. This parcel totals 4.0 acres and is along Tunnel Road, west of SR 24. Fire behavior modeling resulted in surface fire only.

- **Marjorie Saunders Park**. This park totals 3 acres and is along Ascot Drive, southeast of Shepherd Park. Fire behavior modeling resulted in active and passive crown fire in the eucalyptus stands and surface fire only throughout the remainder of the property. The Friends of Sausal Creek and Piedmont Pines Neighborhood Association actively conduct vegetation management efforts at this park.

- **Oak Knoll**. This property totals 15.7 acres and is northeast of Mountain Boulevard and south of Keller Avenue. Fire behavior modeling resulted in surface fire only throughout the property.

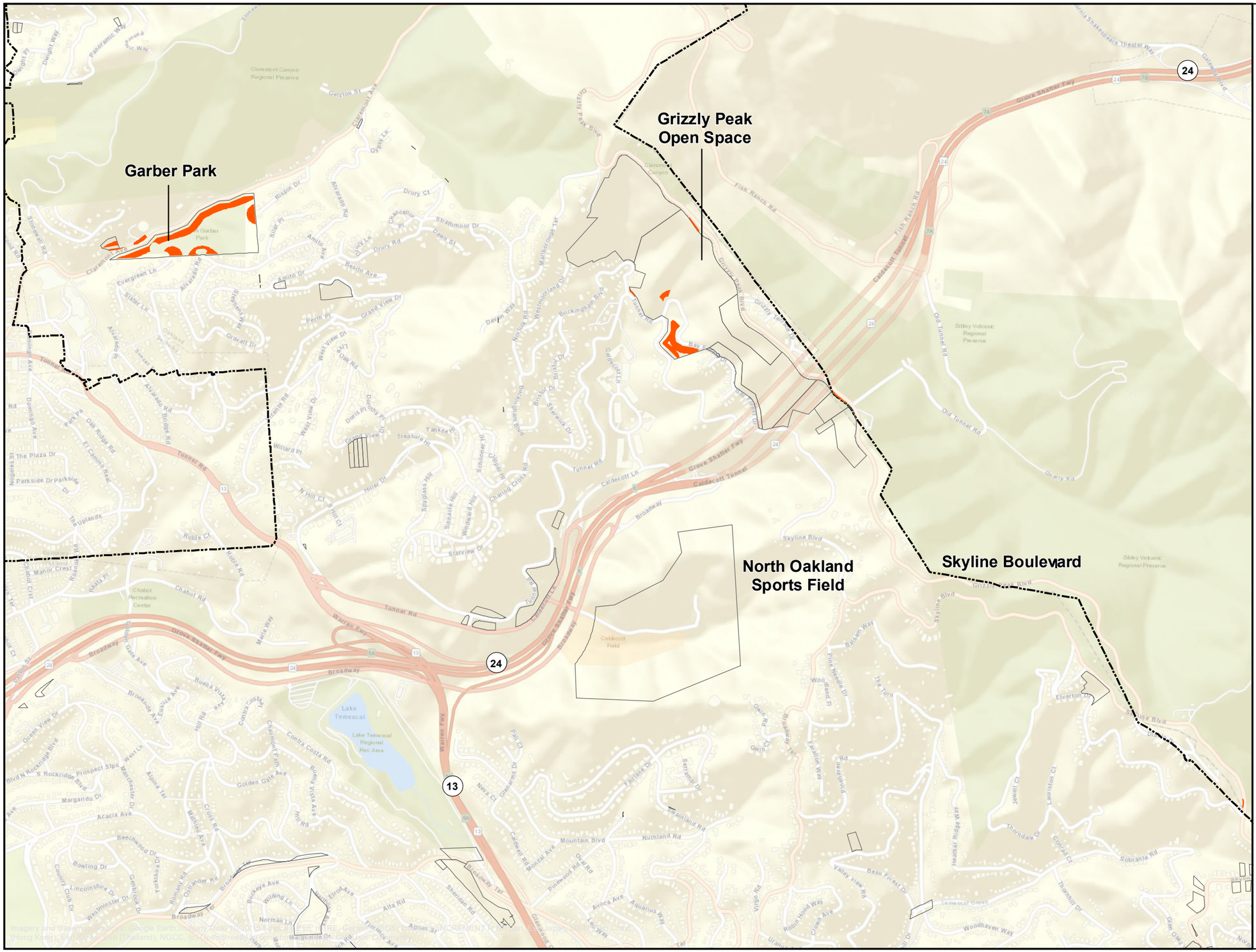
Other Areas

Other City-owned properties in the Revised Draft VMP area that are not otherwise classified above include stations (nos. 6, 7, 21, 25 and 28), City facilities (parking lots, police stations), and developed parks and playgrounds (e.g., Montclair Park). This classification includes 43 properties encompassing 24.5 total acres. These properties are mapped as urban land cover types, fall entirely or largely within the 100-foot buffer from existing structures, and present a low fire risk as they are developed with irrigated and maintained landscaping. No current vegetation management activities are conducted on these parcels and no additional vegetation management treatments are identified for these parcels. However, should conditions change (e.g., property abandoned and landscape vegetation dies) and hazardous conditions observed during annual field assessments, vegetation management treatments would be the same as those identified for urban and residential parcels (described above).

Roadside Treatment Areas and Medians

Roadside treatment areas include the area of land within 30 feet of the roadside edge (edge of pavement) for all roads in the ~~VMP area~~ Revised Draft VMP area and the area within 30-100 feet of the roadside edge where dead and dying trees (as determined by a Certified Arborist, Licensed Forester, or Fire Safety Expert) are present on City-owned property and could strike the road if they fell. The length of all roads in the Revised Draft VMP area totals 308 miles. A portion of these are considered main access/egress routes, which total 31~~30~~ miles. Medians are the areas that separate opposing lanes of traffic on divided roadways, and are similar to roadside treatment areas as they are located along roads in the Revised Draft VMP area but differ in that they are distinct parcels owned by the City. In the Revised Draft VMP area, there are 32 parcels classified as medians, totaling 5.8 acres. Annual vegetation management along roads and medians is focused on reducing ladder fuels, controlling invasive species (e.g., broom), maintaining fuel loads, reducing surface fuels (e.g., grasses, weeds), and pruning tree canopies for vertical clearance through the use of hand labor or mechanical techniques and grazing. Priority roadsides (31~~30~~ miles) and all medians are considered Priority 1 treatment areas; the remaining roadside areas (277~~278~~ miles) are considered Priority 2 treatment areas. These areas would be managed in accordance with the standards described in Section 2.4.3, above.

Areas on City-owned properties where dead and dying trees may occur and could strike a road if they fell encompass a total of 77.3 acres (48.6 acres occurring outside of project areas identified in this EIR and 28.7 acres occurring inside of project areas identified in this EIR). **Figure 2-4** identifies new areas for potential dead and dying tree removal within 100 feet of roads. Only selective removal of dead or dying trees is proposed in areas outside of identified project areas. It is anticipated that removal of dead or dying trees within identified project areas would be conducted concurrent with project implementation. However, removal of dead or dying trees may occur any time should it be determined that a hazard exists.



New Areas Proposed for Dead and Dying Tree Removal

Parcels

Oakland City Limits

Note: New dead and dying tree removal areas will follow the thinning standards described in the Revised Draft Vegetation Management Plan, and will not be clear cut.

N

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Miles

Figure 2-4.
New Areas of Potential Dead and Dying Tree Removal Within 100 feet of Roads
Sheet 1 of 6

Revised Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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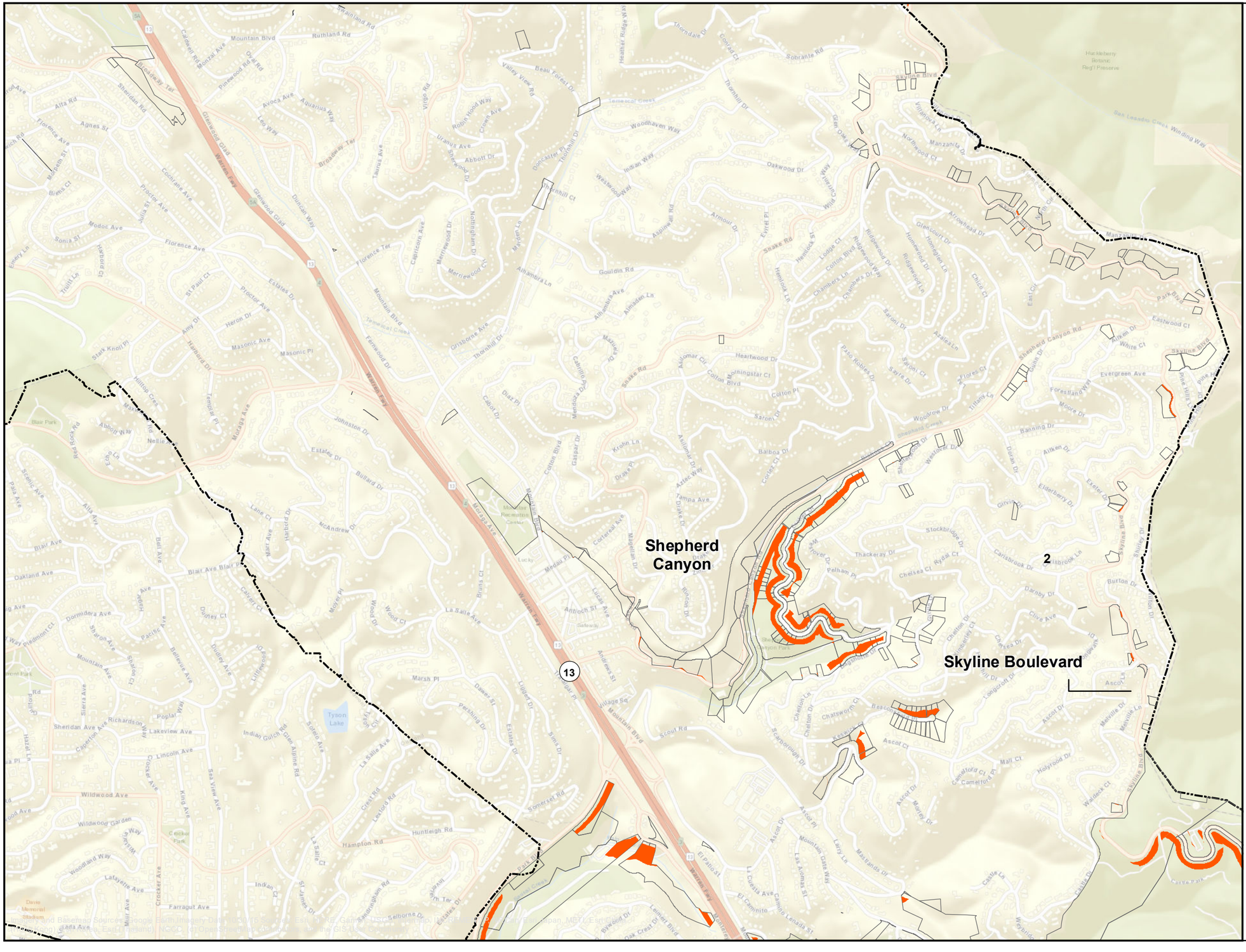

Figure 2-4.
New Areas of Potential Dead and Dying Tree Removal Within 100 feet of Roads
Sheet 2 of 6

Revised Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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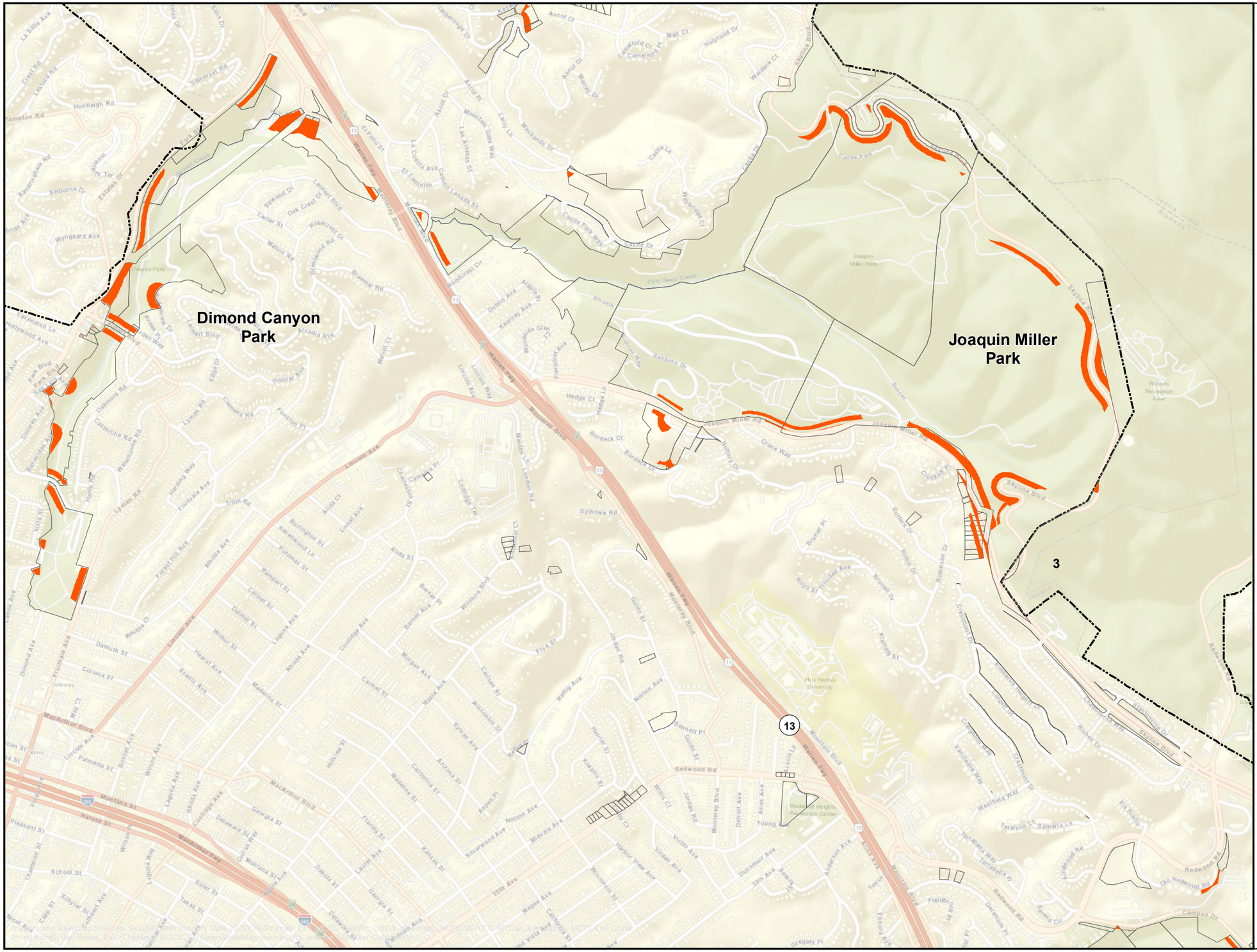

New Areas Proposed for Dead and Dying Tree Removal

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Miles

Figure 2-4.
New Areas of Potential Dead and Dying Tree Removal Within 100 feet of Roads
Sheet 3 of 6

Revised Vegetation Management Plan
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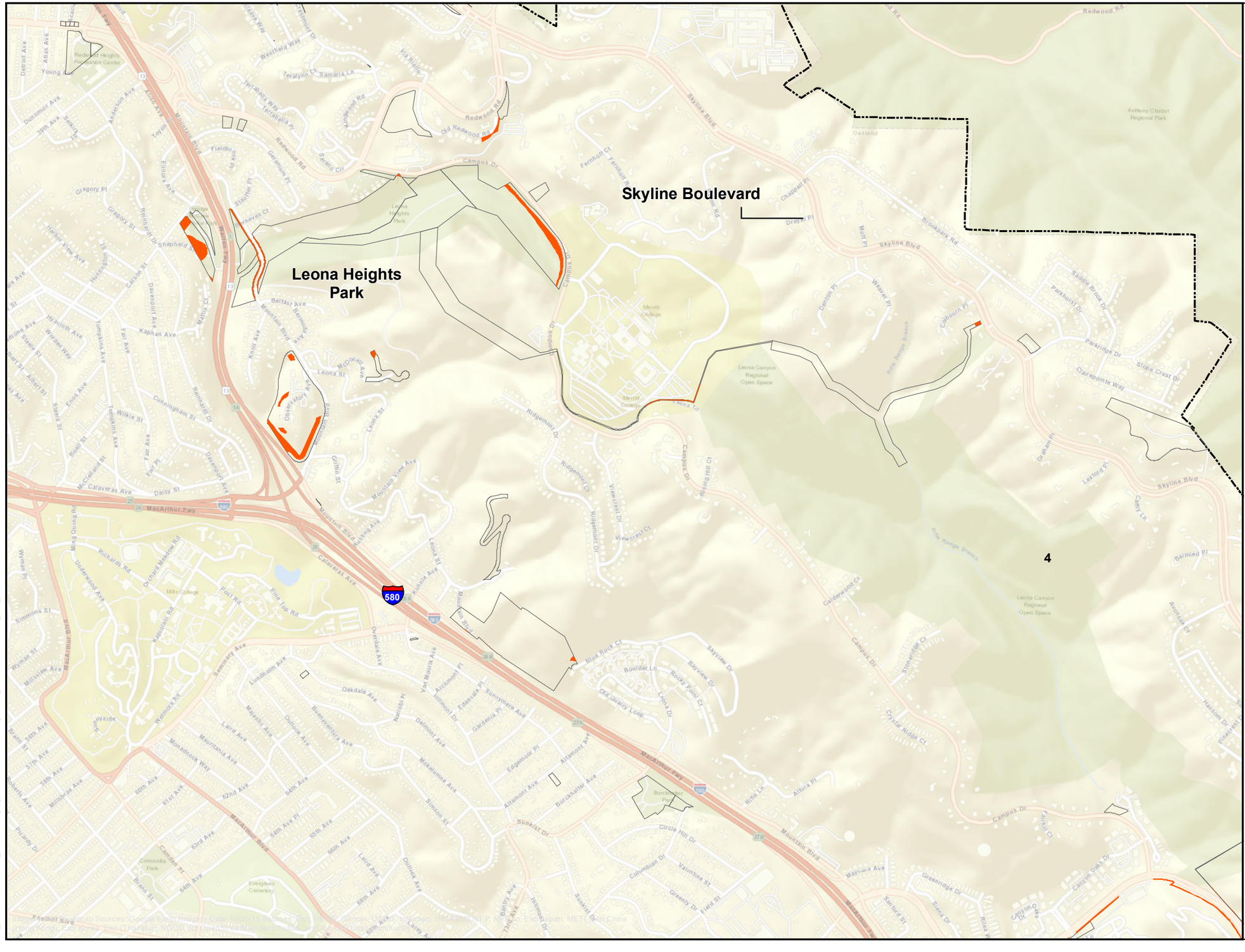

New Areas Proposed for Dead and Dying Tree Removal

Parcels

Oakland City Limits

Note: New dead and dying tree removal areas will follow the thinning standards described in the Revised Draft Vegetation Management Plan, and will not be clear cut.

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Miles

Figure 2-4.
New Areas of Potential Dead and Dying Tree Removal Within 100 feet of Roads
Sheet 4 of 6

Revised Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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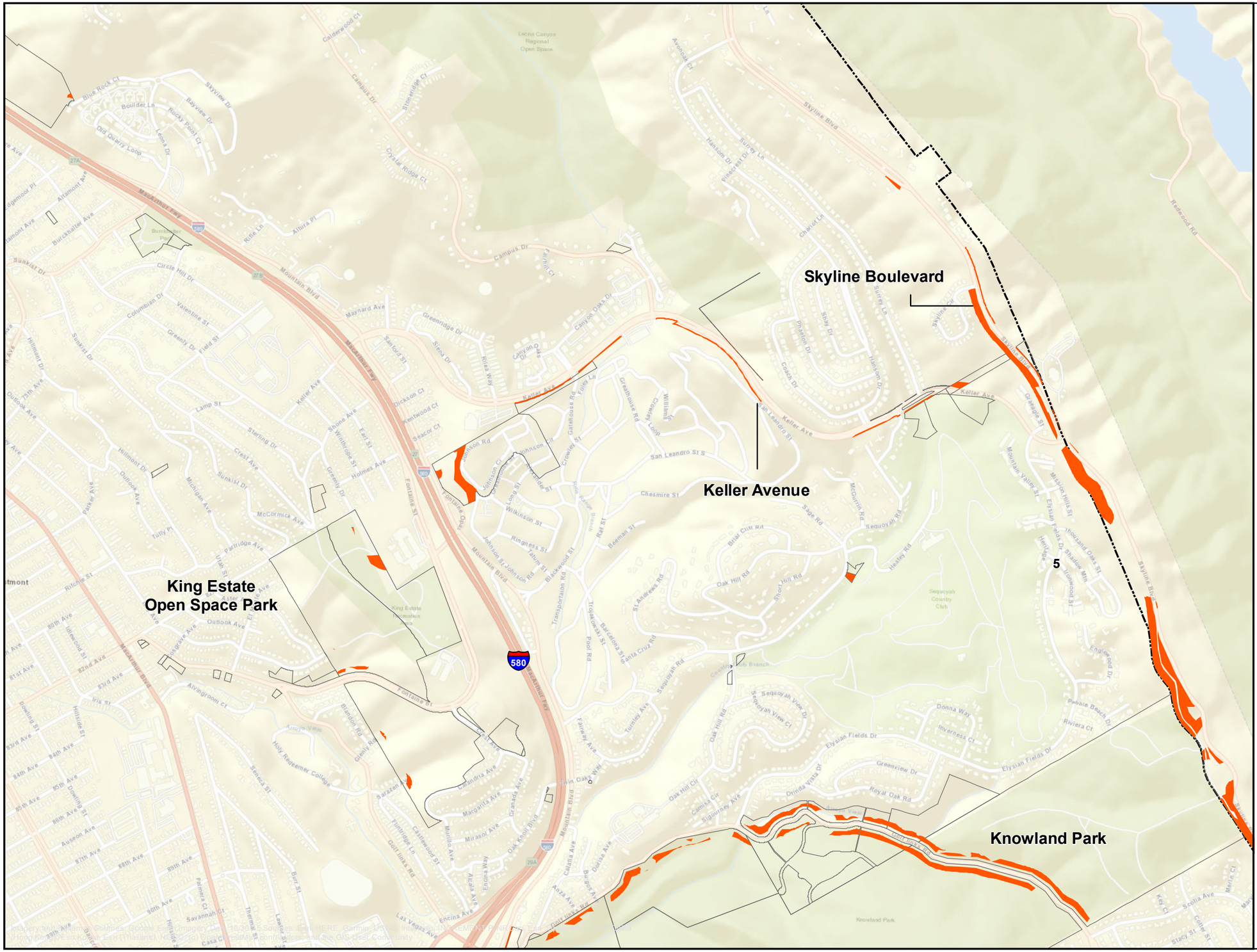

New Areas Proposed for Dead and Dying Tree Removal

Parcels

Oakland City Limits

Note: New dead and dying tree removal areas will follow the thinning standards described in the Revised Draft Vegetation Management Plan, and will not be clear cut.

N

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Figure 2-4.
New Areas of Potential Dead and Dying Tree Removal Within 100 feet of Roads
Sheet 5 of 6

Revised Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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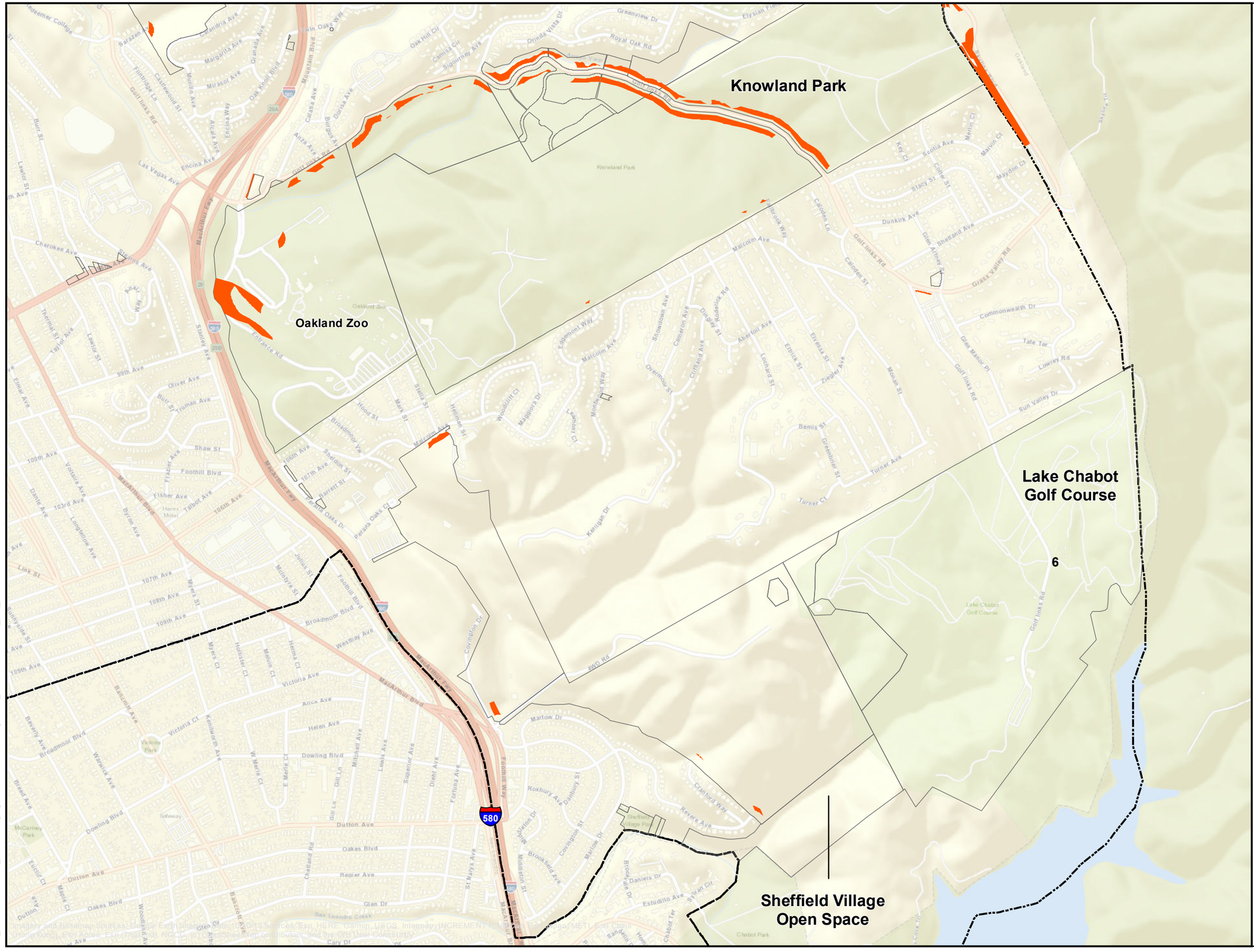

New Areas Proposed for Dead and Dying Tree Removal

Parcels

Oakland City Limits

Note: New dead and dying tree removal areas will follow the thinning standards described in the Revised Draft Vegetation Management Plan, and will not be clear cut.

Figure 2-4.
New Areas of Potential Dead and Dying Tree Removal Within 100 feet of Roads
Sheet 6 of 6

Revised Vegetation Management Plan
Recirculated Draft Environmental Impact Report

T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure2-4_NewTreatmentArea_100_ft.mxd RH 9/13/2023

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While the vegetation management needs vary year to year depending on precipitation and other site-specific factors, the City would likely treat priority roadsides (Priority 1 treatment areas) at least every 3 years and possibly more frequently. It is anticipated that the remaining roadside areas (Priority 2 treatment areas) would be treated every 3-5 years.

2.4.5 Priority Ranking of VMP Treatment Areas

The Revised Draft VMP includes a treatment prioritization system to prioritize vegetation treatment areas and projects into three different categories (Priority 1, 2, and 3) based on proximity to structures in the Revised Draft VMP area, ridgelines, and park access gates; areas along critical access/egress routes; areas subject to increased ignition potential; and areas that exhibit the potential for extreme fire behavior. Priority 1 areas are intended to be prioritized first. Once all Priority 1 areas have been completed or scheduled and budget allows, Priority 2 areas will be completed. Once all Priority 1 and 2 areas have been completed or scheduled and budget allows, Priority 3 areas will be completed. The Revised Draft VMP treatment areas (described in Section 2.4.4 above) were prioritized based on the treatment prioritization categories outlined below.

Priority 1 areas and the relevant annual vegetation management activities include the following:

- Areas within 100 feet of structures or critical infrastructure (e.g., water supplies, communications facilities) to provide defensible space for existing structures and reduce fire intensity at the WUI. This buffer is consistent with state level standards for defensible space (~~Public Resources Code [~~Pub. Res. Code~~]~~ Section 4291) and may be reduced based on field observations.

- Areas within 30 feet from roadside edges (including City-owned medians) along major access/egress routes to reduce potential for wildfires generated by human activity (e.g., sparks, catalytic converters, tossed cigarettes). This activity also enhances greater egress and ingress in the event of an emergency and may be reduced based on field observations.

- Areas with dead and dying trees within 100 feet of roadways.

- Areas within 300 feet of ridgelines to reduce fuel loads and ladder fuels where high and erratic winds have potential to occur. Buffer distance is consistent with community fuel and structure protection standards (14 Cal. Code Regs. 103 [c][6], Diablo Fire Safe Council 2015).

- Areas within 150 feet of park access gates to promote firefighter safety.

- Areas where vegetation management activities would enhance regional fuel breaks for more effective containment and suppression activities should a wildfire occur.

- Areas within 30 feet around known historic sources, areas, or sites of ignition to minimize wildfire ignitions originating from human activity.

Priority 2 areas and the relevant annual vegetation management activities include the following:

- Areas within 30 feet from roadside edges along all other roads in the Revised Draft VMP area not identified as Priority 1.

- Areas between 100 feet and 300 feet from structures where modeled fire behavior exhibits crown fire or flame lengths over 8 feet in order to minimize extreme fire behavior and reduce spotting potential from crown fires that may ignite vegetation or structures not adjacent to the fire. Buffer distance is consistent with community fuel and structure protection standards (14 Cal. Code Regs. 103 [c][6], Diablo Firesafe Council 2015).

Priority 3 areas and the relevant annual vegetation management activities include the following:

- Areas currently managed by the City's goat grazing program, that are not identified for management under Priorities 1 and 2, to maintain lower fuel loads within larger park lands or open space areas.

- Areas with rapidly spreading species (including such plants as French broom, Scotch broom, pampas grass, and jubata grass) in oak woodland vegetation communities to reduce fuel loading rates.

2.4.6 Vegetation Management Techniques

Different vegetation management techniques may be more effective at reducing, removing, or altering vegetation, depending on vegetation type, location, condition, and configuration. Given the dynamic nature of vegetation, a single treatment technique or management approach may not be appropriate for one site over time; therefore, an adaptive approach that provides more flexibility to adjust and select management techniques based on conditions on the ground is the preferred long-term approach. The goal remains to maintain vegetation conditions in accordance with the desired vegetation management standards, but the specific methods may evolve over time. Below is a description of the four categories of vegetation management techniques (biological, hand labor, mechanical, and chemical) that would be used under the Revised Draft VMP. This Recirculated Draft EIR evaluates each of these techniques for their application in the Revised Draft VMP area.

Biological Techniques (Grazing)

Grazing is the primary biological vegetation management technique that uses livestock (e.g., goats, cattle, sheep) to reduce the fuel loading of live herbaceous growth, shrubs, and new growth of trees and prevent the expansion of brush/scrub into grasslands. Grazing is an effective method in large treatment areas where manual labor would be cost-prohibitive as well as in areas that are inaccessible to mowing equipment or in areas too steep for hand crews. Typically, grazing is conducted from late spring through the end of summer to reduce fine fuels prior to the onset of peak fire season. Grazing may or may not be necessary to conduct each year depending on the intent. For example, if the intended purpose of grazing is to reduce grass or other flashy fuels, it should be conducted annually but if the intended purpose is to control shrubs or maintain understory fuels, it may not need to be conducted every year.

Different livestock have different grazing habits and not all livestock are ideally suited for grazing in all areas. Animal selection is determined during the development of a site-specific grazing management plan. Grazing management plans consider site-specific conditions, specify management objectives and standards, and identify animal stocking rates and use levels (typically measured in pounds per acre of residual dry matter), grazing season, and monitoring requirements and performance criteria. To control livestock movement and prevent overgrazing, soil compaction, and resource damage, professional herders and portable electric fences are generally used. In addition, other less impactful vegetation management techniques (e.g., hand labor) may be needed in conjunction with grazing to protect riparian zones, retained plants, and sensitive biological and cultural resource areas, and to minimize erosion and avoid the movement of invasive plants and pathogens.

In the Oakland Hills, goat grazing has been successfully used for reducing fine fuel loads in grasslands, brushlands, and beneath tree canopies at the following areas: King Estate Open Space Park, Joaquin Miller Park, Knowland Park, Dunsmuir Estates (Sheffield Village Open Space), Shepherd Canyon, and London Road. Approximately 3,000 goats have been utilized on an annual basis (typically between May and August) to manage fine fuels on approximately 600 to 1,100 acres. Unlike other livestock, goats browse on woody vegetation (e.g., tree leaves, twigs, vines, and shrubs) and consume materials up to 6 feet above the ground, creating and maintaining a vertical separation between surface vegetation and the lower limbs of overstory trees.

Grazing may occur in areas where herbicides have previously been applied. Livestock would be excluded from grazing for the post-treatment exclusion period included on the herbicide product label, at a minimum. A standard exclusion duration is not included in this EIR, as the exclusion duration is product-specific.

Hand Labor Techniques

Hand labor techniques involve pruning, cutting, or removing trees, shrubs, and grasses by hand or using handheld equipment. Other hand labor treatments involve bark pulling, removing dead wood and litter, and mulching. Hand labor allows for selective management, pruning, thinning, or removal of targeted vegetation and is most effective for spot application on small areas or areas with difficult access or areas with sensitive species. The use of hand labor is focused on reducing ladder fuels, controlling highly flammable/rapidly spreading species (e.g., French broom), reducing surface fuels (e.g., grasses, weeds, down material), thinning vegetation, maintaining fuel loads, and pruning tree canopies. Compared to other vegetation management techniques such as using heavy mechanical equipment or grazing, hand labor techniques typically have a lower potential for adverse environmental effects because the work is specifically targeted and implemented, although heavy foot traffic associated with hand labor can result in surface soil compaction and increase erosion potential. Hand tools include, but are not limited to, shovels, Pulaski hoes, McLeod fire tools, weed whips, chainsaws, handsaws, machetes, pruning shears, and loopers. Hand labor generates debris that is either removed from the site or is chipped/cut down and scattered on site.

Hand labor has been used in the Revised Draft VMP area for managing vegetation primarily on urban and residential parcels as well as along roadsides, in small treatment areas, and within larger parks or open space areas. Typical hand labor techniques to reduce fuel loads that may be

used in the Revised Draft VMP area include line trimming, branch pruning/removal, hand-pulling and gathering, clearance pruning, mosaic thinning and dripline thinning, black plastic coverage, and mulch application. Refer to Section 8 of the Revised Draft VMP for a more detailed description of the hand labor techniques listed above.

Mechanical Techniques

Mechanical techniques include fuel reduction methods that use motorized heavy equipment to remove or alter grass/herbaceous material (e.g., mowers, diskers) or woody material (e.g., masticators, feller-bunches). Mechanical treatment techniques rearrange vegetation structures, compact or chip/shred material, reduce ladder fuels, control highly flammable/rapidly spreading species, reduce surface fuels (e.g., mowing), and move material to staging areas for either reuse, off-site disposal, or composting; or burn piles. Currently, the City disposes of mechanically removed vegetation at approved and licensed composting facilities. In some instances, two or more pieces of mechanical equipment may be used together, or one piece of mechanical equipment may be used independently. Mechanical equipment is used on an as-needed basis in combination with other treatment techniques described in this section.

Mechanical equipment is typically used to manage uniform fuels in large areas. Constraints to mechanical equipment use include steep slopes, dense tree cover that prohibits access, saturated soils, and dry, high-fire hazard weather conditions where equipment use could result in ignition. Mechanical equipment is also typically not used for selective plant removal due to the large size of equipment. Typical mechanical equipment techniques to reduce fuel loads include grading, mowing, disking, mechanical cutting/crushing, chipping, tree removal, yarding, and creating fire and fuel breaks.

Grading work would occur infrequently as this work is typically needed to create bladed firebreaks. Under the Revised Draft VMP, existing roads and trails would mostly be used as firebreaks. Mowing, mechanical cutting/crushing, use of a masticator, and chipping activities involve minimal compaction, rutting, or tire churning work. The typical depth of ground disturbance associated with these techniques is 6 inches belowground.

Disking is a technique whereby plant material is cut and mixed with surface soil to create a barrier of discontinuous fuel and bare earth to stop fire spread. Disking involves use of a tractor with a tow behind. Disked firebreaks are typically 12 feet wide and result in ground disturbance of up to 1 foot belowground. Yarding is the process of transporting cut trees, or portions thereof, from the cut location to a landing or staging area for subsequent treatment or transport off site. Yarding involves use of a tractor and may result in ground disturbance of 6-12 inches.

The City has used all of the aforementioned mechanical treatment techniques to manage vegetation for fire hazard reduction purposes.

Chemical Techniques (Herbicide)

Chemical techniques involve the use of herbicides to kill vegetation or prevent growth and are typically used in combination with other types of fuel reduction treatments, such as mowing, trimming, pruning, and grazing. Herbicides have a high kill rate and prevent treated plants from setting seed. They can be applied selectively, minimizing impacts to seeds of other species

residing in the soil. Application of herbicides and other chemicals is typically performed by hand and can include sponging, spraying, or dusting chemicals onto unwanted vegetation. Hand application is effective for small treatment areas. The cut-and-daub treatment is another method that is effective for larger highly flammable/rapidly spreading plants, such as large trees and shrubs, to control regrowth and kill the portion of the plant remaining belowground. This treatment method involves cutting the plant stalks or trunks and then directly applying the herbicide with a brush, sponge, or hand sprayer with a cloth tied around the nozzle to the cambium layer of the freshly cut stump or stem. Because there is direct access to the cambium, the amount of herbicide used on each stump is small. This method minimizes the potential for adverse effects associated with herbicide contacting other plants surrounding the treatment area or coming into contact with a water surface. Under the Revised Draft VMP, the City would typically use the cut-and-daub treatment method where large trees have been removed (primarily eucalyptus and acacia). A backpack sprayer would be used to apply herbicides on surface fuels such as French broom, Scotch broom, pampas grass, and jubata grass.

Herbicides must be applied by a licensed and trained professional to ensure proper and safe use, handling, and storage of chemicals to treat vegetation. Herbicides are only applied by a prescription prepared by a licensed pest control advisor in accordance with federal, state, and local regulations and labeled specifications. Typically, 2-3 workers licensed and trained to apply herbicides would conduct this activity.

Herbicides are classified into two general types: pre-emergent and post-emergent. Pre-emergent herbicides are sprayed directly onto the ground and prevent plants from germinating and/or growing. However, pre-emergent herbicides may affect other desired species residing in the soil. Post-emergent herbicides are applied directly onto the plants.

In 2005, the Oakland City Council adopted Resolution 79133, which directed City staff to investigate modifying the City's Integrated Pest Management (IPM) Ordinance to allow the selective use of glyphosate and triclopyr for managing vegetation for wildfire hazard reduction purposes. However, no staff recommendation or environmental review has been completed since that time; thus, herbicides have not yet been used for vegetation management on City-owned property or along roadsides in the Revised Draft VMP area. In the Revised Draft VMP, the City proposes to allow the selective use of glyphosate (Accord or Rodeo formulation)[4], triclopyr, and imazapyr. For more information about the use of glyphosate, see Section 3.8, "Hazards and Hazardous Materials," in Chapter 3 of ~~this~~the prior 2020 DEIR.

~~**Table 2-4**~~**Table 2-5** summarizes the type of herbicides that may be typically applied in late summer/-fall, VMP treatment areas where herbicides may be applied, targeted vegetation types, quantities per acre, maximum quantity used per acre annually, and application frequency.

[4] While use of glyphosate is proposed, some recent studies have indicated that the Roundup formulation of glyphosate may be toxic to humans. Out of an abundance of caution, the Roundup formulation of glyphosate is not proposed for use within the VMP area.

Table 2-5. Summary of Targeted Vegetation Types, VMP Treatment Areas, and Quantities Where Herbicides May Be Used

Targeted Vegetation Type	VMP Treatment Area Where Herbicides May be Used	Quantity Per Acre	Maximum Quantity of Herbicide Used per Acre Annually	Frequency of Herbicide Application
Eucalyptus	BLU-1, BLU-2, BLU-3, DIM-1, GAR-3, GPO-1, GPO-2, GPO-4, JMP-1, JMP-2, JMP-3, JMP-4, KNO-1, KNO-2, KNO-3, KNO-4, KNO-5, LHT-1, LST-1, MEDIAN, MJS-1, MJS-2, NOR-1, NOR-2, NOR-3, OKN-2, PSD-1, PSD-2, SHF-1, SHF-2, SHF-3, SHP-1, SHP-2, SHP-3, SHP-4, URB-1, Roadsides	Glyphosate: 0.94 gallon/acre	Glyphosate: 8 quarts/acre per year Triclopyr: 2 gallons/acre per year Imazapyr: 0.25 gallon/acre per year	2 times per year
French Broom	JMP-1, JMP-2, JMP-3, JMP-4, SHP-1, SHP-2, SHP-3, URB-1, Roadsides, and where observed	Glyphosate: 0.94 gallon/acre	Glyphosate: 8 quarts/acre per year Triclopyr: 2 gallons/acre per year Imazapyr: 0.25 gallon/acre per year	2 times per year
Scotch Broom	JMP-1, JMP-2, JMP-3, JMP-4, SHP-1, SHP-2, SHP-3, URB-1, Roadsides, and where observed	Glyphosate: 0.94 gallon/acre	Glyphosate: 8 quarts/acre per year Triclopyr: 2 gallons/acre per year Imazapyr: 0.25 gallon/acre per year	2 times per year
Acacia	JMP-1, JMP-3, JMP-4, Roadsides	Glyphosate: 0.94 gallon/acre	Glyphosate: 8 quarts/acre per year Triclopyr: 2 gallons/acre per year Imazapyr: 0.25 gallon/acre per year	2 times per year
Pampas Grass	Where observed	Glyphosate: 0.94 gallon/acre	Glyphosate: 8 quarts/acre per year Imazapyr: 0.25 gallon/acre per year	2 times per year
Jubata Grass	Where observed	Glyphosate: 0.94 gallon/acre	Glyphosate: 8 quarts/acre per year	2 times per year

Note: Types of herbicides that may be used at select VMP treatment areas include glyphosate (Accord or Rodeo formulation), triclopyr, and imazapyr.

2.4.7 Equipment Needed for Revised Draft VMP Treatments

Various types of equipment would be needed to conduct the Revised Draft VMP treatment projects. The types of equipment that would be used are listed in ~~Table 2-5~~**Table 2-6** below.

Table 2-66. Types of Equipment Used for VMP Treatments

Vehicle/Equipment Type	Fuel Type	Appliable VMP Treatment Activities
Light duty automobile (car/light truck)	Gasoline	All treatment activities (assumed for workers)
Heavy truck	Gasoline	Manual and mechanical tree/shrub/grass removal
Water truck	Gasoline	Manual and mechanical tree/shrub/grass removal
All-terrain vehicle	Diesel	Goat grazing
Chainsaw	Gasoline	Manual and mechanical tree removal Manual shrub removal
Rotary Mower	Gasoline	Mechanical and manual shrub/grass removal
Small Wheeled Tractor	Diesel	Mechanical shrub removal
Wheeled Tractor	Diesel	Mechanical shrub/grass removal
Crawler Type Tractor	Diesel	Mechanical shrub removal
Weed Whip	Gasoline	Manual grass removal
Skidder	Diesel	Mechanical tree removal
Loader	Diesel	Mechanical tree removal
Chipper	Gasoline	Manual and mechanical tree removal Manual shrub removal
Chipping Equipment	Gasoline	Mechanical shrub removal
Excavator	Diesel	Mechanical shrub removal
Masticator	Diesel	Mechanical tree removal
Feller-buncher	Diesel	Mechanical tree removal

2.4.8 Access to Treatment Areas

Access to Revised Draft VMP treatment areas would occur via existing access roads, City roads, and trails. No new access routes would be created to perform proposed Revised Draft VMP treatment projects.

Most vegetation treatment activities would not require any trail closures. However, depending on the treatment techniques employed, some temporary trail closures may be needed within the following parks/open space areas: Dimond Canyon Park, Garber Park, Joaquin Miller Park, King Estate Open Space Park, Knowland Park and Arboretum, North Oakland Sports Field, Sheffield Village Open Space, and Shepherd Canyon Park. Within most of these areas, limited trail closures could last 1-5 days. However, at North Oakland Sports Field, proposed treatments may require the dirt access road/trail off Skyline Boulevard to be closed 2-4 weeks.

2.4.9 Construction Personnel

The Revised Draft VMP would result in an increase in OFD's current level of maintenance activities within the Revised Draft VMP area above baseline conditions, as described in Section 3.1.2. While the number of personnel to conduct VMP treatment projects would vary year to year, the estimated number of personnel required at each project site is typically 10-15 construction workers and one employee from OFD's Vegetation Management Unit. The maximum number of workers at a given site would be 18 workers. Worker estimates by VMP treatment project are summarized in ~~Table 2-8.~~Table 2-9.

2.4.10 Schedule and Timing for Implementing Revised Draft VMP Treatments

The Revised Draft VMP does not include a specific timeline for conducting proposed vegetation treatment projects identified in Section 2.4.4. The timeline for implementing Revised Draft VMP treatment projects would be dependent upon several variables including results of annual field assessments, targeted vegetation type requiring treatment, and budget available.

Vegetation management activities would occur year-round, as needed, subject to the limitations set forth in the mitigation monitoring and reporting program; however, given the variable nature of vegetation through changes in weather and season, the timing for certain treatments would be confined to specific months for optimization purposes, to reduce the fire danger, and to avoid or minimize impacts to special-status species (e.g., nesting birds). For example, treatments in grasslands should occur when grass cures or dries out. Mechanical removal of vegetation should also be conducted when the weather is not too dry or windy as some mechanical equipment has potential to ignite fires. Additionally, treatments intended to control or avoid the spread of high fire risk plants (e.g., broom, pampas/jubata grass, insect pests) is important. For certain vegetation types, treatment should occur before the timing of seeding of fire-resistant plant species and avoid periods when invasive or highly flammable species are in seed. Table 10 in the Revised Draft VMP summarizes treatment timing considerations for minimizing seed spread of high fire risk plants. Additionally, as described in Section 3.4, *Biological Resources*, the timing of vegetation treatment activities would also take into consideration presence of nesting birds and special-status plant and animal species.

Vegetation management activities would primarily occur during weekdays (Monday through Friday); however, some occasional weekend work may be required.

2.4.11 Amount of Vegetation Management Activities Conducted Annually

For the purposes of this EIR, ~~Table 2-6~~**Table 2-7** summarizes the estimated maximum annual amount of vegetation treatment activities that would occur in a given year (by acreage and technique type). The estimated values in ~~Table 2-6~~Table 2-7 are based on vegetation management activities conducted by the City over the last 15 years. These estimated values would include both initial treatment and maintenance treatments. Maintenance treatments would be similar to initial treatments, and would follow the maintenance standards outlined in Section 2.4.6. Maintenance intervals at individual treatment areas would vary based on the vegetation type, soils, aspect, and initial treatment type. This EIR assumes the City may conduct goat grazing on up to 1,100 acres per year and that a combination of hand labor and mechanical treatment methods would be employed at roadside treatment areas for up to 508~~500~~ acres. Roadside treatment acreages, such as manual grass removal, are included within the individual categories below. Table 2-7 has been revised to incorporate the additional treatment of dead and dying trees in the area from 30 to 100 feet from roadsides, as described in Section 2.4.4.

Table 2-77. Estimated Maximum Areas for Vegetation Treatment Activities

Vegetation Treatment Activities	Maximum Estimated Annual Area (acres)
Manual removal of trees (using chainsaws, chippers)	262~~0~~
Manual removal of shrubs (using chainsaws, rotary mower, chipper)	145
Manual grass removal (rotary mower)	375
Mechanical tree removal (e.g., using feller/buncher, chainsaw, masticator, loader, skidder, chipper)	7~~5~~
Mechanical shrub removal (e.g., using tractor, masticator, rotary mower)	5
Mechanical grass removal (e.g., rotary mower, tractor)	5
Goat grazing	1,100
Herbicide treatment for trees*	20
Herbicide treatment for shrubs*	15
Herbicide treatment for grasses~~*~~**	0
Total	1,698

* * The maximum annual herbicide treatment value for trees was calculated by adding the acreage of proposed tree herbicide treatments identified in Table 2-5 to determine the total acreage of proposed tree herbicide treatment and dividing by 10 to find the annual value. The same process was used for shrubs.

** Herbicide treatment for grasses is proposed only for spot treatment of pampas/jubata grass; this treatment is captured in the "Herbicide treatment for shrubs" category.

2.4.12 Annual Work Plan Development Process

As described in Section 12 of the Revised Draft VMP, OFD would assess vegetation conditions in the Revised Draft VMP area in the winter or early spring months. Under the Revised Draft VMP,

the timing of field assessments would vary each year and would be dependent upon weather conditions such as annual rainfall, number of hot and dry days, etc. The assessments would identify the level of effort necessary to treat vegetation as well as which vegetation management techniques would be most effective. The timing of vegetation management treatments would be determined based on the results of the field assessments. Typically, treatments would begin in the spring and early summer months, but timing may be adjusted according to weather conditions (e.g., temperature, precipitation) or other site-specific factors. Vegetation treatments may also be conducted more than once annually, depending on the site conditions and results of the field assessment. Treatment method selection is dependent upon the dominant vegetation type being treated and on the condition of vegetation observed during field assessments. Note that the treatment methods by treatment area (as described in Section 2.4.4 and ~~Table 2-8~~ Table 2-9) were initially derived based on assessments completed in developing the Revised Draft VMP. Such methods are subject to change based on future field observations.

After conducting field assessments, OFD would develop an annual work plan that identifies priority treatment areas, vegetation treatment techniques, implementation timing, resource needs and availability, funding sources, and monitoring and tracking needs. Following development of the annual work plan, the City will review the work plan with a qualified biologist to identify sensitive resources within the treatment areas. Through this environmental screening process, the City will identify where avoidance and minimization measures will be required to avoid or minimize adverse effects to those resources. Recommended vegetation management treatments would vary by parcel type, as summarized in Section 2.4.3. Treatment areas would be prioritized based on the criteria described in Section 2.4.5. The number of projects identified in the annual work plan would be dependent on factors such as the climatic and hydrology conditions of the current and preceding year, as well as budget. In addition to the priority ranking criteria described in Section 2.4.5, the order in which areas or properties are ranked would be dependent upon the level of hazardous conditions and availability of resources (e.g., areas exhibiting more hazardous conditions would be treated first).

The annual work plan is an internal, working document that may be modified throughout the year due to various factors including field conditions, weather, vegetation growth, contractor or crew completion rates, staff and resource availability, treatment techniques, permit acquisition needs and emergency conditions, among others. As part of the annual work plan development process, OFD would coordinate with local volunteer/park stewardship groups, other City departments, and other agencies or landowners, as appropriate.

2.4.13 Annual Monitoring and Reporting

OFD would monitor and inspect vegetation conditions and treatment activities in the Revised Draft VMP area throughout the year and develop an Annual VMP Report by February 28 summarizing the results of vegetation management activities, monitoring efforts, quantifying the number of parcels inspected and acreage treated, documenting annual expenditures associated with VMP projects completed the prior year, identifying any additional resource needs, and summarizing any pertinent issues identified and addressed during vegetation management activities. The Annual VMP Report would identify any proposed future changes to vegetation management activities conducted in the Revised Draft VMP area and would be submitted to the Oakland City Council for review and comment.

The value of monitoring and adaptive management is the gathering of empirical information from treatment sites (before, during, and after treatment) that can help refine the approaches to vegetation treatment that better meet site-specific project objectives, provide effective wildfire risk reduction, and protect the environment. The Annual VMP Report includes elements that would aid in program implementation, help assess program effectiveness, and provide feedback for adaptive decision-making. Such elements under the Revised Draft VMP include but are not limited to:

- introducing independent science into the Revised Draft VMP activities,
- geospatially tracking later vegetation treatment projects,
- monitoring implementation of techniques and mitigation measures to document compliance, and
- monitoring the effectiveness of treatments in achieving desired fuel conditions and other objectives applicable to a treatment project.

The Annual VMP ~~annual report~~ Report would provide metrics on the implementation performance of the Revised Draft VMP, including but not limited to, the following:

- Actual acreage treated vs. planned treatment acreage identified in the annual work plan. Subdivide treated acreage into two categories: (1) meets treatment standard immediately following treatment; (2) partially meets treatment standard immediately following treatment.
- Hours of annual pre-treatment site assessments performed by OFD.
- Hours of active treatment work inspections performed by OFD.
- Hours of post-treatment monitoring performed by OFD.
- Budget expended on vegetation management and associated tasks.

OFD would track performance of the Revised Draft VMP through geospatial mapping tools. Geospatially mapping of completed VMP treatment projects would support the annual monitoring and reporting process described above.

2.5 ADAPTIVE MANAGEMENT

The Revised Draft VMP would be implemented using an adaptive management approach. The results of the Revised Draft VMP's monitoring efforts contained in the Annual VMP Report would be used to determine which vegetation management activities or techniques are effective or ineffective; if there is a need to change or modify treatment techniques (among those described in Section 2.4.6), if there is a need to adjust the timing, duration, or priority of treatments on a specific property or within the Revised Draft VMP area; among other factors. OFD would document the results of monitoring efforts and make note of recommended changes to vegetation management activities or treatment methods. OFD would use the data contained

in the Annual VMP Report to develop the Annual Work Plan for the subsequent year. If at any time the scope or impacts of the Project go beyond or differ from what is considered in this document, the City will evaluate whether to prepare supplemental environmental documentation under CEQA.

2.6 COORDINATION WITH STAKEHOLDERS AND VOLUNTEER GROUPS

Outreach to stakeholders and volunteer groups was conducted during VMP development, as summarized in Section 6 of the Revised Draft VMP. The Revised Draft VMP recommends continued and ongoing coordination between OFD and local volunteer and stewardship groups that are active in parklands or other portions of the Revised Draft VMP area. The Revised Draft VMP recognizes that effective communication and coordination is the responsibility of both OFD and local stewardship groups, with each making an effort to keep the other party informed and updated.

The following communication protocols ~~are recommended~~ will be implemented to maintain coordination between OFD and local stewardship efforts.

- OFD will identify a point of contact for communication and coordination purposes with local park stewardship groups.
- The Vegetation Management Unit of the Fire Prevention Bureau of OFD will be responsible for this outreach and can be contacted at 510-238-7388 or wildfireprevention@oaklandca.gov.
- Similarly, it is anticipated that each park stewardship group will identify a point of contact for coordination with OFD.
- OFD will maintain an updated list of the points of contact, including names, telephone numbers, and email addresses.
- If there is a change in status regarding the point of contact for either OFD or a local stewardship group, each party is responsible for contacting OFD to update the contact list.

During the annual work plan development process, OFD will reach out to the local park stewardship groups (through the point of contact) to solicit input or feedback on current vegetation management needs in the specific park, as well as potential treatment options, treatment timing, local site conditions, and previous vegetation management efforts conducted on site. This coordination is especially important when a new contractor is selected to conduct vegetation management activities within a park. Coordination with the park stewardship group may include a site visit by OFD and/or the new vegetation management contractor.

When OFD has a clearer understanding of the timing for vegetation management work in a specific park, the OFD point of contact will provide this schedule update to the identified point of contact for that park.

Similarly, volunteer/park stewardship groups must contact OFD prior to implementing vegetation management actions within the Revised Draft VMP area. Key things for local

stewards to update the OFD on include the location and extent of stewardship actions. This is an important step to minimize the potential for steward projects to potentially conflict with City plans or goals for vegetation management.

Volunteers and stakeholder groups that provided input during the Revised Draft VMP development process are identified in Appendix K of the Revised Draft VMP. In addition to the identified stewardship groups in Appendix K of the Revised Draft VMP, the ~~Oakland Wildland Stewards (~~OWLS~~)~~ is a coalition of stewardship groups operating in the Revised Draft VMP area.

2.7 VMP Best Management Practices

The Revised Draft VMP includes BMPs that are intended to avoid or minimize potential impacts associated with vegetation treatments proposed. These are described in Section 10 and Appendix I of the Revised Draft VMP. For the purposes of this Recirculated DEIR, some applicable BMPs are presented as mitigation measures as they are intended to minimize adverse environmental impacts of the Revised Draft VMP.

2.8 Anticipated Permits and Approvals Required for the Revised Draft VMP

~~**Table 2-7**~~**Table 2-8** identifies potential permits and approvals that may be required to implement certain VMP treatment projects or parts of the Revised Draft VMP.

Table 2-8. Anticipated Regulatory Permits, Approvals, and Consultations

Agency	Permit / Approval / Consultation
Federal Agencies	
U.S. Army Corps of Engineers	Clean Water Act Section 404 permit (if any activities result in the discharge of dredged or fill material into jurisdictional waters of the U.S.)
U.S. Fish and Wildlife Service	Endangered Species Act compliance may be required if biological surveys reveal that the project could result in take of a covered species.
State Agencies	
California Department of Transportation	Encroachment permit
California Department of Fish and Wildlife	Trustee agency for the Revised Draft VMP. Approval may be required if there is incidental take of any state-listed species.
Regional	
San Francisco Bay Regional Water Quality Control Board	Section 401 Water Quality Certification and/or Waste Discharge Requirements (for activities that occur within waters of the State)

Agency	Permit / Approval / Consultation
Local	
City of Oakland	Creek Protection Permit for VMP activities within Creekside Properties
	Tree removal permits, as necessary for individual projects
	Grading permits, as necessary for individual projects

Table 2-99. Revised Draft VMP Treatment Projects and Proposed Vegetation Management Techniques

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
Garber Park							
GAR-1	1	Manage vegetation along adjacent roadside (Claremont Ave) and near trailheads, entry points to minimize ignition potential. Treatment should be based on field observations, but not to exceed 30 ft. Trees hanging down on power lines are a fire hazard and should be prioritized for treatment.	TOTAL	1.34			
			Coast Oak Woodland	1.34	Hand labor – grass removal	1	1
GAR-2	1	Manage vegetation within 10 feet of the south and east property boundary line to facilitate firefighter access according to the standards outlined in Section 9.1.	TOTAL	0.48			
			Coast Oak Woodland	0.43	Hand labor – shrub removal	18	1
			Eucalyptus	0.04	Hand labor – tree removal		1
			Coast Oak Woodland	0.43	Hand labor – grass removal	1	1
			Eucalyptus	0.04	Hand labor – grass removal		1
			Freshwater Emergent Wetland	0.01	N/A	N/A	N/A
GAR-3	1		TOTAL	0.66			

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
		To manage fuel loading rates, remove eucalyptus trees from two locations along the southern park boundary, retaining lower fire risk trees.	Eucalyptus	0.66	Mechanical – tree removal	10	1
Grizzly Peak Open Space							
GPO-1	1	Manage vegetation within 100 ft of structures, within 300 feet of ridgelines, and within 30 feet of Tunnel Road and Bay Forest Drive according to maintenance standards in Section 9.1.	TOTAL	28.50		18	
			Closed-cone Pine Cypress	12.29	Hand labor – tree removal		9
			Coast Oak Woodland	1.62	Hand labor – tree removal		1
			Coastal Scrub	10.37	Hand labor – shrub removal		5
			Eucalyptus	2.83	Hand labor – tree removal		2
			Urban	1.43	N/A		
GPO-2	2	Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1.	TOTAL	19.06			
			Closed-cone Pine-Cypress	8.30	Mechanical – tree removal	18	2
			Coastal Scrub	10.43	Mechanical – shrub removal		3
			Eucalyptus	0.34	Mechanical – tree removal		1
			Coast Oak Woodland	1.62	Mechanical – tree removal	18	1

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
GPO-3	3	To reduce fuel loading rates, remove eucalyptus trees and other rapidly spreading species from oak woodlands, retaining lower fire risk trees.	TOTAL	1.62			
			Coast Oak Woodland	1.62	Mechanical – tree removal	18	1
GPO-4	3	Grazing	TOTAL	19.90		1-2	
			Closed-cone Pine-Cypress	7.01	Goat grazing		6
			Coastal Scrub	12.46	Goat grazing		10
			Eucalyptus	0.22	Goat grazing		1
			Urban	0.21	N/A		
Tunnel Road Open Space							
TRO-1	1	Continue to manage vegetation via grazing throughout the property to minimize ignition potential from adjacent roadways.	TOTAL	4.44		1-2	
			Annual Grassland	1.25	Goat grazing		1
			Coast Oak Woodland	2.73	Goat grazing		3
			Urban	0.47	N/A		

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
North Oakland Sports Field							
NOR-1	1	Manage vegetation according to the standards outlined in Section 9.1 in the following locations: within 30 feet of the site's dirt access road, within 300 feet of ridgelines, within 150 feet of the park access gate, and within the existing managed area north of the ball fields and parking areas.	TOTAL	21.51		18	
			Coast Oak Woodland	5.11	Hand labor – tree removal		4
			Coastal Scrub	0.47	Hand labor – shrub removal		1
			Eucalyptus	12.06	Mechanical – tree removal		3
			Urban	3.87	N/A		
NOR-2	2	Given the upper portion of the property's ridgetop location and the potential for ember generation resulting from crown fire, implement thinning recommendations in the property's eucalyptus stand beyond that treated under project NOR-1 according to the standards outlined in Section 9.1.	TOTAL	7.76		10	
			Eucalyptus	7.76	Mechanical – tree removal		2
NOR-3	3	To reduce fuel loading rates, remove eucalyptus trees and other highly flammable/rapidly spreading species from oak woodland communities, retaining lower fire risk trees.	TOTAL	18.65		10	
			Coast Oak Woodland	16.87	Mechanical – tree removal		4
			Coastal Scrub	1.62	Mechanical – shrub removal		1
			Urban	1.16	N/A		

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
Shepherd Canyon Park							
SHP-1	1	Manage vegetation within 100 feet of structures and within 150 feet of the park access gate according to the standards outlined in Section 9.1.	TOTAL	13.23		18	
			Closed-cone Pine-Cypress	0.37	Hand labor – tree removal		1
			Coast Oak Woodland	6.00	Hand labor – tree removal		4
			Eucalyptus	5.93	Hand labor – tree removal		4
			Urban	0.93	N/A		
SHP-2	1	Manage vegetation along adjacent roadsides (Shepherd Canyon Road, Escher Drive, Snake Road, and Bagshotte Drive) to minimize ignition potential. Treatment width should be based on field observations, but not to exceed 30 feet.	TOTAL	9.26		18	
			Closed-cone Pine-Cypress	0.24	Hand labor – tree removal		1
			Coast Oak Woodland	6.58	Hand labor – tree removal		5
			Eucalyptus	2.39	Hand labor – tree removal		2
			Urban	0.05	N/A		
SHP-3	2	Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1.	TOTAL	11.78		18	
			Annual Grassland	0.21	Hand labor – grass removal		1
			Coast Oak Woodland	2.79	Hand labor – tree removal		2
			Eucalyptus	7.31	Mechanical – tree removal		2

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
			Urban	1.48	N/A		
SHP-4	3	Continue to manage vegetation via grazing throughout the remainder of the park to maintain fuel loads. Grazing should be conducted later in the season after perennial grasses go to seed.	TOTAL	20.37		1-2	
			Annual Grassland	1.79	Goat grazing		2
			Closed-cone Pine-Cypress	0.88	Goat grazing		1
			Coast Oak Woodland	16.16	Goat grazing		13
			Eucalyptus	0.98	Goat grazing		1
			Urban	0.56	N/A		
Beaconsfield Canyon							
BCN-1	1	Manage vegetation within 100 feet of structures according to the standards outlined in Section 9.1.	TOTAL	1.67		18	
			Closed-cone Pine-Cypress	0.61	Hand labor – tree removal		1
			Coast Oak Woodland	0.78	Hand labor – tree removal		1
			Coastal Scrub	0.28	Hand labor – shrub removal		1
BCN-2	2	Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1.	TOTAL	1.98		10	
			Closed-cone Pine-Cypress	0.81	Mechanical – tree removal		1
			Coastal Scrub	1.17	Mechanical – shrub removal		1

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
Marjorie Saunders Park							
MJS-1	1	Manage vegetation within 100 feet of structures according to the standards outlined in Section 9.1.	TOTAL	0.87		18	
			Closed-cone Pine-Cypress	0.04	Hand labor – tree removal		1
			Coast Oak Woodland	0.1	Hand labor – tree removal		1
			Eucalyptus	0.72	Hand labor – tree removal		1
MJS-2	2	Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1.	TOTAL	1.81		10	
			Closed-cone Pine-Cypress	0.15	Mechanical – tree removal		1
			Eucalyptus	1.66	Mechanical – tree removal		1
Dimond Canyon Park							
DIM-1	1	Manage vegetation along adjacent roadsides (Park Boulevard, Monterey Boulevard, Leimert Boulevard, El Centro Avenue) and near trailheads/entry points to minimize ignition potential. Treatment width should be based on field observations, but not to exceed 30 feet.	TOTAL	3.42		18	
			Coast Oak Woodland	2.21	Hand labor – tree removal		2
			Eucalyptus	0.06	Hand labor – tree removal		1
			Redwood	0.18	Hand labor – tree removal		1
			Urban	0.97	N/A		

Revised Draft VMP Treatment Project No.	**Priority**	**Management Actions**	**Dominant Vegetation Type**	**Acres**	**Proposed Vegetation Management Technique**	**Maximum No. Maintenance Personnel**	**Duration of Vegetation Management Activities (est. days)**
DIM-2	1	Manage vegetation within 10 feet of property boundary lines where the park abuts residential structures to facilitate firefighter access according to the standards outlined in Section 9.1.	TOTAL	2.47		18	
			Coast Oak Woodland	2.18	Hand labor – tree removal		2
			Coastal Scrub	0.03	Hand labor – tree removal		1
			Urban	0.25	N/A		
DIM-3	1	Manage vegetation within 10 feet of property boundary lines where the park abuts residential structures to facilitate firefighter access according to the standards outlined in Section 9.1.	TOTAL	0.68		18	
			Urban	0.68	Hand labor – tree removal		1

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
Joaquin Miller Park							
JMP-1	1	Manage vegetation within 100 feet of on and off-site structures, within 300 feet of ridgelines, within 150 feet of park access gates and within 30 feet of known human congregation/activity areas along Skyline Boulevard and the top of Woodside Glen Court according to the standards outlined in Section 9.1.	TOTAL	117.32		18	
			Annual Grassland	6.06	Hand labor – grass removal		1
			Closed-cone Pine-Cypress	56.37	Hand labor – tree removal		38
			Coast Oak Woodland	15.62	Hand labor – tree removal		11
			Coastal Scrub	0.72	Hand labor – shrub removal		1
			Eucalyptus	17.73	Hand labor – tree removal		12
			Freshwater Emergent Wetland	0.10	N/A		
			Redwood	9.52	Hand labor – tree removal		7
			Urban	9.20	N/A		
			Urban (acacia)	0.94	Hand labor – tree removal		1
			Urban (mixed)	0.83	Hand labor – tree removal		1
			Valley/foothill Riparian	0.22	N/A		1

Revised Draft VMP Treatment Project No.	**Priority**	**Management Actions**	**Dominant Vegetation Type**	**Acres**	**Proposed Vegetation Management Technique**	**Maximum No. Maintenance Personnel**	**Duration of Vegetation Management Activities (est. days)**
JMP-2	1	Manage vegetation along adjacent roadsides (Joaquin Miller Road, Skyline Boulevard, and Mountain Boulevard). Treatment width should be based on field observations, but not to exceed 30 feet.	TOTAL	18.23		18	
			Annual Grassland	0.36	Hand labor – grass removal		1
			Closed-cone Pine-Cypress	6.14	Hand labor – tree removal		5
			Coast Oak Woodland	2.60	Hand labor – tree removal		2
			Eucalyptus	2.68	Hand labor – tree removal		2
			Redwood	4.05	Hand labor – tree removal		3
			Urban	2.06	N/A		1
			Urban (mixed)	0.34	N/A		5

Revised Draft VMP Treatment Project No.	**Priority**	**Management Actions**	**Dominant Vegetation Type**	**Acres**	**Proposed Vegetation Management Technique**	**Maximum No. Maintenance Personnel**	**Duration of Vegetation Management Activities (est. days)**
JMP-3	2	Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1.	TOTAL	13.82		18	
			Annual Grassland	0.12	Mechanical – grass		1
			Closed-cone Pine-Cypress	3.52	Mechanical – tree removal		1
			Coast Oak Woodland	1.05	Hand labor – tree removal		1
			Coastal Scrub	1.95	Mechanical – shrub		1
			Eucalyptus	2.88	Mechanical – tree removal		1
			Redwood	0.01	Mechanical – tree removal		1
			Urban	0.03	N/A		
			Urban (acacia)	2.25	Mechanical – tree removal		1
			Urban (mixed)	2.00	Hand labor – tree removal		2

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
JMP-4	3	Continue to manage vegetation via grazing in flashy fuel areas to maintain fuel loads	TOTAL	68.31		18	
			Annual Grassland	8.53	Goat grazing		7
			Closed-cone Pine-Cypress	13.81	Goat grazing		11
			Coast Oak Woodland	14.11	Goat grazing		11
			Coastal Scrub	0.62	Goat grazing		1
			Eucalyptus	6.33	Goat grazing		5
			Redwood	5.62	Goat grazing		5
			Urban	17.06	Goat grazing		14
			Urban (acacia)	1.73	Goat grazing		2
			Urban (mixed)	0.5	Goat grazing		1
Leona Heights Park							
LHT-1	1	Manage vegetation within 100 feet of structures, within 300 feet of ridgelines, and within the current 9-acre management area according to the standards outlined in Section 9.1.	TOTAL	13.57		18	
			Annual Grassland	0.28	Hand labor – grass removal		1
			Coast Oak Woodland	7.07	Hand labor – tree removal		5
			Eucalyptus	2.08	Hand labor – tree removal		2
			Redwood	3.74	Hand labor – tree removal		3

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
			Urban	0.41	N/A		
LHT-2	1	Manage vegetation along adjacent roadside (Campus Drive) to minimize ignition potential. Treatment width should be based on field observations, but not to exceed 30 feet.	TOTAL	1.86		18	
			Coast Oak Woodland	1.14	Hand labor – tree removal		1
			Redwood	0.39	Hand labor – tree removal		1
			Urban	0.33	N/A		
LHT-3	2	Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1.	TOTAL	3.78		18	
			Coast Oak Woodland	3.49	Hand labor – tree removal		3
			Redwood	0.29	Hand labor – tree removal		1
McDonnell Avenue							
MCD-1	1	Manage vegetation within 100 feet of structures according to the standards outlined in Section 9.1.	TOTAL	0.95		18	
			Coast Oak Woodland	0.55	Hand labor – tree removal		1
			Urban	0.40	N/A		
Police/Safety Department Property							
PSD-1	1	Manage vegetation within 100 feet of structures according to the standards outlined in Section 9.1.	TOTAL	7.17		18	
			Eucalyptus	4.27	Hand labor – tree removal		3
			Urban	2.90	N/A		

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
PSD-2	1	Manage vegetation along adjacent roadside (Mountain Boulevard). Treatment width should be based on field observations, but not to exceed 30 feet.	TOTAL	0.54		18	
			Eucalyptus	0.54	Hand labor – tree removal		
Leona Street							
LST-1	1	Manage vegetation within 100 feet of structures according to the standards outlined in Section 9.1	TOTAL	0.38		18	
			Coast Oak Woodland	0.16	Hand labor – tree removal		1
			Eucalyptus	0.22	Hand labor – tree removal		1
Blue Rock Court							
BLU-1	1	Manage vegetation within 100 feet of structures and within 30 feet of fire access road along southern property edge according to the standards outlined in Section 9.1.	TOTAL	2.40		18	
			Annual Grassland	2.75	Hand labor – grass removal		1
			Coast Oak Woodland	0.32	Hand labor – tree removal		1
			Eucalyptus	1.28	Hand labor – tree removal		1
			Urban	0.04	N/A		
BLU-2	2	Implement brush and tree thinning recommendations in areas exhibiting extreme fire behavior and within 300 feet of structures according to the standards outlined in Section 9.1.	TOTAL	0.47		18	
			Eucalyptus	0.45	Mechanical – tree removal		1
			Urban	0.02	N/A		

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
BLU-3	3	Implement thinning recommendations in the property's eucalyptus stand beyond that treated under project BLU-2 according to the standards outlined in Section 9.1.	TOTAL	6.35		18	
			Annual Grassland	0.01	N/A		
			Coast Oak Woodland	0.11	Hand labor – tree removal		1
			Eucalyptus	6.24	Mechanical – tree removal		2
Oak Knoll							
OKN-1	1	Manage vegetation within 100 feet of structures according to the standards outlined in Section 9.1.	TOTAL	1.23		18	
			Annual Grassland	0.18	Hand labor – grass removal		1
			Coast Oak Woodland	0.28	Hand labor – tree removal		1
			Urban	0.77	N/A		
OKN-2	3	Continue to manage vegetation via grazing throughout the remainder of the park to maintain fuel loads and minimize ignition potential.	TOTAL	14.51		1-2	
			Annual Grassland	2.75	Goat grazing		3
			Coast Oak Woodland	0.15	Goat grazing		1
			Eucalyptus	1.28	Goat grazing		1
			Urban	10.33	N/A		

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
King Estate Open Space Park							
KES-1	1	Manage vegetation within 100 feet of structures, within 150 feet of park access gates, and within 30 feet of Fontaine Street and Crest Avenue according to the standards outlined in Section 9.1.	TOTAL	15.57		18	
			Annual Grassland	8.99	Mechanical – grass		2
			Coast Oak Woodland	3.81	Hand labor – tree removal		3
			Coastal Scrub	0.04	Hand labor – shrub removal		1
			Urban	2.73	N/A		
KES-2	3	Continue to manage vegetation via grazing throughout the remainder of the park to maintain fuel loads and minimize ignition potential, particularly prior to the 4th of July holiday.	TOTAL	65.63		18	
			Annual Grassland	52.07	Goat grazing		41
			Coast Oak Woodland	8.19	Goat grazing		2
			Coastal Scrub	4.23	Goat grazing		4
			Urban	1.14	N/A		

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
Knowland Park and Arboretum							
KNO-1	1	Manage vegetation within 100 feet of structures, within 150 feet of park access gates, and within 300 feet of ridgelines, which encompasses the area within 30 feet of known human congregation/activity areas along Skyline Boulevard according to the standards outlined in Section 9.1.	TOTAL	28.43		18	
			Annual Grassland	10.16	Mechanical – grass		2
			Closed-cone Pine-Cypress	1.43	Hand labor – tree removal		1
			Coast Oak Woodland	5.66	Hand labor – tree removal		4
			Coastal Scrub	3.16	Hand labor – shrub removal		2
			Eucalyptus	2.71	Hand labor – tree removal		2
			Perennial Grassland	0.02	Hand labor – grass removal		1
			Urban	5.28	N/A		
KNO-2	1	Manage vegetation along adjacent roadside (Golf Links Road). Treatment width should be based on field observations, but not to exceed 30 feet.	TOTAL	8.39		18	
			Annual Grassland	0.64	Hand labor – grass removal		1
			Coast Oak Woodland	6.12	Hand labor – tree removal		5
			Coastal Scrub	0.49	Hand labor – shrub removal		1
			Eucalyptus	0.56	Hand labor – tree removal		1
			Urban	0.58	N/A		

Revised Draft VMP Treatment Project No.	**Priority**	**Management Actions**	**Dominant Vegetation Type**	**Acres**	**Proposed Vegetation Management Technique**	**Maximum No. Maintenance Personnel**	**Duration of Vegetation Management Activities (est. days)**
KNO-3	2	Manage vegetation within 300 feet of structures in areas that exhibit extreme fire behavior according to the standards outlined in Section 9.1.	TOTAL	14.01		18	
			Annual Grassland	0.10	Hand labor – grass removal		1
			Closed-cone Pine-Cypress	0.02	Hand labor – tree removal		1
			Coast Oak Woodland	3.22	Hand labor – tree removal		3
			Coastal Scrub	10.65	Hand labor – shrub removal		5
KNO-4	2	Manage vegetation within 100 feet of on-site structures in the zoo portion of the property and within 100 feet of the zoo/open space interface to minimize ignition potential and modify potential fire behavior near this developed portion of the property.	TOTAL	32.10		18	
			Annual Grassland	2.29	Mechanical – grass		1
			Coast Oak Woodland	2.11	Hand labor – tree removal		2
			Eucalyptus	0.26	Hand labor – tree removal		1
			Urban	27.44	N/A		

Revised Draft VMP Treatment Project No.	**Priority**	**Management Actions**	**Dominant Vegetation Type**	**Acres**	**Proposed Vegetation Management Technique**	**Maximum No. Maintenance Personnel**	**Duration of Vegetation Management Activities (est. days)**
KNO-5	3	Continue to manage vegetation via grazing throughout the remainder of the park to maintain fuel loads.	TOTAL	368.13		18	
			Annual Grassland	87.92	Goat grazing		69
			Closed-cone Pine-Cypress	7.61	Goat grazing		6
			Coast Oak Woodland	144.34	Goat grazing		112
			Coastal Scrub	47.45	Goat grazing		37
			Eucalyptus	8.54	Goat grazing		7
			Freshwater Emergent Wetland	0.17	N/A		
			Mixed Chaparral	7.92	Goat grazing		7
			Perennial Grassland	12.51	Goat grazing		10
			Redwood	0.18	Goat grazing		1
			Urban	51.48	N/A		

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
Sheffield Village Open Space							
SHF-1	1	Manage vegetation within 100 feet of structures, including those in the Dunsmuir Estates portion of the property, and within 150 feet of park access gates, according to the standards outlined in Section 9.1.	TOTAL	23.92		18	
			Annual Grassland	1.60	Hand labor – grass removal		1
			Closed-cone Pine-Cypress	0.15	Hand labor – tree removal		1
			Coast Oak Woodland	5.17	Hand labor – tree removal		4
			Coastal Scrub	1.20	Hand labor – shrub removal		1
			Eucalyptus	3.32	Hand labor – tree removal		3
			Perennial Grassland	0.04	Hand labor – grass removal		1
			Urban	12.45	N/A		
SHF-2	2	Manage vegetation within 300 feet of structures in areas that exhibit extreme fire behavior according to the standards outlined in Section 9.1.	TOTAL	6.14		18	
			Annual Grassland	0.02	Hand labor – grass removal		1
			Coast Oak Woodland	1.83	Hand labor – tree removal		2
			Coastal Scrub	3.70	Hand labor – shrub removal		2
			Eucalyptus	0.08	Hand labor – tree removal		1
			Urban	0.51	N/A		

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
SHF-3	3	Continue to manage vegetation via grazing throughout the remainder of the park to maintain fuel loads.	TOTAL	288.34		18	
			Annual Grassland	57.04	Goat grazing		45
			Closed-cone Pine-Cypress	5.74	Goat grazing		5
			Coast Oak Woodland	129.35	Goat grazing		101
			Coastal Scrub	53.85	Goat grazing		42
			Eucalyptus	21.80	Goat grazing		17
			Perennial Grassland	0.81	Goat grazing		1
			Urban	19.76	N/A		
Urban and Residential Parcels							
URB-1	1	Maintain vegetation within the entirety of all urban and residential parcels according to standards in Section 9.1.	TOTAL	47.50		18	
			Annual Grassland		Hand labor – grass removal		1
			Closed-cone Pine-Cypress		Hand labor – tree removal		6
			Coast Oak Woodland		Hand labor – tree removal		11
			Coastal Scrub		Hand labor – shrub removal		1

Revised Draft VMP Treatment Project No.	Priority	Management Actions	Dominant Vegetation Type	Acres	Proposed Vegetation Management Technique	Maximum No. Maintenance Personnel	Duration of Vegetation Management Activities (est. days)
Medians							
MEDIAN	1	Management includes reducing ladder fuels, controlling rapidly spreading species (e.g., broom), maintaining fuel loads, reducing surface fuels (e.g., grasses, weeds), and pruning tree canopies for vertical clearance.	TOTAL	5.66		18	
			Annual Grassland	0.93	Hand labor – grass removal		1
			Closed-Cone Pine-Cypress	0.53	Hand labor – tree removal		1
			Coast Oak Woodland	1.22	Hand labor – tree removal		1
			Eucalyptus	0.02	Hand labor – tree removal		1
			Urban	2.97	N/A		

Chapter 3
Environmental Setting, Impacts, and Mitigation Measures

3.1 OVERVIEW

This chapter contains the revised and recirculated sections of the DEIR (the Recirculated DEIR). As described in Chapter 1, revisions are shown in underline (to indicate additions) and strikeout (to show ~~deletions~~). Note that some headers are shown in underline formatting that are not additions. This Recirculated DEIR retains the same section numbering as the prior 2020 DEIR, and sections that have not been revised are indicated with the following text: "This section has not been revised; see prior 2020 DEIR."

The recirculated sections within ~~Sections 3.2 through 3.14 of~~ this chapter describe the environmental resources and potential environmental impacts of the Revised Draft VMP. Each section describes the existing environmental setting and background information for a particular resource topic to help the reader understand the conditions that could be affected by the Revised Draft VMP. In addition, each section in Chapter 3 includes a discussion of the criteria used to determine the significance levels of the Revised Draft VMP's environmental impacts. If appropriate, mitigation measures are identified to reduce, where possible, the adverse effects of significant impacts.

3.1.1 Significance of Environmental Impacts

According to the CEQA statutes and guidelines, an EIR should define the threshold of significance and explain the criteria used to determine whether an impact is above or below that threshold. For each environmental resource topic, significance criteria are identified to determine whether implementation of the proposed program would result in a significant environmental impact when evaluated against the baseline condition, as described in the environmental setting. The significance criteria vary depending on the environmental resource topic. In general, effects can be either significant or potentially significant (exceed the threshold) or less than significant (do not exceed the threshold). In some cases, a significant impact will be identified as significant and unavoidable if no feasible mitigation measures are available that would reduce the impact to a less-than-significant level. If a project is subsequently adopted despite identified significant impacts that would result from the project, CEQA requires the lead agency to prepare and adopt a statement of overriding considerations describing the social, economic, and other reasons for moving forward with the project despite its significant impacts.

Impact Terminology and Use of Language in CEQA

This Recirculated DEIR uses the following terminology to describe environmental effects of the Revised Draft VMP:

- A finding of *no impact* is made when the analysis concludes that the Revised Draft VMP would not affect the particular environmental resource or issue.
- An impact is considered *less than significant* if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation is needed.
- An impact is considered *significant* or *potentially significant* if the analysis concludes that there would be, or could be, a substantial adverse effect on the environment.
- An impact is considered *less than significant with mitigation* if the analysis concludes that there would be no substantial adverse change in the environment with the inclusion of the mitigation measures described.
- An impact is considered *significant and unavoidable* if the analysis concludes that there could be a substantial adverse effect on the environment and that, even with the inclusion of feasible mitigation measures, the impact would not be reduced to a less-than-significant level.
- *Mitigation* refers to specific measures or activities adopted to avoid, minimize, rectify, reduce, eliminate, or compensate for an impact.
- A *cumulative impact* can result when a change in the environment results from the incremental impact of a project when added to other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively substantial projects. The cumulative impact analysis in this DEIR (provided in Section 4.5 of Chapter 4) focuses on whether the Revised Draft VMP's incremental contribution to significant cumulative impacts caused by past, present, or probable future projects is cumulatively considerable (i.e., significant).
- Because the term "significant" has a specific usage in evaluating impacts under CEQA, it is used only to describe the level of significance of impacts and is not used in other contexts within this document. Synonyms such as "substantial" have been used when not discussing the significance of an environmental impact.

Format of Impact Titles

Impact titles are formatted to summarize information about the impact, as follows:

Impact TOPIC-#: Impact Title (*Impact Conclusion*)

These terms are further described as follows:

- **TOPIC:** an abbreviation of the resource topic to which the impact applies (e.g., AES for aesthetics). The reader can determine the impact's resource topic by reading the impact title.
- **#:** impacts are numbered sequentially
- **Impact Title:** provides a brief text description of the impact. The reader can determine the specific issue that the impact discussion is addressing.
- **Impact Conclusion:** identifies the level of impact, with the five possibilities being No Impact, Less than Significant, Less than Significant with Mitigation, Significant and Unavoidable, or Beneficial. The reader can determine the impact's significance by reading the impact title.

3.1.2 Baseline Conditions

Under CEQA, the environmental setting or "baseline" serves as a gauge to assess changes to existing physical conditions that would occur as a result of a proposed project. According to ~~State~~ the CEQA Guidelines (Cal. Code Regs., tit. 14, Section 15125), for purposes of an EIR, the environmental setting is generally the existing physical conditions at the project site or in the ~~project~~ Revised Draft VMP area at the time the NOP is published. While recent changes in the CEQA Guidelines have enabled the alternative use of a future projected or historic baseline; such alternative baselines are intended to apply to unique situations.

It is important to note that certain activities that are part of the Revised Draft VMP have been undertaken on an ongoing basis for some time. As described in Chapter 2, Section 2.3.1, OFD conducted vegetation management activities throughout the WPAD, a City-funded special assessment district that coincides with the City's VHFHSZ and financed various vegetation management activities throughout the Oakland hills. WPAD-funded vegetation management activities occurred between 2005 and 2018; since 2018, fewer vegetation management activities have occurred on City properties. For the purposes of this ~~EIR~~ Recirculated DEIR, the baseline condition takes into consideration the range of vegetation management activities (type and amount) that has occurred annually between 2005 and 2018. **Table 3.1-1** below summarizes the approximate range of vegetation management activities that have occurred throughout the Revised Draft VMP area between 2005 and 2018.

Table 3.1-1. Summary of Vegetation Management Activities Conducted between 2005 and 2018

Vegetation Management Activities	Acres of Treatment					
	Fiscal Year (FY) 2005-06 to FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
Goat Grazing	600-700	900	900	900	1,100	1,100
Roadside and Urban/ Residential Parcel Treatments using Hand Labor and Mechanical Treatment Techniques	400-500	367	227	152	152	152

Source: City of Oakland pers. comm., 2020.

For the purposes of this DEIR, the baseline condition is considered the average amount of vegetation management activities conducted annually ~~over the last 15 years~~ between 2005 and 2018: approximately 900 acres of goat grazing and 400 acres of roadside treatment and other activities using a combination of hand labor and mechanical techniques. The impact analyses in this DEIR focus on new, additional, or different activities from the baseline activities that represent a marked difference from the baseline condition. Thus, the Recirculated DEIR focuses on the incremental change or effects from baseline conditions resulting from the Revised Draft VMP.

3.1.3 Sections Eliminated from Further Analysis

Six resource topics have been eliminated from further analysis based on the nature and scope of the Revised Draft VMP activities. A brief summary and description of these resource topics dismissed from further review is provided below.

Agriculture and Forestry

The Revised Draft VMP area consists entirely of land designated as "urban and built-up" or "other land" (California Department of Conservation [CDOC] 2018). No Williamson Act contract lands are included in the Revised Draft VMP area (Bay Area Open Space Council 2011). Implementation of the Revised Draft VMP would not convert Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to a non-agricultural use. Agricultural activities and plant nurseries are permitted uses with limitations or a conditional use permit in most areas of the City. However, the "Earth Resources" section of the General Plan Open Space, Conservation, and Recreation Element indicates that "large-scale agriculture is no longer feasible in Oakland due to its urbanized character" (City of Oakland 1998). Activities conducted under the Revised Draft VMP would take place exclusively on City-owned properties, none of which are agricultural. Therefore, the Revised Draft VMP would not conflict with existing zoning for agricultural uses.

While portions of the Revised Draft VMP area includes forested fuel types, the Revised Draft VMP would not convert any forest areas to non-forest types or uses. Thus, the Revised Draft VMP would not result in adverse effects related to forestry criteria identified in Appendix G of the CEQA Guidelines. Tree removal and treatment of tree/-woodland/forest fuels in the Revised Draft VMP area are addressed in Section 3.2, *Aesthetics*; Section 3.4, *Biological Resources*; and Section 3.7, *Greenhouse Gas Emissions, Climate Change, and Energy.*

Based on the above discussion, no impacts on agriculture and forestry resources would occur and this topic is not evaluated further in this ~~EIR~~ Recirculated DEIR.

Land Use and Planning

The City has various land use plans and policies adopted for the purpose of avoiding or mitigating environmental effects. The City's General Plan (1998) addresses topics such as open space, conservation, and recreation; public safety; and hazards, including policies related to fire safety and reduction of wildfire risk. ~~As described in Chapter 2 of this EIR~~ At the time of developing this Recirculated DEIR the City of Oakland was updating its General Plan, but that process was not completed at the time that this Recirculated DEIR was developed. This document therefore relies on the existing 1998 General Plan. As described in Chapter 2 of this Recirculated DEIR, conducting vegetation management for the purposes of maintaining defensible space is required on properties within the VHFHSZ portion of the City (refer to Fire Code Section 4907 of the Oakland Municipal Code Chapter 15.12). Development of a vegetation management program such as the Revised Draft VMP supports compliance with Fire Code Section 4907.

The City also relies on other planning documents to guide public safety and hazard reduction. These include the ~~2016-2021~~ *City of Oakland ~~Local~~2021-2026 Hazard Mitigation Plan* (~~City of~~

~~Oakland 2016~~Tetra Tech2021), which identifies mitigation actions to reduce fire risk and wildfire hazard; and the *Oakland Annex to the 2010 ABAG Local Hazard Mitigation Plan – Taming Natural Disasters* (City of Oakland 2012), which lists regional mitigation strategies and prioritizes them for implementation in Oakland.

In 1997, the City adopted an Integrated Pest Management (IPM) Policy that limits the use of pesticides to manage pest problems on City-owned property. In 2005, the City adopted Resolution 79133 authorizing staff to evaluate an additional exemption from the IPM Policy that would permit the use of glyphosate and triclopyr on City-owned land within the WPAD to "improve fire prevention and reduce wild land fuels in a cost effective and environmentally sensitive way." The revised herbicide policy is part of the project being evaluated in this ~~EIR~~ Recirculated DEIR.

Based on the above discussion, no impacts on land use and planning would occur and this topic is not evaluated further in this ~~EIR~~ Recirculated DEIR.

Mineral Resources

Mining and quarrying activities for commercially valuable resources have taken place in Oakland, and extraction and quarrying are permitted uses in General Industrial and Manufacturing zoning designations with limitations and/or a conditional use permit. Only one quarry remains in operation, however. This operation has been designated a "Regionally Significant ~~Constriction~~ Construction Aggregate Resource" by the State Mining and Geology Board (City of Oakland 1998). This site is not located within the Revised Draft VMP area, and activities conducted under the Revised Draft VMP would not prevent similar operations from continuing. Therefore, no impacts on mineral resources would occur and this topic is not evaluated further in this ~~EIR~~ Recirculated DEIR.

Population and Housing

The Revised Draft VMP would not involve the construction of new housing or generate any long-term employment opportunities that could cause substantial population growth. Vegetation management activities would be conducted by contracted workers who would be employed temporarily in the Revised Draft VMP area. Because these jobs would likely be filled by the local work force, the Revised Draft VMP would not directly induce unplanned population growth related to new long-term employment opportunities. Further, the Revised Draft VMP would not result in the construction of new roads or trails that would indirectly induce population growth.

Although vegetation management activities would occur near residences throughout the Revised Draft VMP area, no residents would be displaced by the Revised Draft VMP, either temporarily or permanently. Rather, as the Revised Draft VMP is intended to minimize wildfire hazards, the Revised Draft VMP would help protect existing housing in the Revised Draft VMP area and surrounding areas, reduce the effect of housing loss, and limit the future displacement of residents adjacent to the Revised Draft VMP area in the event a catastrophic wildland fire occurred. This is considered an indirect beneficial effect of the Revised Draft VMP. Therefore, the Revised Draft VMP would not displace existing housing or people, such that replacement housing would be needed elsewhere. As such, no impacts related to housing displacement would occur, and this topic is not evaluated further in this ~~EIR~~ Recirculated DEIR.

Public Services

The Revised Draft VMP does not involve construction of new or physically altered governmental facilities and no additional new or physically altered governmental facilities would be required to conduct proposed vegetation management activities. OFD and Oakland Police Department would continue to provide fire and police protection services throughout the Revised Draft VMP area. Implementation of the proposed vegetation treatment projects described in the Revised Draft VMP and summarized in Chapter 2, *Project Description,* would not require additional police or fire protection services such that acceptable service ratios could not be maintained. Rather, as one of the primary goals for the Revised Draft VMP is to reduce wildfire hazards along critical access/egress routes, conducting proposed vegetation management treatment projects along these routes would help ensure fire response times are maintained along these same routes in the long-term.

Additionally, because the Revised Draft VMP would not induce population growth which could lead to an increase in student enrollment in public schools, the Revised Draft VMP would not require construction of new schools or result in Oakland public school capacities being exceeded. As such, there would be no impact on public services, and this topic is not evaluated further in this ~~EIR~~ Recirculated DEIR.

Utilities and Service Systems

The Revised Draft VMP is limited to vegetation management activities and would not result in the construction of any new permanent structures that would generate wastewater, require wastewater treatment, or generate additional stormwater runoff. Proposed vegetation management activities would also not require large amounts of water or produce large amounts of wastewater. Only a minimal amount of water would be required for dust control purposes and a limited amount of wastewater treatment would be required for treating sewage generated by contractors conducting the work. Similar to other construction projects, port-a-potties would be used onsite and generated wastewater would be treated at a local wastewater treatment facility. Therefore, the Revised Draft VMP would not result in the construction of new or expanded water, wastewater treatment or storm drainage, electric power, natural gas, or telecommunications facilities such that an adverse environmental effect would occur.

Additionally, most vegetation treatment activities would occur entirely aboveground (i.e., no excavation below the ground surface) and thus not disrupt belowground utilities such that relocation would be required. It is possible that some tree removal activities could involve more extensive ground disturbance that could affect belowground utilities. However, as standard practice, the City and/or its contractor(s) would contact Underground Service Alert (USA) North 811 prior to any excavation activities to confirm presence of any belowground utilities. In doing so, the City's contractor(s) would avoid potential adverse effects (including relocation) of existing belowground utilities.

For the reasons described above, impacts on utilities and service systems would be less than significant and this topic is not analyzed further in this Recirculated DEIR~~EIR~~.

3.1.4 Sections Not Recirculated

Six resource topics that were analyzed in the prior 2020 DEIR did not require revision, and therefore they are not included in this Recirculated DEIR. A brief summary and description of why recirculation of these sections is not required is provided below.

Section 3.5, Cultural Resources

The areas on City-owned property within 30-100 feet from roadways where dead and dying trees could be removed were previously analyzed for potential cultural resources, and the changes to the vegetation treatment standards would not result in the potential for new or more severe impacts to cultural resources. The mitigation measures identified in the prior 2020 DEIR are sufficient to reduce the impact to a less-than-significant level. Therefore, the analysis of cultural resources impacts does not require revision.

Section 3.8, Hazards and Hazardous Emissions

The areas on City-owned property within 30-100 feet from roadways where dead and dying trees could be removed were previously analyzed for known hazardous materials sites. The changes to the vegetation treatment standards would not result in the potential for new or more severe impacts related to hazards and hazardous emissions. The removal of dead and dying trees along roadways would have a beneficial effect on emergency response and evacuation by minimizing the potential for such trees to block emergency access/egress routes. The mitigation measures identified in the prior 2020 DEIR are sufficient to reduce the impact to a less-than-significant level. Therefore, the analysis of impacts related to hazards and hazardous materials does not require revision.

Section 3.10, Noise and Vibration

The changes to the project would not result in the potential for new or more severe impacts related to noise and vibration. The analysis in the prior 2020 DEIR identified a significant and unavoidable impact related to the use of noise-producing equipment in close proximity to residences and other sensitive receptors. The mitigation measures identified in the prior 2020 DEIR would mitigate the impact, but not to a less-than-significant level. However, the changes to the project would not increase the severity of the impact evaluated in the prior 2020 DEIR. Therefore, the analysis of noise and vibration impacts does not require revision.

Section 3.13, Tribal Cultural Resources

The changes to the project would not result in the potential for new or more severe impacts related to tribal cultural resources. No tribal cultural resources have been reported within the Revised Draft VMP area by the Native American Heritage Commission, and none of the contacted tribes have provided information about tribal cultural resources; therefore, there would be no impact on such resources. The mitigation measures identified in the prior 2020 DEIR are sufficient to reduce the impact to a less-than-significant level. Therefore, the analysis of impacts on tribal cultural resources does not require revision.

Section 3.14, Wildfire

The removal of dead and dying trees on City-owned property within 30-100 feet from roadways and changes to the vegetation treatment standards would not substantially increase the potential for impacts related to wildfire, and would further minimize the wildfire hazard within the Revised Draft VMP area. The mitigation measures identified in the prior 2020 DEIR are sufficient to reduce the impact to a less-than-significant level. Therefore, the analysis of wildfire impacts does not require revision.

3.2 AESTHETICS

This section addresses the existing visual resources within the area potentially affected by the Revised Draft VMP and the pertinent local and state plans and policies related to the protection of visual and scenic resources. This section evaluates the potential effects of the Revised Draft VMP on aesthetic resources, including views from designated scenic highways, scenic areas, and public view corridors.

3.2.1 Environmental Setting

Definitions

When evaluating the impacts of vegetation treatments on the visual environment, the focus is on three overarching parameters: existing visual conditions; how these would be altered by implementing a treatment; and the significance of the change on scenic qualities of the landscape and publicly available viewpoints. Visual resources considered in an evaluation include those features in the natural and cultural landscapes that comprise the visible world and contribute to a person's understanding of and reaction to the scene before them. Visual resources include both natural elements, such as topography, vegetation, and water, and constructed features, such as earthworks, roads, and structures.

This visual analysis considers visual character, visual quality, and viewer sensitivity. Visual quality of treatment areas and viewer sensitivity have been ranked as being high to low. These elements of the visual analysis methodology are described below. Visual change is another term used throughout this analysis, and is described 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.

- Visual quality is the intrinsic appeal of a landscape or scene and the associated public value attributed to the resource. A high rating is generally reserved for landscapes viewers might describe as "picture perfect." Landscapes rated high generally are memorable because of the way the components combine in a visual pattern. In addition, those landscapes are free from encroaching elements that would compromise the landscapes' visual integrity. In contrast, landscapes rated low often are dominated by visually discordant alterations that have been introduced by humans. Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by viewer sensitivity. High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity.

    - **Vividness:** The extent to which the landscape is memorable. This is associated with the distinctiveness, diversity, and contrast of visual elements. A vivid landscape makes an immediate and lasting impression on the viewer.

  - **Intactness:** The integrity of "visual order" in the landscape, which is the extent to which the natural landscape is free from visual intrusions. If all the various elements of a landscape appear to "belong" together, there will be a high level of intactness.

  - **Unity:** The extent to which visual intrusions are sensitive to and in visual harmony with the natural landscape. Unity, in other words, represents the degree to which the visual elements maintain a coherent visual pattern.

- Viewer sensitivity reflects the level of interest or concern that viewers have for a particular visual resource, with visual quality taken into account. Viewer sensitivity is a measure of how noticeable proposed changes might be in a particular setting and from a particular location or viewshed (the area visible from a fixed vantage point). Viewer sensitivity is determined based on the visibility of a resource or view, the duration that a particular view would be available to viewers, and the number of viewers.

  - Visibility is a measure of how well an object or site can be seen. It depends on the angle or direction of the view; extent of visual screening; and the topographical relationship between the object or site and existing vantage points. Visibility is determined by considering any obstructions that may be in the sightline, such as trees and other vegetation, buildings, landforms, and haze or fog. Distance becomes a factor; with increasing distance from the viewer, objects become less prominent in the view and less clearly distinguishable.

  - Duration of view is the amount of time available to view the site or activity. For example, a high or extended view of a site may be 2 minutes or longer. In contrast, a low or brief duration of view occurs in a short amount of time — generally less than 10 seconds. For stationary locations, such as public vista points, the duration is extended. For travelers on a highway, the duration may be very short.

  - Number of viewers is a measure of how many viewers per day would have a view of the proposed activity. As indicated in Appendix G of the State CEQA Guidelines, visual analysis focuses on public viewpoints, which emphasize accessible locations with higher numbers of viewers (as opposed to private views, such as those available to residential viewers).

  Viewer sensitivity is generally lower for more heavily urbanized, non-residential areas, such as commercial or industrial uses. Areas such as scenic vistas, parks, trails, and scenic roadways typically have a high visual quality and viewer sensitivity because these locales are publicly protected, appear natural, have view durations that are typically long, and have close-up views that are more commonly available. Typically, travel routes or areas where viewers have moderate concerns about the visual quality of an area have moderate sensitivity. Areas apart from travel routes and use areas where there are few viewers with concern about the visual quality typically have a low viewer sensitivity.

- Visual change is a function of contrast, dominance, and view blockage or disruption. Contrast and dominance contribute more to the degree of visual change than view disruption.

- Contrast concerns the degree to which a treatment's visual characteristics or elements — such as its form, line, color, and texture — differ from the same visual elements in the existing landscape. The degree of contrast can range from low to high. A treatment resulting in forms, lines, colors, and textures similar to those of the existing landscape is more readily visually absorbed. When characteristics or elements are similar to those of the existing condition, a treatment or treated site is more capable of being accepted in the landscape, compared to a landscape in which similarities are absent.

- Dominance is a measure of the proportion of the total field of view occupied by a treatment, a feature's apparent size relative to other visible landscape features, and the conspicuousness of the feature because of its location or position in the view. A feature's level of dominance is lower in a panoramic setting than in an enclosed setting with a focus on the feature itself. As the distance between a viewer and a feature increases, its apparent size decreases, decreasing its dominance. Objects seen against the sky are more prominent or dominant than objects viewed against trees, landforms, and buildings.

- View blockage is concerned with the extent to which previously visible landscape features become blocked from view. View disruption also occurs when view continuity is interrupted, such as when a treatment might break the line of a sweeping vista.

Scenic Vistas

CEQA specifically protects scenic environmental qualities (Pub. Res. Code Section 21001), and Appendix G of the CEQA Guidelines evaluates whether the project will have a substantial adverse effect on a scenic vista. Scenic vistas are specific views with high visual quality that are available from public vantage points such as lookout points or ridgeline trails. These typically provide broad, long-range scenic views that offer panoramic and exceptional landscape-scale scenic quality. Scenic vistas are sometimes recognized by public agencies through designation of protective policies or labeled on maps as designated scenic viewing destinations.

Regional Visual Character

Revised Draft VMP Area Overview

Treatment areas within the Revised Draft VMP area include various landscapes, ranging from forested ridgetops in the Oakland Hills to the north (e.g., Grizzly Peak Open Space, North Oakland Sports Field) to steep canyon areas (e.g., Dimond Canyon Park, Shepherd Canyon) and City parks and open space areas that comprise a mixture of forest, woodland, and grassland habitats. The Revised Draft VMP area also encompasses small urban and residential parcels, 308 miles of roadside treatment areas, and road medians that generally traverse residential/urban neighborhoods in the Oakland Hills. **Figure 3.2-1 through Figure 3.2-4** include representative photographs of several Revised Draft VMP treatment areas.

Overall, the Revised Draft VMP area's visual character is defined by a combination of residential/urban development and various types of vegetation communities (forested woodland, eucalyptus, annual grassland, scrub) across canyon areas, ridgetops, City parks and open space areas, and roadsides.

Scenic Views

Several portions of the Revised Draft VMP area provide the background setting for scenic views from San Francisco County and from major highways, including ~~State Route (~~SR~~)~~ 13, ~~Interstate (I-~~)~~-~~ 580, and SR 24 for commuters and travelers living and working in nearby communities. Within the Revised Draft VMP area, some priority roadsides such as Skyline Boulevard and Grizzly Peak Boulevard also provide long-ranging scenic views of the San Francisco Bay, greater East Bay area, and San Francisco County.

Existing Light and Glare

Existing sources of nighttime light in the Revised Draft VMP area include lights along roadways, streets, walkways, and parking lots that are associated with parks, open spaces, and recreational areas, as well as structural and security lighting associated with urban/residential areas. For example, lights are present in parking lots at Joaquin Miller Park. The Montclair Golf Course, located within Dimond Canyon Park, has lights in its parking lot and the driving range also has bright outdoor lighting. Many of these lighted areas are located within forested areas. Sources of daytime glare are vehicles on roads and in parking lots. Urbanized areas contain varied light sources (e.g., streetlights, car headlights, building lighting, signage) and are sources of sky glow (area-wide illumination of the night sky from human-made light sources). Light and glare are low near most trails and forested areas in the Revised Draft VMP area.

Existing Visual Conditions of Revised Draft VMP Treatment Areas

The following sections describe the existing visual conditions (i.e., visual character, visual quality, and viewer sensitivity) of Revised Draft VMP treatment areas by parcel types. **Table 3.2-1** summarizes the visual character, visual quality, and viewer sensitivity of each parcel type.

Urban and Residential Parcels

Urban and residential parcels include parcels generally smaller than 1 acre in size and are distributed throughout the Revised Draft VMP area. These parcels are currently maintained by the City and undergo manual treatment of vegetation to reduce ladder fuels, control invasive species, and reduce surface fuels. A typical urban/residential parcel is shown in **Figure 3.2-1**, Photo 1. Since urban and residential parcels are scattered throughout the Revised Draft VMP area, the visual character and quality varies from site to site. The viewer sensitivity of nearby residents ranges from moderate to high depending on the degree of visibility of the treatment areas from nearby homes. The viewer sensitivity of motorists driving by these parcels is moderate.

Photo 1. View of a eucalyptus stand with treated understory vegetation on an urban/residential parcel.

Photo 2. View of Garber Park from the trail showing oak woodland understory vegetation.

Source: Dudek 2019

Figure 3.2-1. Typical Views of Revised Draft VMP Treatment Areas – Urban/Residential Parcels and Canyon Areas

Photo 3. View of riparian vegetation along a trail in Dimond Canyon Park.

Photo 4. View of grass with tree overstory in Shepherd Canyon Park.

Source: Dudek 2019

Figure 3.2-1. Typical Views of Revised Draft VMP Treatment Areas – Urban/Residential Parcels and Canyon Areas

Photo 1. View of upland vegetation in Leona Heights Park.

Photo 2. View of previously thinned area downslope of a non-thinned eucalyptus stand at North Oakland Sports Field

Source: Dudek 2019

Figure 3.2-2. Typical Views of Revised Draft VMP Treatment Areas – Canyons and Ridgetop Areas

Photo 3. View of the upper portion of Grizzly Peak Open Space along Grizzly Peak Boulevard.

Photo 4. Long-ranging view of the San Francisco Bay Area from Grizzly Peak Boulevard above Grizzly Peak Open Space.

Source: Dudek 2019

Figure 3.2-2. Typical Views of Revised Draft VMP Treatment Areas – Canyons and Ridgetop Areas

Photo 1. View of grazed grassland and oak woodlands in Sheffield Village Open Space.

Photo 2. View of grazed grassland and scattered trees of Knowland Park and Arboretum.

Source: Dudek 2019, Horizon 2019

Figure 3.2-3. Typical Views of Revised Draft VMP Treatment Areas – City Park Lands and Open Space Areas

Photo 3. View of an acacia tree stand along a trail in Joaquin Miller Park.

Photo 4. View of grazed grassland oak woodland and grass/shrub fuels in King Estate Open Space Park.

Source: Dudek 2019, Horizon 2019

Figure 3.2-3. Typical Views of Revised Draft VMP Treatment Areas – City Park Lands and Open Space Areas

Photo 1. View of grassland and oak woodland vegetation at Tunnel Road Open Space property.

Photo 2. View of a grazed roadside treatment area along Golf Links Road.

Source: Dudek 2019

Figure 3.2-4. Typical Views of Revised Draft VMP Treatment Areas – Open Space Areas and Roadside Treatment Areas

Photo 3. View of a roadside treatment area and median area along Joaquin Miller Road.

Source: Dudek 2019

Figure 3.2-4. Typical Views of VMP Treatment Areas – Open Space Areas and Roadside Treatment Areas

Table 3.2-1. Summary of Existing Visual Conditions in Revised Draft VMP Treatment Areas

Treatment Area	Visual Character	Visual Quality	Viewer Sensitivity
Urban and Residential Parcels	Varies from site to site.	Varies from site to site	Moderate to high for residents, passing motorists
Canyon Areas			
Garber Park	Characterized by predominantly oak woodland understory and the surrounding residential development along nearby roads.	Moderate	Moderate to high for adjacent residents, recreationists
Dimond Canyon Park	Characterized by riparian setting, undeveloped oak woodland habitat, and surrounding residential development.	Moderate	Moderate to high for adjacent residents; moderate for passing motorists
Shepherd Canyon Park, including Montclair Railroad Trail	Marked by creek, coastal oak woodland, eucalyptus stands, and Shepherd Canyon Field.	Moderate	High for adjacent residents; moderate to high for recreationists; moderate for passing motorists
Leona Heights Park	Defined by coastal oak woodland and redwood, steep topography, and surrounding residential development and community college.	Moderate	Moderate to high for adjacent residents, recreationists; moderate for passing motorists
Beaconsfield Canyon	Defined by closed-cone cypress, coastal oak woodland, and coastal scrub vegetation communities and native vegetation.	Moderate to high	Moderate to high for recreationists, adjacent residents
Ridgetop Areas			
North Oakland Regional Sports Field	Defined by ball fields, eucalyptus stands, access road, and existing electrical lines.	Moderate	Moderate to high for recreationists; moderate for passing motorists, residents
Grizzly Peak Open Space	Defined by steep slope, pine, and cypress trees mostly in the southern two-thirds of the property, and coastal scrub habitat to the north.	Moderate to high	Moderate to high for adjacent residents; moderate for passing motorists
City Stables	Defined by the existing stables and other structures on the site.	Low	Low to moderate for adjacent residents

Treatment Area	Visual Character	Visual Quality	Viewer Sensitivity
City Park Lands and Open Space Areas			
Sheffield Village Open Space	Defined by a variety of land cover types, golf course, and adjacent residential development.	Moderate	Moderate for local hikers, adjacent residents
Knowland Park and Arboretum	Characterized by the zoo, various land cover types (mostly coast oak woodland, coastal scrub, and annual grassland), and surrounding residential development.	Moderate to high	Moderate for adjacent residents, passing motorists; low to moderate for motorists on I-580
Joaquin Miller Park	Influenced by the developed recreational facilities in the southern portion of the park and the less developed portion to the north consisting of redwood groves, oak woodlands, meadows, and creeks.	High	High for recreationists; moderate for passing motorists
King Estate Open Space Park	Defined mostly by the annual grassland and hilly terrain.	Moderate to high	Moderate to high for adjacent residents; moderate for passing motorists
Other Open Space Areas			
Blue Rock Court	Characterized by eucalyptus, coast oak woodland, and grassland habitats, adjacent to residential development.	Low to moderate	Moderate for adjacent residents; low to moderate for passing motorists
Leona Street	Characterized by eucalyptus and coastal oak woodland vegetative cover on steep terrain; surrounded by low-density residential development.	Low to moderate	Low to moderate for nearby residents
McDonnell Avenue	Characterized by coast oak woodland vegetative cover.	Low to moderate	Low to moderate for nearby residents
Police/Safety Department Site on Mountain Boulevard	Characterized by eucalyptus trees, police/safety department facility, and surrounding residences.	Low to moderate	Low to moderate for nearby residents
Tunnel Road Open Space	Defined by the Oakland Hills Fire Memorial Park at the south end and coast oak woodland and grassland habitat present within this small hilly open space area.	Moderate	Moderate for passing motorists

Treatment Area	Visual Character	Visual Quality	Viewer Sensitivity
Marjorie Saunders Park	Characterized by eucalyptus and coast oak woodland vegetation, local "painted rock," rock-lined waterfall, and native plant landscaping.	Moderate	Moderate for adjacent residents; low to moderate for motorists
Oak Knoll	Characterized by grassland, eucalyptus, and urban land covers, with surrounding residential and commercial development.	Moderate	Moderate for passing motorists

Canyon Areas

Garber Park

Garber Park is situated primarily along the south side of Claremont Avenue at the bottom of Claremont Canyon. The park has a north-facing slope and is comprised of primarily coast oak woodland habitat with scattered eucalyptus, acacia, and pine trees. A trail traverses through the park and is accessible from Evergreen Lane and Rispin Drive. Garber Park is characterized by the park's predominantly oak woodland understory and the surrounding residential development along Claremont Avenue, Evergreen Lane, Rispin Drive, and other nearby roads. Figure 3.2-1, Photo 2 shows a typical view of the oak woodland understory along the trail. The visual quality of the park is considered moderate due to its predominantly forested landscape and low-density residential development nearby. The viewer sensitivity is moderate to high for residents along adjacent roads and recreationists using the trail.

Dimond Canyon Park

Dimond Canyon Park is situated along Sausal Creek, south of SR 13, includes the creek channel, and is primarily surrounded by residential development. Park Boulevard generally forms the boundary of the park's northeast corner and Monterey Boulevard forms the boundary along the north. The park is also bisected by Leimert Boulevard and El Centro Avenue. The park is undeveloped north of El Centro Avenue and is developed south of this road. Dimond Canyon Park includes riparian vegetation and mostly coast oak woodland throughout the undeveloped portion of the park. A few trails traverse the park, including Old Canyon Trail, Dimond Canyon Trail, and Bridgeview Trail. Figure 3.2-1, Photo 3 shows riparian vegetation that can be seen from a trail within the park. Proposed treatments are focused along the adjacent roadsides bordering and bisecting Dimond Canyon Park. The visual character of Dimond Canyon Park is characterized by the park's riparian setting, undeveloped oak woodland habitat, and surrounding residential development. The visual quality is considered moderate as the park offers views of Sausal Creek and varied vegetation and topography. The viewer sensitivity varies between moderate and high for adjacent residents. Viewer sensitivity for motorists traveling on adjacent roads, including Leimert Boulevard, El Centro Avenue, Monterey Boulevard, and Park Boulevard, would be moderate due to speed of travel and the brief, limited viewing durations of the park.

Shepherd Canyon Park and Montclair Railroad Trail

Shepherd Canyon Park is situated along Shepherd Creek in Shepherd Canyon, northeast of SR 13. The park includes the creek channel and upland areas mapped with primarily coast oak woodland, eucalyptus, urban, annual grassland, and closed-cone pine-cypress. Montclair Railroad Trail runs from Snake Road to Mountain Boulevard. Large amounts of broom exist throughout the park, particularly along Shepherd Canyon Road. The park is surrounded by residential development to the west. Shepherd Canyon Road and Escher Road traverse the park. Views from Shepherd Canyon Road mostly consist of eucalyptus, broom, power lines, Oakland Fire Station No. 24, and the grassy Shepherd Canyon Field (public park). Figure 3.2-1, Photo 4 shows a view of the grassy and tree overstory in Shepherd Canyon Park. Montclair Railroad Trail is a paved 1.5-mile-long trail used by joggers, hikers, and bicyclists and similarly provides views of trees, broom, and grassland habitats. The park's visual character is marked by the creek, coastal oak woodland, eucalyptus stands, and Shepherd Canyon Field. The park's visual quality is considered moderate given the variety of vegetation types, sloped landforms, and presence of power lines along Shepherd Canyon Road. The viewer sensitivity is high for residents bordering the park, moderate to high for recreationists, and moderate for motorists traveling on Shepherd Canyon Road.

Leona Heights Park

Leona Heights Park is situated along a drainage south of Redwood Road and Campus Drive east of SR 13. The park includes the drainage channel and some upland vegetation (Figure 3.2-1, Photo 1), extending south of the Merritt College parking lot west of Campus Drive. Much of the park is inaccessible due to its steep terrain with the exception of some trails, the main one being the York Trail. The York Trail connects the lower portion of the park at Mountain Boulevard to the upper portion near Merritt College, and eventually joins a fire road from McDonnell Avenue. Trail users have views of oak woodland habitat filled with bay trees, berries, and wildflowers. The park's visual character is defined by the park's primary vegetation/land cover types (coastal oak woodland and redwood), its steep topography, and surrounding residential development and community college. Given the park's mostly undeveloped nature, variety of vegetation types, and surrounding development, the visual quality is considered moderate. The viewer sensitivity is moderate to high for residents adjacent to the creek and recreationists using trails within the park. The viewer sensitivity is moderate for motorists traveling on adjacent roads, including Campus Drive, Redwood Road, and Mountain Boulevard.

Beaconsfield Canyon

Beaconsfield Canyon is located at the end of Keswick Court, southeast of Shepherd Canyon Park. This small 4.3-acre park consists of the following vegetation communities: closed-cone cypress, coastal oak woodland, and coastal scrub. A trail traverses through the canyon and is primarily used by nearby residents. The park's visual character is defined by these vegetation communities and native vegetation planted by the Beaconsfield Canyon Volunteers and the Friends of Sausal Creek stewardship groups. The visual quality is considered moderate to high given its natural and undeveloped setting. The viewer sensitivity is moderate to high for both recreationists using the trail and adjacent residents as this depends on level of visibility and both viewer groups typically have a higher concern of surrounding landscapes.

Ridgetop Areas

North Oakland Regional Sports Field

The North Oakland Regional Sports Field property (approximately 53.6 acres in size) is situated to the south of SR 24 and immediately south of the Caldecott tunnels. The property is characterized by a second-growth eucalyptus stand in its northern and eastern portions, and a coastal oak woodland stand in the southern half. The lower, central portion of the property also includes a tributary stream to Temescal Creek, baseball fields, and a dirt access road that bisects the property as it runs upward from Broadway from the west, through the eucalyptus stand, toward homes above on Skyline Boulevard. Overhead power lines maintained by Pacific Gas and Electric Company (PG&E) traverse the southern portion of the property. The dirt access road is used by recreationists, providing immediate views of eucalyptus stands and understory vegetation including French broom and other invasive species like pampas grass and jubata grass. **Figure 3.2-2**, Photo 2 shows a representative view of previously thinned area downslope of non-thinned eucalyptus trees. From the southern end of the dirt access road, long-ranging views of the San Francisco Bay and greater San Francisco Bay Area can be seen. The property's visual character is defined by the ball fields, eucalyptus stands, access road, and existing electrical lines. The area's visual quality is considered moderate given the property's predominantly undeveloped state in combination with built structures. For recreationists using the dirt access trail, the viewer sensitivity is moderate to high because close-up views of trees and vegetation are available and viewer concern of recreationists is typically high.

As noted above, primary viewers of the North Oakland Regional Sports Field include motorists traveling on SR 24 and Broadway, occasional recreationists using the dirt access road, and residents along Skyline Boulevard and the surrounding area. The viewer sensitivity of motorists traveling on SR 24 is considered moderate. While expansive views of the park are available from this highway, due to the speed of travel and because motorists are expected to be focused on safe driving, viewer sensitivity of motorists is considered moderate. Viewer sensitivity of residents is considered moderate as residents have a higher level of concern for their surroundings and have varying degrees of visibility of the North Oakland Regional Sports Field.

Grizzly Peak Open Space

The Grizzly Peak Open Space property is collectively 64.5 acres in size and is situated along the southwest side of Grizzly Peak Boulevard, southeast of Marlborough Terrace. The property generally extends between Grizzly Peak Boulevard at the top of the slope down to Bay Forest Drive, Tunnel Road, Buckingham Boulevard, and Westmoreland Drive at the slope bottom. This property consists of the following vegetation communities/land cover types: closed-cone pine cypress, coastal scrub, coastal oak woodland, eucalyptus, and urban. The property extends across a steep, southwest-facing slope and abuts residential development, community assets (communications facility), and Grizzly Peak Boulevard. The visual character of the property is defined by the property's steep slope, pine, and cypress trees mostly in the southern two-thirds of the property, and coastal scrub habitat to the north. A view of the coastal scrub habitat in the northern portion of the property is shown in Figure 3.2-2, Photo 3. Grizzly Peak Boulevard itself provides scenic and long-range views of the greater San Francisco Bay Area, as shown in Figure 3.2-2, Photo 4. The visual quality is considered moderate to high as the cypress and pine trees and overall natural setting provide visual relief from adjacent residential development. Viewer sensitivity for immediately adjacent residents is moderate to high and viewer sensitivity for

motorists traveling along adjacent roads (e.g., Grizzly Peak Boulevard, Bay Forest Drive, Tunnel Road) is moderate as views of the property are brief and typically motorists are focused on long-ranging panoramic views of the San Francisco Bay and greater San Francisco Bay Area.

City Stables

The City stables property is 7.4 acres and located along Skyline Boulevard. The property is dominated by grassland fuels and is largely within 10 feet from existing structures, including residences. One of the City's remote automated weather stations is situated on the property. The visual character of the property is defined by the existing stables and other structures on the site, which has low visual quality. The viewer sensitivity is also low to moderate as adjacent residents are accustomed to views of the existing stable and structures.

City Park Lands and Open Space Areas

Sheffield Village Open Space

Sheffield Village Open Space is an approximately 455.5-acre area situated at the southern end of Golf Links Road and at the northwestern end of Lake Chabot. While the property includes the Lake Chabot Golf Course, no Revised Draft VMP projects are proposed for this portion of the property. The property also includes the historic Dunsmuir Estate. The property is predominantly mapped with the following vegetation communities/land cover types: annual grassland (59.4 acres), closed-cone pine-cypress (5.9 acres), coastal oak woodland (143.9 acres), coastal scrub (59.3 acres), eucalyptus (27.9 acres), perennial grassland (0.8 acre), and urban (158.1 acres). The area's visual character is defined by these various land cover types, golf course, and residential development southwest of the property. **Figure 3.2-3**, Photo 1 shows a grazed grassland and oak woodland area of this property. A steep fire access road traverses the open space site from west to east and is used by local hikers. The visual quality is moderate given the property's vast open space with varying vegetation communities. Because much of the site is not publicly accessible, aside from the fire access road traversing the site, the viewer sensitivity for local hikers is moderate. For residents adjacent to the open space area, the viewer sensitivity is considered moderate.

Knowland Park and Arboretum

Knowland Park and Arboretum is collectively 473.5 acres, extends between I-580 in the southwest and Skyline Boulevard in the northeast, and is bisected by Golf Links Road. The property includes the Oakland Zoo at the southwestern edge and a newly constructed gondola between the zoo and a hilltop near the center of the property, where an additional fenced zoo exhibit is now located. The Knowland Park and Arboretum property is mapped as the following vegetation communities/land cover types: annual grassland (102.9 acres), mixed chaparral (also known as maritime chaparral) (8.1 acres), closed-cone pine-cypress (9.1 acres), coastal oak woodland (162.0 acres), coastal scrub (61.8 acres), eucalyptus (12.1 acres), freshwater emergent wetland (0.2 acre), perennial grassland (12.5 acres), redwood (0.2 acre), and urban (104.9 acres). Figure 3.2-3, Photo 2 shows a grazed grassland area of Knowland Park with scattered trees. Several trails in western Knowland Park provide viewing opportunities of these vegetation communities. The visual character of Knowland Park and Arboretum is characterized by the zoo, various land cover types (mostly coast oak woodland, coastal scrub, and annual grassland), and surrounding residential development to the north and south of the park. The visual quality is

moderate to high as the open space portion is largely undeveloped and comprised of various vegetation types. The viewer sensitivity is moderate for adjacent residents due to their long viewing durations and high concern about the visual setting in the immediate vicinity. Viewer sensitivity is moderate for motorists traveling along Golf Links Road due to a combination of scenic viewing opportunities of the open space area and short viewing durations. The viewer sensitivity is low to moderate for motorists traveling on I-580 as much of Knowland Park is not visible due to intervening topography and vegetation, and views are fleeting due to the speed of travel along this highway.

Joaquin Miller Park

Joaquin Miller Park is 454.9 acres in size and is situated in the southeastern portion of the Revised Draft VMP area. The property extends between Joaquin Miller Road in the south, Skyline Boulevard in the east, Castle Drive in the west, and the Oakland Hills ridgeline in the north. Skyline Boulevard runs along the park's western edge, then through the northern portion of the park, where it exits at the park's northern corner. The southern portion of the park is more developed and includes access roads, parking areas, the Woodminster Amphitheater, a dog park, a nursery, and several structures (including the Community Center, Ranger Station, the historic Joaquin Miller house, Sequoia Lodge, Sequoia Arena, and the Metropolitan Horseman's Association Clubhouse). The northern portion of the park is less developed but provides for public access along numerous trails and dirt roads. From the trails and dirt roads, recreationists have immediate views of various vegetation communities (Figure 3.2-3, Photo 3) as well as expansive views looking toward the San Francisco Bay. Joaquin Miller Park is mapped as the following vegetation communities/land cover types: annual grassland (15.0 acres), closed-cone pine-cypress (109.3 acres), coastal oak woodland (88.0 acres), coastal scrub (5.8 acres), eucalyptus (62.0 acres), redwood (121.0 acres), urban (42.8 acres), urban (acacia) (6.6 acres), urban (mixed tree stand) (3.7 acres), and valley/foothill riparian (0.8 acre).

The visual character of Joaquin Miller Park is influenced by the developed recreational facilities in the southern portion of the park and the less developed portion to the north consisting of redwood groves, oak woodlands, meadows, and creeks. The visual quality of the northern portion of the park is considered high because of the various landscapes, views of the greater San Francisco Bay Area that can be seen from public trails, and the park's varying topography. The viewer sensitivity is high for recreationists given the park's high visual quality rating and high viewer concern. The viewer sensitivity for motorists traveling on Joaquin Miller Road and Skyline Boulevard is moderate given the mix of developed and less developed uses.

King Estate Open Space Park

The King Estate Open Space Park is collectively 81.3 acres in size and is situated southwest of I-580, south of 82nd Avenue, and bisected by Fontaine Street. The King Estate Open Space Park property is mapped as the following vegetation communities/land cover types: annual grassland (61.1 acres), coastal oak woodland (12.0 acres), coastal scrub (4.3 acres), and urban (4.0 acres). The park abuts several schools, including Howard Elementary School, the Bay Area Technology School, and the Sojourner Truth Independent Study. Views of the park are primarily available from Fontaine Street, a small segment of 82nd Avenue, and the backyards of adjacent residences. The fire roads are used by nearby residents for hiking and dog walking. Views of the San Francisco Bay and greater San Francisco Bay Area are accessible from some of these fire roads. The park's visual character is defined mostly by the annual grassland and hilly terrain

(Figure 3.2-3, Photo 4). Given the park's undeveloped nature and surrounding residential development, the visual quality is moderate to high. Because large portions of the park are not visible from local roads and residences due to the park's rolling topography, the viewer sensitivity is moderate to high for adjacent residents and moderate for motorists traveling on Fontaine Street and a small segment of 82nd Avenue.

Other Open Space Areas

Figure 3.2-4 shows typical views of open space areas, roadside treatment areas, and median areas.

Blue Rock Court

This 15.4-acre parcel is largely characterized by eucalyptus, coast oak woodland, and grassland habitats. The property is situated immediately adjacent to a residential development located north of I-580 and northwest of Blue Rock Court. Visual quality is low to moderate because of the developed nature of the surroundings. Viewer sensitivity is moderate for residents within and near Blue Rock Court and low to moderate for motorists traveling on I-580.

Leona Street

This 1.9-acre area is a road extension at the east end of Leona Street. The site is characterized by eucalyptus and coastal oak woodland vegetative cover on steep terrain and surrounded by low-density residential development. Visual quality is low to moderate. Viewer sensitivity is low to moderate for nearby residents due to the slope of the site and steep terrain surrounding the site; open space area is hardly visible from nearby residences.

McDonnell Avenue

This 1-acre site is an extension of a narrow street and characterized by coast oak woodland vegetative cover. Visual quality is low to moderate because of the developed nature of the surroundings. Viewer sensitivity is low to moderate because partial views are limited to a few nearby residences.

Mountain Boulevard Police/Safety Department Site

This 11.3-acre parcel is characterized by eucalyptus trees and the police/safety department facility in the center of the parcel, and surrounding residences. Visual quality is low to moderate because of the developed nature of the surroundings. Viewer sensitivity is low to moderate because visibility is limited to nearby residences.

Tunnel Road Open Space Area

This 4-acre parcel is on Tunnel Road and west of SR 24. Visual character is defined by the Oakland Hills Fire Memorial Park at the south end and coast oak woodland and grassland habitat present within this small hilly open space area. Figure 3.2-4, Photo 1 shows a typical view of this open space area from Tunnel Road. Visual quality is moderate because of the park's undeveloped nature. Viewer sensitivity is moderate for motorists driving along Tunnel Road.

Marjorie Saunders Park

This 3-acre park is along Ascot Drive, southeast of Shepherd Park. Situated in the Montclair Village community, this small park is characterized by eucalyptus and coast oak woodland vegetation, the presence of a "painted rock" where local residents have painted greetings for special occasions, a rock-lined waterfall, and native plant landscaping. Visual quality is moderate because of the natural surroundings. Viewer sensitivity is moderate for adjacent residents and low to moderate for motorists.

Oak Knoll

This 15.7-acre property is northeast of Mountain Boulevard and south of Keller Avenue. Largely characterized by grassland, eucalyptus, and urban land covers and surrounding residential and commercial development. Visual quality is moderate because of the undeveloped nature of the site and views available from the park. Viewer sensitivity is moderate for nearby motorists traveling on Mountain Boulevard and Keller Avenue.

Roadside Treatment Areas and Medians

As described in Chapter 2, the City manages vegetation along 308 miles of City roads within the Revised Draft VMP area and medians (5.7 acres). Examples of priority 1 treatment roads throughout the Revised Draft VMP area include Grizzly Peak Boulevard, Skyline Boulevard, Shepherd Canyon Road, Joaquin Miller Road, Monterey Boulevard, Redwood Road, Keller Avenue, and Golf Links Road. These roads traverse multiple parcel types, including urban and residential areas, open space/park areas, canyon areas, and ridgetop areas. Figure 3.2-4, Photos 2 and 3 show typical views of roadside treatment areas along Golf Links Road and Joaquin Miller Road. As many of the roadside treatment areas are adjacent to the above-described parcel types, in general, the visual quality of these roads generally varies from moderate to high.

3.2.2 Regulatory Setting

There are no federal laws or regulations that are applicable to aesthetics in relation to the Revised Draft VMP. This subsection discusses state and local laws and regulations that pertain to aesthetics for the Revised Draft VMP.

State Laws, Regulations, and Policies

California Scenic Highway Program

In 1963, the state legislature established the California Scenic Highway Program, contained in Streets and Highways Code Sections 260 et seq., to preserve and enhance the natural beauty of California (California Department of Transportation ~~[Caltrans]~~ 2020). The State Scenic Highway System includes designated scenic highways and those that are eligible for designation as scenic highways.

Within the Revised Draft VMP area, I-580 is an officially designated highway from the city limits of San Leandro to SR 24. In addition, SR 13 between SR 24 and I-580 (the MacArthur Freeway) is considered eligible for listing as a state scenic highway. Just outside of the Revised Draft VMP area, the portion of SR 24 east of the Caldecott Tunnel is designated as a state scenic highway.

Local Laws, Regulations, and Policies

City of Oakland General Plan

The Scenic Highways Element (City of Oakland 1974) of the *Oakland Comprehensive Plan* considers the MacArthur Freeway (I-580), Skyline Boulevard, Grizzly Peak Boulevard, and Tunnel Road as scenic routes within the City's limits. Policies related to protection of scenic resources along the MacArthur Freeway that are pertinent to the Revised Draft VMP include the following:

2. Visual intrusions within the scenic corridor should be removed, converted, buffered, or screened from the motorist's view.

3. Panoramic vistas and interesting views now available to the motorist should not be obliterated by new structures.

Specific policies related to Skyline Boulevard/Grizzly Peak Boulevard/Tunnel Road and that are also relevant to the Revised Draft VMP include the following:

2. Critical stretches of open space should be left intact, preserving visual continuity within the scenic corridor.

3. Grading of land and the clearing of vegetation should be kept to an absolute minimum on the properties adjacent to the scenic route.

5. Effort should be made to retain undeveloped areas that perpetuate the full range of plant types, plant communities and wildlife variety found in Oakland.

7. As much as feasible, wooded tracts of open land should be preserved with only careful inroads for development allowed.

8. The removal of large live trees, wherever they occur, should be avoided for desirable species of trees.

North Oakland Hill Area Specific Plan

The North Oakland Hill Area Specific Plan (City of Oakland 1986) is a document addressing land use, infrastructure, zoning, and development in a portion of the Oakland hills. The area covered by this specific plan is generally located along the ridgeline northwest of Shepherd Canyon Road. This specific plan includes vegetation management prescription with a goal to enhance and protect scenic views of the region: "Traveling along the winding scenic route, the driver, cyclist, or jogger is enclosed and shaded by forest and then, with a change in plant cover to low-growing scrub, bathed in light and presented with glorious Bay views."

3.2.3 Impact Analysis

Methodology

This subsection evaluates whether the Revised Draft VMP would result in significant impacts related to aesthetic resources. The significance criteria listed below were used to evaluate the Revised Draft VMP's effects on aesthetic resources in comparison to the existing baseline condition. The visual analysis is based on evaluations of ground-based photographs of the

vegetation treatment areas, Street View by Google Maps, and visual simulations of select treatment areas included in the Revised Draft VMP (provided in Appendix A of this Recirculated DEIR).

Visual effects were assessed based on the Revised Draft VMP's potential to have an adverse effect on scenic vistas, substantially damage views from scenic highways, or degrade the visual character or visual quality of a Revised Draft VMP treatment area. The evaluation of temporary or short-term visual impacts considers whether vegetation management activities could substantially degrade the existing visual character or quality of the site or surrounding area, as well as the duration over which any such changes would occur.

Actions with long-term visual effects, such as removing or thinning trees and other vegetation, can permanently alter the landscape in a manner that could affect existing scenic resources and the visual character or quality of the area, depending on the perspective of the viewer. In determining impact potential, the assessment considers the viewer sensitivity of the treatment areas.

Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines and the City of Oakland Thresholds of Significance Guidelines, it was determined that the Revised Draft VMP would result in a significant impact on aesthetics if it would:

- Have a substantial adverse effect on a public scenic vista;
- Substantially damage or destroy scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings located within a state or locally designated scenic highway;
- If the project is in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality; or
- Create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area.

Issues Not Evaluated Further

The following significance criterion is dismissed from further analysis for the reasons described below.

- **Create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area.** Vegetation management activities would occur during daytime hours and would not require any nighttime lighting. Once completed, the treatments themselves would not introduce a new source of light or glare. Thus, no impact would occur.

Environmental Impacts

Impact AES-1: Substantial Adverse Effects on Public Scenic Vistas (*Less than Significant with Mitigation*)

An adverse effect on the visual quality of a public scenic vista is generally most substantially adverse when viewed at a scale proportional to the scale of the activity resulting in the impact. For instance, large-scale removal of trees or shrubs may not appear significant from up close but would be more noticeable from a distance or in the context of a scenic vista. Similarly, small-scale shrub or tree removal could be perceived as a substantial adverse effect within close-range views but, when viewed from afar in the context of a scenic vista, such changes would likely be unnoticeable.

Within the Revised Draft VMP area, Grizzly Peak Boulevard, particularly the segment close to the Caldecott Tunnel, is often used as a scenic viewing area by motorists and recreationists as this road provides long-range views of the San Francisco Bay and greater Bay Area. Trails and fire access roads within some of the Revised Draft VMP treatment areas also provide scenic viewing opportunities of the Bay Area (e.g., trails within Joaquin Miller Park, King Estates Park, and the dirt access road in North Oakland Sports Field).

Proposed vegetation management activities that would occur throughout Revised Draft VMP treatment areas include hand labor, mechanical treatments, grazing, and herbicide treatments. Because vegetative conditions vary across treatment areas, multiple treatment methods would be employed at any given area, and treatment activities would be prioritized and phased over a 10-year timeframe, the likelihood of any one vegetation management activity occurring over a large enough area to have a substantial adverse effect on a scenic vista is minimal. The following Revised Draft VMP treatment projects would involve larger scale removal of trees and shrubs that could be noticeable from scenic vistas: NOR-1, NOR-2, NOR-3, GPO-1, and JMP-1. Potential effects on scenic vistas at these treatment areas are described in detail below.

North Oakland Sports Field (NOR-1, NOR-2, and NOR-3)

NOR-1, a priority 1 project at the North Oakland Sports Field, would involve thinning/removal of eucalyptus (12.06 acres), coast oak woodland (5.11 acres) and coastal scrub (0.47 acre) across a 21.51-acre total area using both mechanical and hand removal techniques. Such activities would be focused along the dirt access road, within 300 feet of ridgelines, and near the park's access gate. Mature eucalyptus stands would be thinned to ensure 35-foot horizontal spacing between trunks, and second-growth eucalyptus stands would be thinned to reach an average 25-foot spacing between trunks. Smaller trees, shrubs, grasses, and/or eucalyptus seedlings/saplings would be removed to achieve vertical separation between the top of surface fuels and lowest tree branch. The oak woodland stand in the southern portion of NOR-1 would be managed to create vertical separation between the top of surface fuels and the lowest tree branch. NOR-2 is a priority 2 project that would involve removal of 7.76 acres of eucalyptus in the northern portion of the property not addressed by NOR-1. NOR-3, a priority 3 project, would involve removing eucalyptus and other highly flammable species and invasive plants from oak woodland communities across an 18.65-acre area in the southern half of the property. Similar management standards described above for NOR-1 would also be applied at NOR-2 and NOR-3.

As noted previously, scenic views of the greater Bay Area are accessible from the fire access road along the ridgeline in the southern portion of the property, which is used by hikers and dog walkers. While the thinned eucalyptus stands could be seen from this viewpoint, the dominant vegetation types throughout this treatment area (mostly eucalyptus and oak woodland) would remain. Proposed thinning of eucalyptus stands and understory vegetation would reduce the density of these trees and other flammable vegetation but would not entail removing large swaths of trees. In addition, given the expansiveness of these treatment projects, activities would be phased over multiple years where 3-5 acres are thinned at a time; this would also spread out the effect on views from this vista point. However, because of the relatively large scale of tree removal proposed at North Oakland Sports Field, tree removal activities at this recreation area could have an adverse effect on the scenic vista from the ridgeline's access road. Implementation of **Mitigation Measure AES-1 (Conduct Visual Reconnaissance Prior to Implementing Tree Removal Activities to Determine if Vegetation Relocation or Thinning of Publicly Visible Treatment Areas is Necessary)** would require the City to conduct a visual reconnaissance of the treatment areas prior to conducting Revised Draft VMP activities to determine visibility of proposed treatments and, if determined necessary, potentially modify the location of tree removal activities or thin adjacent vegetation of the treatment area to reduce the visibility of removed vegetation from public viewpoints. The phasing of ~~treatments~~Revised Draft VMP treatment projects NOR-1, NOR-2, and NOR-3 in combination with implementation of Mitigation Measure AES-1 would ensure that effects on scenic vistas would be less than significant.

Grizzly Peak Open Space (GPO-1)

GPO-1, a priority 1 project, would involve removing closed-cone pine cypress vegetation (12.29 acres), coast oak woodland (1.62 acres), coastal scrub (10.37 acres), and eucalyptus (2.83 acres) using hand labor techniques due to the steepness of the property. This work would be focused within 100 feet of structures, 300 feet of ridgelines, and 30 feet of Tunnel Road and Bay Forest Drive. Treatments for closed-cone pine cypress would involve thinning mature trees to obtain 30-foot horizontal spacing between trunks and removal of small trees, shrubs, grasses, and invasive species beneath tree canopies to create vertical separation between the top of surface fuels and the lowest tree branch. Coastal scrub vegetation would be managed to remove dead and dying scrub and thin shrub crowns to achieve horizontal separation from adjacent shrubs, shrub groupings, or trees. The treatments for eucalyptus would be the same as those described above for North Oakland Sports Field projects. In addition, any dead and dying trees present between 30 and 100 feet from roadways would be removed.

Scenic views of the greater Bay Area are accessible from Grizzly Peak Boulevard, which abuts the northern portion of GPO-1. As Grizzly Peak Boulevard is at the ridgeline and sits above the open space area, tree-thinning activities would not substantially affect long-ranging views of the Bay Area. If anything, removal of trees immediately adjacent to the road would open up views looking toward the Bay. Effects on scenic vistas at GPO-1 would be less than significant.

Joaquin Miller Park (JMP-1)

JMP-1 is a priority 1 project encompassing 117.32 acres that would involve managing various vegetation types within 100 feet of structures, 300 feet of ridgelines, 150 feet of park access gates, and congregation/activity areas along Skyline Boulevard and the top of Woodside Glen Court. Hand labor techniques would be applied for all tree removal activities within closed-cone

pine cypress, eucalyptus, redwood, and urban vegetation types. The management standards would be similar to those described above for the North Oakland Sports Field and Grizzly Peak Open Space projects. In addition, dead and dying trees present between 30 and 100 feet from roadways would be removed.

Within Joaquin Miller Park, views of most trails are limited to trees and vegetation immediately adjacent to the trail. However, some trails, such as the Sequoia-Bayview Trail, offer long-range views of the greater Bay Area. Proposed vegetation management activities may be noticeable from the Sequoia-Bayview Trail and other trails with scenic vistas, but such activities are not expected to substantially impair long-range views of the Bay Area. As with GPO-1, removal of select trees could potentially expand scenic views of the Bay Area. Nonetheless, the removal of trees could be perceived as an adverse effect on immediate views from certain vantage points along trails in Joaquin Miller Park. This would be a potentially significant impact. Implementation of **Mitigation Measure AES-1**, which requires a visual reconnaissance and, if necessary and feasible, actions that reduce the treatment area's visibility from public viewpoints would reduce effects on scenic vistas within Joaquin Miller Park to less than significant.

Mitigation Measures

Mitigation Measure AES-1: Conduct Visual Reconnaissance Prior to Implementing Tree Removal Activities to Determine if Vegetation Relocation or Thinning of Publicly Visible Treatment Areas is Necessary

The City will conduct a visual reconnaissance of Revised Draft VMP treatment areas involving tree thinning and removal to observe the surrounding landscape and determine if vegetation management activities will have a significant effect on scenic vistas, public trails, or scenic routes that have views of the treatment area. If none are identified, treatments may be conducted without additional mitigation.

If the City identifies that public viewing points such as public trails or recreation areas with extended views of a Revised Draft VMP treatment area would be significantly affected, prior to conducting vegetation treatment activities, the City will identify opportunities to potentially modify the location of tree removal activities to reduce the visibility of removed vegetation from public viewpoints. If no changes are feasible without compromising the intended vegetation management standards and goals described in the Revised Draft VMP, the City will thin adjacent vegetation to break up the linear edges of treatment areas and reduce the contrast between the treatment area and surrounding vegetation.

Conclusion

Based on the above descriptions, vegetation management activities proposed at most Revised Draft VMP treatment areas would not obstruct or substantially degrade views from scenic vistas. Large-scale tree removal and thinning activities proposed at North Oakland Sports Field (NOR-1, NOR-2 and NOR-3) and Joaquin Miller Park (JMP-1) could degrade views from scenic vistas. Implementation of Mitigation Measure AES-1 would require that a visual reconnaissance occurs prior to reconnaissance of the treatment areas prior to conducting Revised Draft VMP activities to determine visibility of proposed treatments and, if necessary and feasible, a change in the location of tree removal actions to an area less publicly visible or thin vegetation surrounding

the treatment area. With implementation of Mitigation Measure AES-1, the impact on scenic vistas would be **less than significant with mitigation**.

Impact AES-2: Substantial Damage to Scenic Views, Including Those within a State or Locally Designated Scenic Highway (*Less than Significant with Mitigation)*

Within the Revised Draft VMP area, the State of California has identified I-580 from the city limits of San Leandro to SR 24 as an officially designated state scenic highway. SR 13 between SR 24 and I-580 is considered eligible for listing as a state scenic highway.

Effects on Views from I-580

Revised Draft VMP treatment areas that are near I-580 include Blue Rock Court, Oak Knoll, King Estate Open Space Park, and Sheffield Village Open Space. Blue Rock Court is partially visible from I-580 to the east, although mature trees lining the highway partially screen views from I-580. Oak Knoll, another residential area, is partially visible from this highway but partially screened by mature vegetation along the highway and a retaining wall. Views of King Estate Open Space Park are largely screened by intervening topography and mature vegetation between the highway and open space park. Similarly, views of Sheffield Village Open Space are largely screened by constructed landforms and development between the highway and open space area. For treatment areas that are partially visible from I-580, limited vegetation management activities that could be seen range from goat grazing to tree and shrub removal using both hand removal and mechanical techniques. Tree and shrub removal activities proposed in these areas would occur in discrete locations (i.e., within 100-300 feet of structures and removal of dead and dying trees within 100 feet of roadways) for fire reduction purposes and would not remove broad swaths of trees and shrubs. Because views of these treatment areas would be largely screened by existing development, topography, or vegetation and any limited views of proposed vegetation management activities would be short in duration due to the high speed of travel along I-580, proposed vegetation management activities would not substantially damage views from this scenic highway.

Effects on Views from SR 13

Some of the roadside treatment projects west of SR 13 (e.g., Monterey Road) and treatments at Joaquin Miller Park closest to the highway may be partially visible from this portion of SR 13. However, mature trees along SR 13 provide visual screening of views looking toward these treatment areas. Additionally, due to the high speed of travel along SR 13, vegetation management activities proposed within these treatment areas would hardly be noticeable to motorists traveling on SR 13. Therefore, vegetation management activities proposed near SR 13 would not damage views from this highway.

Effects on Views from Skyline Boulevard, Grizzly Peak Boulevard, and Tunnel Road

The Scenic Highways Element (City of Oakland 1974) of the Oakland Comprehensive Plan considers the I-580, Skyline Boulevard, Grizzly Peak Boulevard, and Tunnel Road as scenic routes within the City's limits. Impacts to views from I-580 are discussed above. The following discussion describes the Revised Draft VMP's effects and potential conflicts with policies protecting views along Skyline Boulevard, Grizzly Peak Boulevard and Tunnel Road.

Skyline Boulevard

Skyline Boulevard provides long-ranging scenic views of the San Francisco Bay, greater East Bay Area, and San Francisco County. Below is a description of Revised Draft VMP treatment areas visible from Skyline Boulevard.

- **Skyline Boulevard at Urban/Residential Parcels.** Several priority projects on urban/residential parcels (less than 1 acre) are located immediately adjacent to Skyline Boulevard. The majority of these Revised Draft VMP projects are interspersed within developed residential parcels and do not provide long-range views of the Bay Area. Under the Revised Draft VMP, the dominant vegetation types within these parcels would remain. As these Revised Draft VMP projects are small in scale and scattered throughout the Revised Draft VMP area and often adjacent to parcels that would not be treated, vegetation management activities proposed at urban/residential parcels near Skyline Boulevard would not substantially damage views from this scenic route. Nonetheless, limited tree removal immediately adjacent to Skyline ~~Road~~Boulevard and removal of dead and dying trees within 100 feet of Skyline Boulevard could be perceived as an adverse visual effect. Implementation of Mitigation Measure AES-1 would reduce this effect to a less-than-significant level.

- **Skyline Boulevard at Joaquin Miller Park.** In general, the portion of Skyline Boulevard that passes through Joaquin Miller Park offers mostly short-range views of mature trees and vegetation. Treatment projects located adjacent to Skyline Boulevard within Joaquin Miller Park would be visible from this road. Some long range-range views are available from Skyline Boulevard as it passes through Joaquin Miller Park in a few locations. Vegetation treatment within 300 feet of the ridgeline and removal of dead and dying trees within 100 feet of Skyline Boulevard in Joaquin Miller Park may open up views of the Bay Area from these locations. While large swaths of trees would not be removed from treatment areas along this segment of Skyline Boulevard, tree removal could be perceived as an adverse visual effect. Implementation of Mitigation Measure AES-1 would reduce this effect to a less-than-significant level.

- **Skyline Boulevard at Knowland Park.** As Skyline Boulevard passes through Knowland Park, treatment areas immediately adjacent to the road would be visible. Other treatment areas within Knowland Park are largely blocked due to topography. Proposed thinning of eucalyptus stands and understory vegetation immediately adjacent to Skyline Boulevard and removal of dead and dying trees within 100 feet of Skyline Boulevard would reduce the density of these trees and other flammable vegetation but would not entail removing large swaths of trees. Nonetheless, tree removal activities could be perceived as an adverse effect. Implementation of Mitigation Measure AES-1 would reduce this impact to a less-than-significant level.

Grizzly Peak Boulevard

Scenic views of the greater Bay Area are accessible from Grizzly Peak Boulevard. As Grizzly Peak Boulevard is at the ridgeline and sits above the Grizzly Peaky open space area, tree-thinning activities within Grizzly Peak Open Space would not substantially affect long-ranging views of the Bay Area. If anything, removal of trees immediately adjacent to the road would open up views looking toward the Bay. Treatment areas within North Oakland Sports Field would also be

visible from portions of Grizzly Peak Boulevard, although the majority of treatment areas are on slopes that are less visible from this vantage point. The dominant vegetation types throughout the North Oakland Sports Field (mostly eucalyptus and oak woodland) would remain. Proposed thinning of eucalyptus stands and understory vegetation would reduce the density of these trees and other flammable vegetation but would not entail removing large swaths of trees. In addition, given the expansiveness of the treatment projects within the North Oakland Sports Field, vegetation management activities would be phased over multiple years which would also spread out the effect on views from Grizzly Peak Boulevard. Nonetheless, tree removal activities could be perceived as an adverse visual effect. Implementation of Mitigation Measure AES-1 would ensure that treatment activities at North Oakland Sports Field and Grizzly Peak Open Space would not substantially degrade scenic views from Grizzly Peak Boulevard.

Tunnel Road

Similar to Grizzly Peak Boulevard, treatment activities proposed along Tunnel Road may open up views towards the Bay. A small portion of treatment areas within Grizzly Peak Open Space, including areas where dead and dying trees would be removed within 100 feet of roadways, would be visible from Tunnel Road. While treatments are not anticipated to substantially damage views from this road, tree removal could be perceived as an adverse visual effect. Implementation of Mitigation Measure AES-1 would ensure that treatment activities along Tunnel Road would not substantially degrade scenic views from this road.

Conclusion

The impact on views from scenic highways and scenic routes would be **less than significant with mitigation**.

Impact AES-3: Short-term Degradation of Visual Character or Quality of Public Views (*Less than Significant with Mitigation*)

Proposed vegetation management activities would have varying effects on visual character or quality of public views. The following impact discussion focuses on the short-term aesthetic effects of treatment activities proposed under the Revised Draft VMP while the activities are being conducted.

Grazing

Similar to existing conditions, goat grazing would be used to reduce fine fuel loads in grasslands and brushlands and beneath tree canopies at the following areas: King Estate Open Space Park, Joaquin Miller Park, Knowland Park, Sheffield Village Open Space, and Shepherd Canyon. This technique would also be used at Leona Heights Park, Beaconsfield Canyon, North Oakland Sports Field, roadside treatment areas and medians, and other small open space areas. Goat grazing would be temporary and intermittent at each treatment area, and would occur during the late spring to end of summer. The presence of goats, temporary fencing to keep them contained, and water troughs for the goats may be visible for a short duration to motorists passing by, nearby residents, and other recreationists. Because goats are not uncommon in natural landscapes, this activity would have limited visual intrusiveness on public views. Therefore, goat grazing activities would not substantially degrade the visual character or quality of views of the Revised Draft VMP treatment areas.

Mechanical and Hand Labor Treatments

During hand labor and mechanical vegetation treatment activities, hand-held and large mechanical equipment such as chainsaws, loppers, tractors, and other vehicles would be used with attachments intended to cut, uproot, crush/compact or chop vegetation. Hand labor treatment activities would not substantially alter the visual character or quality of an area due to the small size of hand-held equipment. Mechanical treatment activities would involve larger equipment than hand labor treatments but would typically be completed in a shorter duration than hand labor treatments as work would occur at a faster pace. Treatment activities for grass fuel types would be relatively faster than those associated with shrub or tree fuel types. Both hand labor and mechanical treatment activities already occur on an annual basis along roadside treatment areas; thus, many residents and other sensitive viewers are accustomed to seeing these activities. However, because the scale of these activities would increase under the Revised Draft VMP, the presence of large equipment and workers could contrast with the surrounding environment and temporarily degrade the visual character or quality of some Revised Draft VMP treatment areas. This impact would be potentially significant. Implementation of **Mitigation Measure AES-2 (Staging)** would ensure that equipment and materials are staged on access roads or already disturbed areas and not on major roadways. This mitigation measure would help minimize the visibility of vegetation management activities from public roadways. With implementation of Mitigation Measure AES-2, potential effects on visual character or visual quality of public views in Revised Draft VMP treatment areas would be less than significant with mitigation.

Herbicides

Under the Revised Draft VMP, herbicides would be applied by hand only. Where large eucalyptus and acacia trees have been removed, the cut-and-daub treatment would be applied primarily on the freshly cut stump or stem of such trees to reduce the need for ongoing maintenance. A backpack sprayer would be used to apply herbicides directly onto highly flammable/rapidly spreading (including such plants as French broom, Scotch broom, pampas grass, and jubata grass). For both herbicide treatment methods, only 2-3 personnel would be on-site at any given treatment area. This treatment activity would also be temporary at any given location and limited to controlling plant growth as described above. For these reasons, herbicide application activities would not substantially degrade the visual character or visual quality of public views in Revised Draft VMP treatment areas. This impact would be less than significant.

Mitigation Measures

Mitigation Measure AES-2: Staging (VMP BMP GEN-4)

~~To the extent feasible,~~ Staging will occur on access roads, surface streets, or other disturbed areas that are already compacted and support only ruderal vegetation. Similarly, all vegetation management equipment and materials will be contained within the existing service roads, paved roads, or other predetermined staging areas. Staging areas for equipment, personnel, vehicle parking, and material storage will be sited as far as possible from major roadways.

Conclusion

Short-term effects on visual character and visual quality due to grazing, hand labor, and herbicide treatment activities would be less than significant. Use of large, heavy equipment for mechanical treatment activities could temporarily degrade the visual character or quality of a treatment area, but implementation of Mitigation Measure AES-2 would reduce this impact to **less than significant with mitigation**.

Impact AES-4: Long-term Degradation of Visual Character or Quality of Public Views (*Less than Significant with Mitigation*)

In describing the intent of the Revised Draft VMP and its proposed treatment activities, Chapter 2, *Project Description*, states that the goal of vegetation management in the Revised Draft VMP is not the wholesale removal of all vegetation or conversion of vegetation type; rather, the Revised Draft VMP proposes targeted vegetation management activities to minimize the potential for ignitions, crown fires, and extreme fire behavior; create potential fire breaks; and retain safe evacuation routes. This is accomplished by reducing fuel loads; maintaining those conditions; and altering the structure, composition, and spacing of retained vegetation. **Figure 3.2-5 through Figure 3.2-7** depict existing and simulated post-treatment views of representative treatment activities.

As noted in Section 3.2.1, "Environmental Setting," and summarized in Table 3.2-1, the Revised Draft VMP treatment areas vary by landform (i.e., steep canyons, ridgetops, hilly open space areas) and have a mixture of dominant vegetation/land cover types, including annual grasslands, coastal scrub, coast oak woodland, eucalyptus, closed-cone cypress, redwood, acacia, and a mixture of other urban tree species among other vegetation types. The visual character of each Revised Draft VMP treatment area is characterized by these varying landforms and mixture of dominant vegetation types, and they generally have moderate to high visual quality as these natural settings are mostly undeveloped and provide pleasing visual contrast to the surrounding residential/urban development throughout the Revised Draft VMP area.

In many cases, public views of the treatment areas would be available only at foreground viewing distances (approximately 0.25 mile or less) from trails, roads, and residences. Steep and hilly terrains in canyons and other open space areas limit the viewing distance of several treatment areas such as King Estates Open Space, Dimond Canyon Park, Beaconsfield Canyon, Leona Heights Park, and other treatment areas. Some treatment areas, such as the North Oakland Sports Field and Grizzly Peak Open Space, are visible from SR 24 but such views would be short in duration due to the speed of travel along this highway. Similarly, partial views of Knowland Park and Arboretum, Sheffield Village Open Space, and Oak Knoll are available from I-580, although largely obscured by intervening trees and development, and are fleeting due to the speed of travel.

The following impact discussion focuses on the long-term aesthetic effects of treatment activities proposed under the Revised Draft VMP after treatment activities have been completed.

Existing Condition. Area above the dirt access road within the proposed 30-foot roadside treatment area at North Oakland Sports Field.

Visual Simulation. Simulated condition of the 30-foot roadside treatment area along the dirt access road in North Oakland Sports Field (Treatment Project NOR-1). Area treated to remove all but the dominant tree trunk for multi-trunk trees; surface vegetation treated to remove ladder fuels and retain some shrubs and non-flammable trees. Subsequent treatments would be necessary to achieve 25-foot spacing between retained trees.

Source: Dudek 2019

Figure 3.2-5. Existing Condition and Visual Simulation of NOR-1 at North Oakland Sports Field.

MONTROSE ENVIRONMENTAL

Existing Condition. Area along Grizzly Peak Boulevard looking west.

Visual Simulation. Simulated condition of the roadside along Grizzly Peak Boulevard treated to thin brush density, remove flashy fuels (grasses/weeds), remove pyrophytic trees, and provide horizontal (ladder fuels) and vertical separation between well-spaced retained trees (Treatment Project GPO-1).

Source: Dudek 2019

Figure 3.2-6. Existing and Visual Simulation of GPO-1 at Grizzly Peak Open Space.

MONTROSE ENVIRONMENTAL

Existing Condition. Area along the west side of Shepherd Canyon Road, looking west.

Visual Simulation. Simulated condition of the roadside treatment area along Shepherd Canyon Road treated to remove broom understory, apply surface mulch, prune select lower limbs to remove ladder fuels, mow weeds along roadside edge. Future treatments would be required to achieve a desired 35-foot spacing between retained trees. The simulation shows the interim treatment, allowing for retained trees to become more wind-firm before additional thinning occurs.

Source: Dudek 2019

Figure 3.2-7. Existing and Visual Simulation of SHP-2 at Shepherd Canyon Park.

MONTROSE ENVIRONMENTAL

Grazing

As described above in Impact AES-3, goat grazing would primarily occur in grasslands and brushland environments and beneath tree canopies to reduce fine fuel loads. Under baseline conditions, this technique has been utilized by the City to manage fire fuels on approximately 900 acres annually over the last 15 years. Under the Revised Draft VMP, goat grazing would be utilized on a total of approximately 1,100 acres across multiple treatment areas over the 10-year Revised Draft VMP period. Goats browse on woody vegetation (tree leaves, twigs, vines, and shrubs) and consume materials up to 6 feet above the ground. Once goat grazing is completed in the summer or fall season, some sensitive viewers with close-up views of a parcel may notice that vegetation has been reduced; however, such a change would be minor in scale and would not substantially alter the visual character of an area. Because vegetation within treated areas would grow back and goat grazing is an ongoing activity throughout the Revised Draft VMP area, this treatment technique would not substantially degrade the visual character or quality of Revised Draft VMP treatment areas in the long term.

Mechanical and Hand Labor Treatments

Once completed, mechanical and hand labor treatment activities proposed for shrub and tree removal would have varying effects on the visual character and quality of Revised Draft VMP treatment areas. Under the Revised Draft VMP, the levels of vegetation thinning activities would be determined according to vegetation management standards and goals established to remove flammable vegetation and reduce fire hazard risks. Treatment activities would also be prioritized whereby priority 1 projects would focus on managing vegetation within 100 feet of structures to provide defensible space for existing structures, 30 feet from roadside edges along major access/egress routes to reduce potential for wildfires generated by human activity, and within 300 feet of ridgelines to reduce fuel loads and ladder fuels where high and erratic winds have potential to occur. In shrub-dominant communities, priority 1 projects would typically involve removing all dead and dying brush/scrub, removing shrubs to create horizontal separation among other adjacent shrubs, and thinning shrubs to create vertical separation between the top of the shrub and the lowest tree branches. As another example, in eucalyptus and closed-cone pine-cypress stands, proposed management standards would focus on thinning mature tree stands to achieve horizontal spacing between trunks and removing understory growth of small trees, grasses, and other highly flammable species beneath tree canopies to create vertical separation between the top of surface fuels and the lowest tree branch. Refer to Chapter 2, Section 2.4.3, "Vegetation Management Standards," for a summary of the Revised Draft VMP's management standards and goals; refer to Section 9.1 of the Revised Draft VMP (Appendix A of this Recirculated DEIR) for a complete description of management standards and goals by dominant vegetation type. It is important to note that, by conducting vegetation management activities in accordance with these management standards, the Revised Draft VMP would not completely eliminate dominant vegetation types or large swaths of trees in any given treatment area. Treatment areas would also include the area within 30 to 100 feet of the roadside edge, where dead and dying trees would be removed.

Effects on Visual Character and Visual Quality from Foreground Views. As part of the Revised Draft VMP, visual simulations were prepared for select treatment projects proposed at the North Oakland Regional Sports Field, Grizzly Peak Open Space, and Shepherd Canyon Park. Existing and simulated conditions of the following treatment projects are presented in Figure

3.2-5 through Figure 3.2-7: NOR-1, GPO-1, and SHP-2. The long-term changes to visual character and visual quality at each of these treatment areas are described below.

- **Revised Draft VMP Treatment Project NOR-1**. One component of Revised Draft VMP treatment project NOR-1 would involve managing eucalyptus stands within 30 feet of the dirt access road at the North Oakland Sports Field. As shown in Figure 3.2-5, eucalyptus stands would be thinned to remove all but the dominant tree trunks for multi-trunk trees. Surface vegetation beneath the eucalyptus trees would also be managed to remove ladder fuels while retaining some shrubs and lower fire risk trees. From the perspective shown in Figure 3.2-5, vegetation and tree thinning along the dirt access road would result in a minor or moderate visual change and could be noticeable to hikers and other recreationists who use this road frequently. Because the larger and more mature eucalyptus trees would remain intact, the visual character and visual quality of the site would not substantially change from this perspective. Over time, the thinned understory would fill in with successional vegetation. Successional vegetation is anticipated to be similar in species composition to the vegetation at the treatment location prior to treatment, with the exception of areas that are actively revegetated. Removing select understory vegetation would potentially improve the visual conditions along this access road over time.

- **Revised Draft VMP Treatment Project GPO-1**. Under Revised Draft VMP treatment project GPO-1, one management action would involve thinning of shrubs, weeds, and grasses along Grizzly Peak Boulevard, removing some lower fire risk trees, and providing horizontal and vertical separation between retained trees. As shown in Figure 3.2-6, these actions would result in a moderate change but views of the slope below Grizzly Peak Boulevard would remain intact as this activity would merely reduce the density of vegetation surrounding shrubs. While such actions may be perceptible to adjacent residents who are accustomed to viewing this treatment areas, such actions would not be readily noticeable to motorists passing by. Because coastal shrubs would remain the dominant vegetative community, proposed treatment activities would not substantially degrade the visual character or quality of this treatment area.

- **Revised Draft VMP Treatment Project SHP-2**. Under Revised Draft VMP treatment project SHP-2, roadside treatment activities along Shepherd Canyon Road would involve removing French broom understory, pruning select lower limbs to remove ladder fuels, and mowing weeds along the roadside edge. This particular simulation shows an interim treatment; additional treatments would be necessary to achieve 35-foot spacing between retained trees. The interim treatment activities would allow retained trees to become more wind-firm before additional thinning activities would occur. As shown in Figure 3.2-7, along this segment of Shepherd Canyon Road, mature eucalyptus trees would remain in place, and the thinning of understory vegetation would not substantially degrade the visual character or quality of this stretch of road. Rather, such actions would clean up and improve the visual conditions of this roadside treatment area.

The simulations presented in Figure 3.2-5 through Figure 3.2-7 show select examples of how the visual character and quality of views would change in the immediate foreground of treatment projects NOR-1, GPO-1, and SHP-2. While visual character and quality vary from site to site, the

same management recommendations by dominant vegetation type (in addition to other standards described in Section 9.1 of the Revised Draft VMP [Appendix A of this Recirculated DEIR]) would apply across the Revised Draft VMP treatment areas. Such standards are intended to reduce fuel loads, composition, and spacing of retained vegetation and not necessarily to remove all vegetation within treatment areas.

Within some open space areas and parks, such as Joaquin Miller Park (e.g., project JMP-1), the Revised Draft VMP proposes thinning of trees and understory vegetation near public trails and park access gates~~.~~ as well as removal of dead and dying trees within 100 feet of roadways. Although large living trees and other vegetation would remain in Revised Draft VMP treatment areas, less vegetation would be present where mechanical and manual tree removal occurs. Given the high viewer sensitivity from public trails and high volume of recreationists at Joaquin Miller Park, there could be an adverse visual impact to the existing visual character and quality of views from some trails in this park as views tend to be extended for recreationists. Similarly, removal or pruning of large trees adjacent to other public trails throughout the Revised Draft VMP area could be perceived as an adverse visual effect to recreationists. As a result, the visual character and visual quality could be degraded in select areas throughout the Revised Draft VMP area. This is a potentially significant impact. Implementation of Mitigation Measure AES-1 would reduce this impact to a less-than-significant level.

Effects on Visual Character and Visual Quality from Middle Ground Views. Some treatment areas, including the North Oakland Sports Field and Grizzly Peak Open Space, would be visible from middle ground distances from eastbound SR 24, other nearby roads, and residences south of these treatment areas. As noted previously, vegetation management activities within these two treatment areas would involve thinning of trees and vegetation in select areas (e.g., within 30 feet of access roads and 300 feet of ridgelines) and removal of dead and dying trees within 100 feet of roadways to reduce the fire hazard risks. Selective thinning of eucalyptus, pine, and Monterey cypress trees in these areas (in accordance with management recommendations for Revised Draft VMP treatment projects GPO-1, GPO-2, NOR-1 and NOR-2) would result in moderate permanent changes in the existing visual character of the landscape as the tree densities would be reduced. At a large scale, these actions could be more noticeable from middle ground distances, such as from eastbound SR 24, nearby roads, and residences south of the North Oakland Sports Field and Grizzly Peak Open Space. As described in Chapter 2, *Project Description,* Table 2-6, the City estimates the maximum amount of manual tree removal activities would be 26~~20~~ acres per year and the maximum amount of mechanical tree removal activities would be 75~~5~~ acres per year. Given the size of the treatment areas within the North Oakland Sports Field and Grizzly Peak Open Space, it is anticipated that mechanical and hand labor tree removal activities would be phased over the Revised Draft VMP's 10-year timeframe; thus, visual changes to the altered landscape would also occur in a phased manner. Over time, other understory vegetation anticipated to be similar in species composition to pre-treatment conditions would grow to fill in the areas where vegetation has been removed. For these reasons and because large trees would remain where thinning occurs (in accordance with horizontal spacing requirements imposed by the Revised Draft VMP's management standards), impacts on middle ground views from mechanical and hand labor tree and shrub removal activities would not result in a long-term, substantial degradation of the existing visual character or visual quality at the North Oakland Sports Field and Grizzly Peak Open Space.

Herbicides

As described above in Impact AES-3, herbicide application would be limited in scope and would primarily occur in areas where eucalyptus and acacia trees have been removed and to limit or reduce plant growth and plant coverage of surface fuels (including such plants as French broom, Scotch broom, pampas grass, and jubata grass). Herbicides would be applied to the cut stump or stems of secondary-growth eucalyptus and acacia trees to reduce the need for ongoing maintenance. As noted in Chapter 2, *Project Description,* Table 2-~~7~~6, this treatment would be limited to 20 acres per year for tree treatment and 15 acres per year for shrub treatment. Therefore, because the scope of herbicide application would be limited to controlling the growth and cover of specific trees that have already been removed and on select highly flammable/rapidly spreading plants within treatment areas, herbicide application activities alone would not substantially alter or degrade the long-term visual character or quality of public views.

Mitigation Measures

See text in Impact AES-1 above.

Conclusion

Based on the discussion above, long-term effects of Revised Draft VMP activities on visual character and quality would be **less than significant with mitigation**.

3.3 AIR QUALITY

This section describes the existing air quality conditions in the study area, which includes the Revised Draft VMP area and the San Francisco Bay Area Air Basin (SFBAAB). This section also describes the relevant air quality regulations, air quality significance criteria, methodology used to evaluate impact significance, and the Revised Draft VMP's resulting air quality impacts. This section also describes mitigation measures that would reduce potentially significant air quality impacts. Detailed information about the assumptions and modeling results discussed in this section are provided in **Appendix C**, *Air Quality/Greenhouse Gas/Energy Calculations,* of this Recirculated DEIR.

3.3.1 ENVIRONMENTAL SETTING

Study Area

The study area consists of the locations where physical actions associated with the Revised Draft VMP would take place. This area is located within the SFBAAB, which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The study area for air quality impacts is evaluated at both local and regional scales. Air quality at the local scale involves evaluating the potential for local "hot spots" to result in areas adjacent to anticipated Revised Draft VMP treatment sites due to emissions of pollutants of local concern, including carbon monoxide, particulate matter, and toxic air contaminants. Air quality at the regional scale involves evaluating air pollutants of regional concern such as ozone, ozone precursors, and particulate matter.

San Francisco Bay Area Air Basin

The California Air Resources Board (CARB) has divided California into regional air basins according to topographic air drainage features. The SFBAAB, managed by BAAQMD, comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, as well as portions of Solano and Yolo Counties. Air quality is determined by natural factors such as climate, topography, and meteorology, in addition to the presence of air pollution sources and ambient conditions.

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, all of which distort normal wind flow patterns. The Coast Ranges split, resulting in a western coast gap, the Golden Gate, and an eastern coast gap, Carquinez Strait; these allow air to flow in and out of the SFBAAB and the Central Valley (BAAQMD 2017a).

BAAQMD divides the SFBAAB into subregions with distinct climate and topographic features. The proposed Revised Draft VMP area is located in the Northern Alameda and Western Contra Costa Counties Subregion of the SFBAAB.

Northern Alameda and Western Contra Costa Counties Subregion

This climatological subregion stretches from Richmond to San Leandro. Its western boundary is defined by the San Francisco Bay (the Bay) and its eastern boundary by the Oakland-Berkeley Hills. The Oakland-Berkeley Hills have a ridgeline height of approximately 1,500 feet, a substantial barrier to air flow. The most densely populated area of the subregion lies in a strip of land between the Bay and the lower hills. In this area, marine air traveling through the Golden Gate, as well as across San Francisco and through the San Bruno Gap, is a dominant weather factor. The Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland, which causes diminished wind speeds. The prevailing winds for most of this subregion are from the west.

Temperatures in this subregion have a narrow range due to the proximity of the moderating marine air. Maximum temperatures during summer average in the mid-70s (in degrees Fahrenheit [°F]), with minimums in the mid-50s. Winter highs are in the mid- to high 50s, with lows in the low to mid-40s.

The air pollution potential is lowest for the parts of the subregion that are closest to the Bay, due largely to good ventilation and less influx of pollutants from upwind sources. The occurrence of light winds in the evenings and early mornings occasionally causes elevated pollutant levels. The air pollution potential at the northern (Richmond) and southern (Oakland, San Leandro) parts of this subregion is marginally higher than at communities directly east of the Golden Gate because of the lower frequency of strong winds.

This subregion contains a variety of industrial air pollution sources. Some industrial facilities are quite close to residential areas. The subregion is also traversed by major freeways that are frequently congested. Traffic and congestion, along with the motor vehicle emissions they generate, are increasing (BAAQMD 2017a).

Air Pollutants

Several air pollutants of concern would be associated with Revised Draft VMP activities. These air pollutants are discussed briefly below. Two main categories of air pollutants are described: criteria air pollutants and toxic air contaminants. Criteria air pollutants are those air pollutants with national and/or state air quality standards that define allowable concentrations of these substances in the ambient air. ~~TACs~~Toxic air contaminants are those air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. CO is formed by the incomplete combustion of fuels and is emitted directly into the air. Ambient CO concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distribution of vehicular traffic. CO concentrations are also influenced by wind speed and atmospheric mixing. Under inversion conditions (when a low layer of warm air, along with its pollutants, is held in place by a higher layer of cool air), CO concentrations may be distributed more uniformly over an area to some distance from vehicular sources. CO binds with hemoglobin, the oxygen-carrying protein in blood, and thereby reduces the blood's capacity to

carry oxygen to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties in people with chronic diseases, impair mental abilities, and cause death.

Ozone

Ozone (O_3) is a reactive gas that, in the troposphere (the lowest region of the atmosphere), is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when nitrogen oxides and reactive organic gases react in the presence of sunlight. Ozone at the Earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the stratosphere, ozone exists naturally and shields the Earth from harmful incoming ultraviolet radiation. High concentrations of ground-level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems such as forests and foothill natural communities, agricultural crops, and some human-made materials (e.g., rubber, paint, and plastics).

Nitrogen Oxides

Nitrogen oxides (NO_X)is a family of gaseous nitrogen compounds that are precursors to the formation of ozone and particulate matter. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant.

Reactive Organic Gases

Reactive organic gases (ROG) consist of hydrocarbon compounds that exist in the ambient air. ROG contributes to the formation of smog and/or may itself be toxic. ROG emissions are a major precursor to the formation of ozone.

Particulate Matter

Particulate matter (PM) is a complex mixture of extremely small particles and liquid droplets. PM is made up of various components, including acids, organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to the potential for causing health problems. PM particles that are smaller than 10 micrometers in diameter, called PM10, are of most concern because these particles pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. PM10 particles are typically found near roadways and industrial operations that generate dust. PM10 particles are deposited in the thoracic region of the lungs. Fine particles, called PM2.5, are particles less than 2.5 micrometers in diameter and are found in smoke and haze. PM2.5 particles penetrate deeply into the thoracic and alveolar regions of the lungs. ~~lungs.~~ Ultrafine particulate matter, which has a diameter less than 0.1 micrometer (PM0.1), is not federally regulated at this time, although it is a subset of PM10 and PM2.5 emissions. It is generally recognized that smaller particles are more harmful to human health. Unlike larger particles, PM0.1 can penetrate pulmonary tissue, enter the bloodstream, and circulate throughout the body. Thereby, PM0.1 can damage internal systems that may be inaccessible to larger particles.

Sulfur Dioxide

Sulfur dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. Suspended SO_2 particles contribute to poor visibility in the SFBAAB and are a component of PM10.

Lead

Lead (Pb) is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. There is no known safe exposure level to lead. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. Lead poisoning can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract and can reduce mental capacity.

Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out since 1996, which has resulted in dramatic reductions in ambient concentrations of lead. Because lead persists in the environment forever, however, areas near busy highways continue to have high levels of lead in dust and soil.

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plant operations, and confined animal feeding operations. H_2S is extremely hazardous in high concentrations and can cause death.

Sulfates

Sulfates are the fully oxidized, ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds result primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

CARB's sulfate standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardiopulmonary disease. Sulfates are particularly effective in degrading visibility and, due to the fact that they are usually acidic, can harm ecosystems and damage materials and property.

Vinyl Chloride

Vinyl chloride is a colorless gas that does not occur naturally. It is formed when other substances, such as trichloroethane, trichloroethylene, and tetrachloroethylene, are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) for a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Toxic Air Contaminants

Hundreds of different types of toxic air contaminants (TACs) exist, with varying degrees of toxicity. Many TACs are confirmed or suspected carcinogens, or are known or suspected to cause birth defects or neurological damage. For some chemicals, such as carcinogens, no thresholds exist below which exposure can be considered risk-free. Examples of TAC sources in the Revised Draft VMP area include fossil fuel combustion sources, pesticides, and asbestos, including naturally occurring asbestos (NOA).

Sources of TACs include stationary sources, area-wide sources, and mobile sources. The U.S. Environmental Protection Agency (USEPA) maintains a list of 187 TACs, also known as hazardous air pollutants. These hazardous air pollutants are also included on CARB's list of TACs (CARB 2020~~a~~). According to the *California Almanac of Emissions and Air Quality* (CARB 2013), many researchers consider diesel PM (DPM) to be a primary contributor to health risk from TACs because particles in diesel exhaust carry a mixture of many harmful organic compounds and metals, rather than being a single substance as are other TACs. Unlike many TACs, outdoor DPM is not monitored by CARB because no routine measurement method has been identified. However, using the CARB emission inventory's PM10 database, ambient PM10 monitoring data, and results from several studies, CARB has made preliminary estimates of DPM concentrations throughout the state (California Office of Environmental Health Hazard Assessment [OEHHA] 2001).

Naturally Occurring Asbestos

Asbestos is the common name for a group of naturally occurring, fibrous silicate minerals that can separate into thin but strong and durable fibers. Ultramafic rocks form in high-temperature environments far below the surface of the earth. By the time they are exposed at the ground surface by geologic uplift and erosion, ultramafic rocks may be partially to completely altered into a type of metamorphic rock called serpentinite. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks, along their boundaries, or in the soil. Asbestos that occurs naturally in the environment ~~(NOA)~~ was identified as a TAC in 1986 by CARB. NOA is located in many parts of California and is commonly associated with ultramafic rocks, according to the California Department of Conservation, Division of Mines and Geology's 2002 special publication, *Guidelines for Geologic Investigations of Naturally Occurring Asbestos in California*. (The department was renamed the California Geological Survey [CGS] in 2006.)

For individuals living in areas with NOA, there are many potential pathways for airborne exposure. Exposure to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt; dust raised from unpaved roads and driveways covered with crushed serpentine; grading and earth disturbance associated with construction activity; quarrying; and gardening. For homes built on asbestos outcroppings, asbestos can be tracked into the home on shoes and can also enter as fibers suspended in the air. Once such fibers are indoors, they can be entrained into the air by normal household activities such as vacuuming; many respirable fibers are small enough to pass through vacuum cleaner bags.

People exposed to low levels of asbestos may be at an elevated risk (e.g., above background rates) for lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose

(quantity of fibers), and also increases with the time since first exposure. Although numerous factors influence the disease-causing potency of any form of asbestos (such as fiber length and width, fiber type, and fiber chemistry), all forms are carcinogenic.

Odors

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., roasting coffee). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is known as odor fatigue; a person can become desensitized to almost any odor, after which recognition occurs only with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the concentration in the air. When an odor sample is progressively diluted, the odor concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odor reaches a level that is no longer detectable.

Air Quality Attainment and Local Conditions

CARB and USEPA have established ambient air quality standards (AAQS) to protect human health and welfare. Geographic areas are deemed to be in "attainment" if these standards are met or in "nonattainment" if they are not met. Nonattainment status is classified by the severity of the nonattainment problem. Marginal, moderate, serious, severe, and extreme nonattainment classifications have been established for ozone; nonattainment classifications for PM range from marginal to serious. **Table 3.3-1** shows the state and federal attainment status for the SFBAAB.

Table 3.3-1. San Francisco Bay Area Air Basin Attainment Status

Contaminant	Averaging Time	Concentration	State Standards Attainment Status[1]	Federal Standards Attainment Status[2]
Ozone	1-hour	0.09 ppm	N	See footnote 3
	8-hour	0.070 ppm	N	N (Marginal)
Carbon Monoxide	1-hour	20 ppm	A	
		35 ppm		A
	8-hour	9.0 ppm	A	A[4]
Nitrogen Dioxide	1-hour	0.18 ppm	A	
		0.100 ppm[6]		U
	Annual arithmetic mean	0.030 ppm	A	
		0.053 ppm		A
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm	A	
		0.075 ppm		A
	24-hour	0.04 ppm	A	
		0.14 ppm		A
	Annual arithmetic mean	0.030 ppm		A
Particulate Matter (PM10)	24-hour	50 µg/m^3	N	
		150 µg/m^3		U
	Annual arithmetic mean	20 µg/m^3	N	
Fine Particulate Matter (PM2.5)	24-hour	35 µg/m^3		N (Moderate)[7]
	Annual arithmetic mean	12 µg/m^3	N	U/A
Sulfates	24-hour	25 µg/m^3	A	
Lead[8]	30-day average	1.5 µg/m^3	A	
Hydrogen Sulfide	1-hour	0.03 ppm	U	
Vinyl Chloride[8] (chloroethene)	24-hour	0.010 ppm	U	
Visibility Reducing Particles	8-hour (10:00 to 18:00 PST)	See footnote 5	U	

A – attainment
N – nonattainment
U – unclassified
ppm – parts per million
µg/m^3 – micrograms per cubic meter
PST – Pacific Standard Time

Notes:

1. California standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM10, and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average (i.e., all standards except for lead and the PM10 annual standard), then some measurements may be excluded. In particular measurements that are excluded include those that the CARB determines would occur less than once per year on average.
2. National standards shown are the "primary standards" designed to protect public health. National air quality standards are set by USEPA at levels determined to be protective of public health with an adequate margin of safety. National standards other than for ozone, particulates, and those based on annual averages are not to be exceeded more than once per year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.075 ppm (75 parts per billion) or less. The 24-hour PM10 standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 $\mu g/m^3$. The 24-hour PM2.5 standard is attained when the 3-year average of 98th percentiles is less than 35 $\mu g/m^3$. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM10 is met if the 3-year average falls below the standard at every site. The annual PM2.5 standard is met by spatially averaging annual averages across officially designated clusters of sites and then determining if the 3-year average of these annual averages falls below the standard.
3. The national 1-hour ozone standard was revoked by USEPA on June 15, 2005. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 ppm to 0.070 ppm. An area meets the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. This table provides the attainment statuses for the 2015 standard of 0.070 ppm.
4. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
5. Statewide Visibility-Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
6. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average of nitrogen dioxide at each monitoring station within an area must not exceed 0.100 ppm (effective January 22, 2010).
7. On January 9, 2013, USEPA issued a final rule to determine that the Bay Area attains the 24-hour PM2.5 national standard. This USEPA rule suspends key state implementation plan ~~(SIP)~~ requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this USEPA action, the Bay Area will continue to be designated as "nonattainment" for the national 24-hour PM2.5 standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to USEPA, and USEPA approves the proposed redesignation.
8. CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure below which there are no adverse health effects determined.

Source: CARB 2019, USEPA 2020, BAAQMD 2020c

Air Monitoring Data

BAAQMD, CARB, and USEPA operate an extensive air monitoring network to measure progress toward attainment of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The closest air monitoring station to the Revised Draft VMP area is in Oakland on International Boulevard, located south and west of the Revised Draft VMP area. **Table 3.3-2** shows ~~the most recent~~ three years of available data from stations in the area. Site-level data were available for ozone, PM2.5, and NO_2.

Table 3.3-2. Air Monitoring Data for ~~2016-2018~~2019-2021

Monitoring Station	Pollutant	Standard	~~2016~~2019		~~2017~~2020		~~2018~~2021	
			Exceed-ances[a]	Maximum Concentration	Exceed-ances[a]	Maximum Concentration	Exceed-ances[a]	Maximum Concentration
Oakland-9925 International Blvd	Ozone	8-hour	2/2~~0~~/0	0.073~~0.05~~ ~~7~~	0/0~~2~~/2	0.066~~0.10~~ ~~0~~	0/0	0.061~~0.05~~ ~~2~~
		Hourly	0/~~0~~1	0.098~~0.08~~ ~~2~~	0/0~~2~~/1	0.090~~0.13~~ ~~6~~	0/0	0.083~~0.~~ ~~061~~
	PM2.5	24-hour	0	24.7~~15.50~~ ~~0~~	11~~7~~	167.7~~70.2~~ ~~00~~	0~~13~~	33.0~~172.1~~ ~~00~~
	NO_2	Hourly	0/0	61.8~~59.20~~ ~~0~~	0/0	59.2~~64.90~~ ~~0~~	0/0	48.7~~72.90~~ ~~0~~

Notes: ppb = parts per billion; ppm = parts per million; µg/m^3 = micrograms per cubic meter; N/A = ~~Not Applicable~~not applicable

[a] The first value represents the number of days on which the federal standard was exceeded. The second number is the number of days on which the state standard was exceeded.

[b] Annual values for particulate matter are averages.

Maximum concentration is obtained from national data where national and state values differ. No data for PM10 or CO were available from these sites.

Source: CARB ~~2020b~~2023.

TACs in SFBAAB

In 2006, BAAQMD undertook the creation of a regional emissions inventory for TACs from major sources of emissions in the Bay Area, including nearly 200 toxic gases or particles. Emissions inventories for 2005 and 2015 were used as data inputs to a regional air quality model to predict concentrations of key toxic compounds and the associated cancer risk. Some of the key findings from this work were that DPM contributed more than 85 percent of the total inventoried cancer risk and that simulated potential cancer risk from TACs is highest near major DPM sources. Another key finding is that cancer risk from TACs is dropping; when emissions inputs accounted for state diesel regulations and other reductions, modeled risk values were projected to drop by more than 50 percent between 2005 and 2015. Measurement-based assessments of cancer risk from air pollution show similar reductions. According to the most recent analysis (for 2012), the average regional cancer risk was about 300 per million. That is, for every 1 million residents exposed for 70 years to current levels of TACs, 300 would be expected to develop cancer as a result of the exposure. According to the analysis, more than 70 percent of the cancer risk related

to air pollution in the Bay Area is attributable to DPM, and 90 percent of the total risk is attributable to three compounds: DPM, benzene, and 1,3-butadiene. All three of these compounds are produced through fuel combustion (BAAQMD 2014).

Sensitive Receptors

Sensitive receptors are those segments of the population most susceptible to poor air quality: children, the elderly, and individuals with pre-existing serious health problems affected by air quality (e.g., asthma) (CARB 2005). Examples of locations that contain sensitive receptors are residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds include play areas associated with parks or community centers. Receptors in the vicinity of Revised Draft VMP activities could include any of these receptor types, in particular single-family residences in rural, suburban, and urban settings. Revised Draft VMP project sites are generally located in the Oakland Hills and border residential areas and open spaces. **Table 3.3-3** includes information on the sensitive receptors closest to the major Revised Draft VMP treatment areas. Smaller parcels, which are not included in the table, often include or are adjacent to single-family residences.

Table 3.3-3. Sensitive Receptors Near Revised Draft VMP ~~Treatment~~treatment Areas

Revised Draft VMP Treatment Area	**Sensitive Receptor**	**Distance in Feet to Nearest Receptor from Revised Draft VMP Treatment Area (center/edge)**
Garber Park	Multiple residences along Alvarado Road, Evergreen Lane, Siler Place, and Rispin Drive	215 / 0
	Claremont Hotel	1,600 / 600
Grizzly Peak Open Space	Multiple residences along Tunnel Road, Bay Forest Drive, Buckingham Boulevard, and Westmoorland Drive	290 / 0
North Oakland Sports Field	Residences along Gwin Road, Fairlane Drive, Swainland Road, and Skyline Boulevard	1,100 / 300
Skyline Boulevard	Multiple single-family residences along Skyline Boulevard	30 (from road center) / 0
Shepherd Canyon	Shepherd Canyon Park, ~~Shepherd Canyon~~Montclair Railroad Trail, and Montclair Park	0 / 0
	Single-family residences along Magellan Drive, Cortereal Avenue, Snake Road, Drake Drive, Zinn Drive, Cortez Court, Bishop Court, Westover Drive, Pelham Place, Scarborough Drive	425 / 0
	First Church of Christ Scientist	2,800 / 350
Dimond Canyon Park	Single-family residences along Leimert Boulevard, Monterey Boulevard, Bridgeview Drive, Arden Place, Clemens Road, Oakmore Road, Park Boulevard, Hanly Road, El Centro Avenue, Lyman Road, Canon Avenue, Vista Street	220 / 0
	The Renaissance International School, Corpus Christi School, Glenview Elementary School	415 / 100
	Dimond Branch Oakland Public Library	4,000 / 670
	Zion Lutheran Church, Corpus Christi Church	415 / 85
Joaquin Miller Park	Residences along Joaquin Miller Road, Burdeck Court, Butters Drive, Robinson Drive, Skyline Boulevard, Castle Drive, Waybridge Court, Castle Park Way, Mastlands Drive, Joaquin Miller Court, Woodcrest Circle	1,500 / 0
	Joaquin Miller Park, Chabot Space and Science Center	0 / 0
	A Child's House – Preschool	1,800 / 150
	Church of Jesus Christ of Latter-Day Saints	4,500 / 1,200

Revised Draft VMP Treatment Area	**Sensitive Receptor**	**Distance in Feet to Nearest Receptor from Revised Draft VMP Treatment Area (center/edge)**
Leona Heights Park	Residences along Redwood Road, Geranium Place, Berneves Court, Mountain Boulevard	280 / 0
	East Hills Community Church	1,700 / 330
	Mountain Boulevard Montessori School, Chatham Nursery School, Carl B Munck Elementary School, Merritt College	640 / 5
	Sunrise of Oakland Hills (Assisted Living Facility)	2,100 / 1,350
King Estate Open Space Park	Residences along Greenly Drive, Sterling Drive, McCormick Avenue, Sunkist Drive, 82nd Avenue, El Monte Avenue, Aster Avenue, Ney Avenue, Fontaine Street, Blandon Road, Sarazen Avenue, Castlewood Street, Calandria Avenue, Murillo Avenue, Crest Avenue	550 / 0
	Sojourner Truth School, Charles P. Howard Elementary School	410 / 0
	Bethany Home Care, E.E. Cleveland Manor (assisted living facilities)	2,400 / 750
	United Lutheran Church of Oakland, Center of Hope Community Church, Masjid Al-Islam	1,040 / 10
Knowland Park	Residences along Golf Links Road, Anza Avenue, Burgos Avenue, Sigourney Avenue, Orinda Vista Drive, Royal Oak Road, Elysian Fields Drive, Riviera Court, Pebble Beach Drive, Fox Hills Court, Scotia Avenue, Merlin Court, Cotter Street, Key Court, Caloden Lane, Fallbrook Way, Malcolm Avenue, Elvessa Street, Ettrick Street, Lochard Street, Cameron Avenue, Snowdown Avenue, Edgemont Way, Maggiora Drive, Hellman Street, Stella Street, Mark Street, Hood Street, 106th Avenue, Sheldon Street, Broadmoor View, Stanley Avenue	920 / 0
	St. Paschal Baylon Catholic Church, Northern Light School, Grass Valley Elementary School, BJ's Daycare Center	2,800 / 210
	Oakland Zoo, Knowland Park	0 / 0
	Sunny Care Home, Bethany Home Care, D'Nalor Care Homes (assisted living facilities)	3,535 / 120
	Harris Motel, Commodore Hotel, Premier Inn & Suites, Starlite Motel, Welcome Inn, Crown Lodge Motel, Travis Lodge Motel 16	5,800 / 1,350
Lake Chabot Golf Course	Residences along Sun Valley Drive, Golf Links Road, Turner Avenue, Lochard Street	1,200 / 10
	East Bay Bible Church	2,650 / 1,325
	Sheffield Village Open Space	1,100 / 0

Revised Draft VMP Treatment Area	**Sensitive Receptor**	**Distance in Feet to Nearest Receptor from Revised Draft VMP Treatment Area (center/edge)**
Sheffield Village Open Space	Residences along Cranford Way, Revere Avenue, Marlow Drive, Malcolm Avenue, Broadmoor View, Daniels Drive, Sylvan Circle, Lochard Street	725 / 0
	East Bay Innovation Academy	3,650 / 10
	Fairhaven Bible Chapel, Creekside Community Church	2,580 / 650
	Dunsmuir Hellen Historic Estate, Lake Chabot Golf Course	1,100 / 0
	D'Nalor Care Homes	5,550 / 1,890

Source: Based on Google Earth aerial views.

Existing Levels of Emissions Generated by Vegetation Treatment Activities

As detailed in Chapter 2, *Project Description*, and Section 3.1.~~3~~2, "Baseline Conditions," the baseline conditions for this ~~EIR~~Recirculated DEIR consider a range of existing vegetation management activities and assume that a certain amount of goat grazing and roadside treatment (via hand labor and mechanical activities) is being performed. These activities would generate air pollutant emissions from the consumption of fossil fuels during equipment and vehicle use. Existing air pollutant emissions from the baseline activities assumed in Section 3.1.~~3~~2 are summarized in **Table 3.3-4**. According to City staff, current and past goat grazing activities have resulted in no known odor complaints (Hansen 2020, pers. comm.).

Table 3.3-4. Baseline Conditions Criteria Pollutant Emissions

	Emissions – Annual (Tons / Year)			
Vegetation Management Activity	**ROG**	**NO_X**	**PM10**	**PM2.5**
Grazing	0.00	0.00	0.00	0.00
~~Grazing Worker Trips~~	~~2.61 E-03~~	~~0.01 9~~	~~0.01~~	~~1.64 E-03~~
Roadside Treatments	1.00	0.15	0.02	0.02
All Worker, Vendor and Hauling Trips	0.01~~3.5 9E-03~~	0.02~~0.0 3~~	0.01	0.005~~2. 26E-03~~
Baseline Total	1.01	0.17~~0.2 0~~	0.03~~0.0 4~~	0.025~~0. 02~~

3.3.2 REGULATORY SETTING

This subsection discusses the federal, state, regional, and local laws, regulations, and policies that pertain to air quality in the Revised Draft VMP area.

Federal Laws, Regulations, and Policies

USEPA is responsible for establishing the NAAQS, enforcing the federal Clean Air Act (CAA), and regulating transportation-related emission sources such as aircraft, ships, and certain types of locomotives, under the exclusive authority of the federal government. USEPA also establishes vehicular emission standards, including those for vehicles sold in states other than California. (Automobiles sold in California must meet stricter emission standards established by CARB, as described below.)

Clean Air Act

The CAA required USEPA to establish NAAQS, which are described above and shown in Table 3.3-1. The CAA also required each state to prepare an air quality control plan.

Non-road Emission Regulations

USEPA has adopted emissions standards for various types of non-road engines, equipment, and vehicles. For non-road diesel engines, USEPA has adopted multiple tiers of emission standards.

USEPA signed a final rule on May 11, 2004, introducing the Tier 4 emission standards, to be phased in between 2008 and 2015 (69 Code of Federal Regulations [CFR] 38957–39273, June 29, 2004). The Tier 4 standards require that emissions of PM and NO_X be further reduced by about 90 percent. Such emission reductions can be achieved using control technologies, including advanced exhaust gas after-treatment. To enable sulfur-sensitive control technologies in Tier 4 engines, such as catalytic particulate filters and NO_X absorbers, USEPA also mandated reductions in sulfur content in non-road diesel fuels. In most cases, federal non-road regulations also apply in California, which has only limited authority to set emission standards for new non-road engines. The CAA preempts California's authority to control emissions from new farm and construction equipment less than 175 horsepower (CAA Section 209[e][1][A]) and requires California to receive authorization from USEPA for controls over other off-road sources (CAA Section 209[e][2][A]).

State Laws, Regulations, and Policies

California Clean Air Act

The California Clean Air Act (CCAA) requires nonattainment areas to achieve and maintain the health-based CAAQS by the earliest practicable date. The CCAA is administered by CARB at the state level; at the regional level, local air quality management districts are required to develop plans and control programs for attaining the state standards. Table 3.3-1 shows the CAAQS.

CARB is responsible for ensuring implementation of the CCAA, meeting state requirements of the federal CAA, and establishing the CAAQS. It is also 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.

In-use Off-road Diesel Vehicle Regulation

In 2007, CARB adopted a regulation to reduce DPM 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. In December 2011, the regulation was amended to modify the compliance dates for performance standards and establish requirements for compliance with verified diesel emission control strategy technologies that reduce PM and/or NO_X emissions.

Truck and Bus Regulation

In 2008, CARB approved a regulation to substantially reduce emissions of DPM, NO_X, and other pollutants from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance standards and requirements by 2023. Affected vehicles included on-road, heavy-duty, diesel-fueled vehicles with a gross vehicle weight rating greater than 14,000 pounds. The regulation was updated in 2011 and 2014 to provide more compliance flexibility and reflect the impact of the 2008 economic recession on vehicle activity

and emissions. Heavy-duty trucks used for Revised Draft VMP activities would be required to comply with this regulation.

Heavy-duty On-board Diagnostic System Regulations

In 2004, CARB adopted regulations requiring on-board diagnostic (OBD) systems on all 2007 and later model year heavy-duty engines and vehicles (i.e., vehicles with a gross vehicle weight rating greater than 14,000 pounds) in California. CARB subsequently adopted a comprehensive OBD regulation for heavy-duty vehicles model years 2010 and beyond. The heavy-duty OBD regulations were updated in 2010, 2013, and 2016 with revisions to enforcement requirements, testing requirements, and implementation schedules. Heavy-duty trucks used during Revised Draft VMP activities would be required to comply with the heavy-duty OBD regulatory requirements.

Heavy-duty Vehicle Inspection Program

The heavy-duty vehicle inspection program requires heavy-duty trucks and buses to be inspected for excessive smoke and tampering and for compliance with engine certification labels. Any heavy-duty vehicle (i.e., a vehicle with a gross vehicle weight rating greater than 14,000 pounds) traveling in California, including vehicles registered in other states and foreign countries, may be tested. Tests are performed by CARB inspection teams at border crossings, California Highway Patrol weigh stations, fleet facilities, and randomly selected roadside locations. Owners of trucks and buses found to be in violation are subject to penalties starting at $300 per violation. Heavy-duty trucks used during Revised Draft VMP activities would be subject to the inspection program.

California Standards for Diesel Fuel Regulations

These regulations require diesel fuel with sulfur content of 15 parts per million (ppm) or less (by weight) to 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.

Airborne Toxic Control Measures

CARB regulates TACs by requiring implementation of various airborne toxic control measures (ATCMs), which are intended to reduce emissions associated with toxic substances. The following ATCMS may be relevant to Revised Draft VMP activities.

Naturally Occurring Asbestos ATCMs

These regulations ensure that activities in areas containing NOA must implement asbestos dust mitigation measures, and they restrict the use of asbestos-containing material on road surfacing to less than 0.25 percent. Projects that disturb more than 1 acre in areas containing NOA must submit and obtain local air district approval of an asbestos dust mitigation plan. The plan must specify how the operation will minimize emissions and must address specific emission sources. This ATCM supersedes the BAAQMD's natural asbestos-related regulation and requires permits from the BAAQMD (as detailed in "Regional Laws, Regulations, and Policies" below).

ATCM to Limit Diesel-fueled Commercial Motor Vehicle Idling

On October 20, 2005, CARB approved an ATCM to limit idling of diesel-fueled commercial motor vehicles. This regulation was a follow-up to previous idling ATCMs, and it consists of new engine and in-use truck requirements, as well as idling emission performance standards. The regulation requires 2008 and newer model year heavy-duty diesel-fueled engines to be equipped with a nonprogrammable engine shutdown system that automatically shuts down the engine after 5 minutes of idling or, optionally, meets a stringent NO_X idling emission standard (i.e., 30 grams per hour). The regulation also applies to the operation of in-use trucks, requiring operators of both in-state and out-of-state registered, sleeper berth–equipped trucks to manually shut down their engines when idling more than 5 minutes at any location within California, beginning in 2008. Affected vehicles include diesel-fueled commercial vehicles with a gross vehicle weight rating greater than 10,000 pounds. The regulation contains exceptions for equipment that requires the engine to remain on to operate, such as ready-mix concrete trucks. Trucks used for hauling or vendor delivery of materials for Revised Draft VMP activities would be required to comply with these requirements.

Regional Laws, Regulations, and Policies

BAAQMD is responsible for implementing air quality regulations on a regional level, including developing plans and control measures for stationary sources of air pollution to meet the NAAQS and CAAQS. BAAQMD also implements permit programs for the construction, modification, and operation of air pollution sources and enforces air pollution statutes and regulations governing stationary sources. With CARB oversight, BAAQMD also administers local regulations.

Regulations and Rules

The BAAQMD supports incentive programs to reduce criteria pollutant emissions within its jurisdiction, as well as establishing rules and permitting requirements. The Revised Draft VMP may be subject to some or all of the following BAAQMD rules (BAAQMD 2020b):

Regulation 2: Permits outlines the air permitting program, including exemptions and sources that require permitting.

Regulation 2, Rule 1: Permits General Requirements outlines permitting requirements and exemptions. This rule prohibits any source from causing a public nuisance, defines what equipment is subject to permitting/new source review requirements, and exempts portable stationary equipment (e.g., generators or soil screeners) from permitting if they comply with all applicable requirements of CARB's Portable Equipment Registration Program.

Regulation 6, Rule 1: Particulate Matter restricts emissions of PM.

Regulation 11, Rule 14: Asbestos-Containing Serpentine was adopted in 1991 to control asbestos emissions from unpaved road surfaces and other surfacing operations. This regulation has been superseded by CARB's ATCM for Surfacing Applications and for Construction, Grading, Quarrying, and Surface Mining Operations; however, applicable Revised Draft VMP activities would be required to obtain BAAQMD approval of asbestos

dust mitigation plans and notify BAAQMD of maintenance operations (BAAQMD 2020a, 2020b).

BAAQMD Planning

BAAQMD has adopted several air quality improvement plans, as required by state and federal regulations, to ensure progress in attaining and maintaining the NAAQS and CAAQS. These plans are described below.

Bay Area 2010 Clean Air Plan

BAAQMD adopted the *Bay Area 2010 Clean Air Plan* (2010 CAP) (BAAQMD 2010) to improve Bay Area air quality and meet public health goals. More specifically, the control strategy described in the 2010 CAP is designed to reduce emissions and decrease ambient concentrations of harmful pollutants, safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, and reduce greenhouse gas (GHG) emissions to protect the climate.

The 2010 plan addresses four categories of pollutants: (1) ground-level ozone and its key precursors, ROG and NO_X; (2) particulate matter, primarily PM2.5, as well as precursors to secondary PM2.5[1]; (3) airborne toxic contaminants; and (4) GHGs. The control strategy in the 2010 CAP describes measures that address or control stationary source s, transportation, mobile source s, land use and local impact s, energy and climate s, and further study measures to reduce air pollutants (BAAQMD 2010).

2017 Clean Air Plan

The 2017 CAP updates the 2010 CAP and provides a regional strategy to protect public health and protect the climate (BAAQMD 2017b). The 2017 CAP includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as PM, O_3, and TACs; reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near term; and decrease emissions of carbon dioxide (CO_2) by reducing fossil fuel combustion.

Particulate Matter Plan

To fulfill federal air quality planning requirements, BAAQMD adopted a PM2.5 emissions inventory for 2010 at a public hearing in November 2012. This was transmitted to CARB for inclusion in the California State Implementation Plan (SIP). BAAQMD also produced an informational report entitled *Understanding Particulate Matter: Protecting Public Health in the San Francisco Bay Area* to help guide ongoing efforts to analyze and reduce PM in the Bay Area (BAAQMD 2012). The 2010 and 2017 CAPs contain multi-pollutant approaches that include several measures for reducing PM emissions in the Bay Area.

[1] PM includes all particles that are suspended in the air. PM is both directly emitted (referred to as direct PM or primary PM) and also formed in the atmosphere through reactions among different pollutants (referred to as indirect or secondary PM).

In January 2013, USEPA issued a final rule determining that the San Francisco Bay Area has attained the 24-hour PM2.5 NAAQS; this action suspended federal SIP planning requirements for the Bay Area (BAAQMD 2020c).

BAAQMD CEQA Significance Thresholds

The CEQA Guidelines recommend that criteria established by the local air district should be relied upon to make determinations of significance regarding air quality impacts. BAAQMD has developed CEQA guidelines to assist local jurisdictions in evaluating potentially adverse impacts on air quality. Based on the most recent CEQA Guidelines (BAAQMD 2017a), were used to identify the thresholds provided below.

Local Laws, Regulations, and Policies

City of Oakland General Plan

The City of Oakland General Plan's Open Space Conservation and Recreation Element contains the following objectives, policies, and actions that may be relevant to the Revised Draft VMP (City of Oakland 1996):

Objective CO-12: Air Resources. To improve air quality in Oakland and the surrounding Bay Region.

> **Action CO-12.2.2: Use of Non-Gasoline Powered Vehicles.** As funding permits, convert City fleet vehicles to non-gasoline powered vehicles.
>
> **Policy CO-12.6: Control of Dust Emissions.** Require construction, demolition and grading practices which minimize dust emissions. These practices are currently required by the City and include the following:
>
> - Avoiding earth moving and other major dust generating activities on windy days.
> - Sprinkling unpaved construction areas with water during excavation, using reclaimed water where feasible.
> - Covering trucks hauling dirt and debris to reduce spills. If spills do occur, they should be swept up promptly before materials become airborne.
> - Preparing a comprehensive dust control program for major construction in populated areas or adjacent to sensitive uses like hospitals and schools.
> - Operating construction and earth-moving equipment, including trucks, to minimize exhaust emissions.

Oakland 2030 Equitable Climate Action Plan

The City's *2030 Equitable Climate Action Plan* (ECAP) contains the following policy that may be relevant to the Revised Draft VMP (City of Oakland 2020):

> **Policy CL-2: Phase Out Fossil Fuel Dependency in All City Agreements and Contracts.** Explore ways to eliminate fossil fuel reliance in all agreements and contracts entered

into by the City of Oakland, including utility and contractor franchise agreements, facility and infrastructure design and construction contracts, and other agreements in which fossil fuels will be directly or indirectly utilized to conduct the City's business.

3.3.3 IMPACT ANALYSIS

This discussion describes the methodology for estimating air pollutant emissions and the significance criteria used to evaluate air quality impacts from implementing the Revised Draft VMP's proposed vegetation management activities. Where feasible, mitigation measures are identified to reduce the level of potentially significant impacts.

Methodology

This section describes the methods used to evaluate whether the vegetation management activities of the Revised Draft VMP would result in significant impacts related to air quality, odors, and TACs. Emissions associated with proposed management activities were quantified; the sources of these emissions include off-road equipment such as chainsaws, tractors, mowers, chippers, masticators, and excavators; material-hauling vehicles; vendor trips, and worker commutes. Emissions of criteria pollutants were estimated based on the equipment, phasing, duration, material import and export volumes, vegetation management area sizes, and worker quantities. See Section 2.4.9, "Construction Personnel~~"~~," for more information on worker quantities. The assumptions used to develop these estimates are summarized in Appendix C of this Recirculated DEIR.

Emissions from livestock and off-road equipment were estimated based on values used in a project with similar equipment and vegetation management activities, specifically the emission rates used in the California Vegetation Treatment Program (CalVTP) EIR (California Board of Forestry and Fire Protection 2019). Emissions from worker, vendor, and hauling trips were estimated using California Emissions Estimate Model (CalEEMod) Version 2022.1.1.5~~2016.3.2~~. Herbicide emissions were estimated using the California Department of Pesticide Regulation's volatile organic compound (VOC) emissions calculator for the following assumed formulations of herbicides: Rodeo, Triclopyr 3A, and Imazapyr 2SL. To provide a conservative approach to the impact analysis, maximum application of each herbicide was assumed for the full annual herbicide-treated area under the Revised Draft VMP (described in Tables 2-5~~3~~ and 2-7~~5~~). Appendix C of this Recirculated DEIR provides relevant emission rate data from the CalVTP EIR, calculations for the Revised Draft VMP treatment area, CalEEMod modeling results, and herbicide use assumptions.

TAC risks and odor-related impacts were evaluated qualitatively, given the scope and nature of the Revised Draft VMP and the varying project locations. Potential sources of odors and TACs were considered in the evaluation.

BAAQMD uses average daily and maximum annual emissions values for construction- and operational-related thresholds. Average daily emissions were calculated by dividing the maximum annual emissions by the number of days on which vegetation management work is anticipated to take place in a given year. The Revised Draft VMP's average daily emissions were compared against BAAQMD's mass emission thresholds (described below), and the City of Oakland's thresholds, which are based on the BAAQMD's mass emission thresholds (also

described below) to determine whether the proposed activities would result in a significant impact.

Criteria for Determining Significance

The criteria for determining significance used for this ~~EIR~~Recirculated DEIR were based on Appendix G of the CEQA Guidelines, the City of Oakland's *CEQA Thresholds of Significance Guidelines* (2013), and local BAAQMD significance criteria. The Appendix G thresholds are presented first, followed by the City's, and then the BAAQMD's thresholds. The Appendix G thresholds were applied in the "Environmental Impacts" discussion below with consideration of the City's and the BAAQMD's thresholds, which are largely numeric. As such, the discussions and tables in this section indicate which City and BAAQMD thresholds are relevant to specific Appendix G thresholds and their cumulative consideration in the impact discussions below.

According to Appendix G of the CEQA Guidelines, the Revised Draft VMP would result in a significant impact on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations as defined by BAAQMD; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The City's CEQA thresholds of significance are based on BAAQMD thresholds, including numeric BAAQMD criteria pollutant thresholds for daily and annual emissions, as detailed in the BAAQMD thresholds. **Table 3.3-5** provides the City's thresholds of significance (as provided in its *CEQA Thresholds of Significance Guidelines*) and the applicable Appendix G thresholds. These numeric City thresholds were considered in the impact discussions matching the relevant Appendix G threshold.

Table 3.3-5. City of Oakland Air Quality Thresholds of Significance and Relevant CEQA Guidelines Appendix G Thresholds

City of Oakland Threshold	Applicable Appendix G Threshold
During project construction, result in average daily emissions of 54 pounds per day of ROG, NOx, or PM2.5, or 82 pounds per day of PM10.	2
During project operation, result in average daily emissions of 54 pounds per day of ROG, NOx, or PM2.5 or 82 pounds per day of PM10; or result in maximum annual emissions of 10 tons per year of ROG, NOx, or PM2.5 or 15 tons per year of PM10.	2
Contribute to carbon monoxide (CO) concentrations exceeding the CAAQS of nine ppm averaged over eight hours and 20 ppm for one hour.*	2
For new sources of TACs, during either project construction or project operation expose sensitive receptors to substantial levels of TACs under project conditions resulting in (a) an increase in cancer risk level greater than 10 in one million, (b) a non-cancer risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average PM2.5 of greater than 0.3 micrograms per cubic meter; or, under cumulative conditions, resulting in (a) a cancer risk level greater than 100 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average PM2.5 of greater than 0.8 micrograms per cubic meter.	3
Expose new sensitive receptors to substantial ambient levels of TACs resulting in (a) a cancer risk level greater than 100 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average PM2.5 of greater than 0.8 micrograms per cubic meter.**	NA
Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people.	4

* The City of Oakland's CEQA Thresholds of Significance Guidance notes that the CO threshold is applicable as follows: "Pursuant to BAAQMD CEQA Guidelines, localized CO concentrations should be estimated for projects in which (a) project-generated traffic would conflict with an applicable congestion management program established by the county congestion management agency or (b) project-generated traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited, such as tunnels, parking garages, bridge underpasses, natural or urban street canyons, and below-grade roadways). In Oakland, only the MacArthur Maze portion of Interstate 580 exceeds the 44,000 vehicles per hour screening criteria.)

** This threshold is not applicable to the project since the project does not propose to add any new sensitive receptors.

Source: City of Oakland 2013.

BAAQMD has established mass emission thresholds of significance to determine if air pollutant emissions would result in a cumulatively considerable net increase of criteria pollutant for which

the air basin is already designated in nonattainment for AAQS (BAAQMD 2017a). These mass emissions thresholds are shown in **Table 3.3-6**.

Table 3.3-6. BAAQMD Air Quality Thresholds of Significance

Pollutant	Average Daily Emissions (pounds per day)	Annual Emissions (tons per year)
ROG	54	10
NO_X	54	10
PM10 (Exhaust)	82	15
PM2.5 (Exhaust)	54	10
PM10/PM2.5 (Fugitive Dust)	Implementation of BMPs	None
Local CO	None	None

Source: BAAQMD 2017a.

BAAQMD recommends implementing BMPs for all projects to reduce fugitive dust emissions. With implementation of fugitive dust BMPs, BAAQMD considers the impact of fugitive dust emissions to be less than significant.

Similarly, BAAQMD requires that several prescriptive fugitive dust measures be included in the Asbestos Dust Mitigation Plan, which is required under the state Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations for projects in ultramafic rock areas that may emit or re-suspend dust that may contain NOA. With implementation of the required fugitive dust measures in the Asbestos Dust Mitigation Plan, the BAAQMD considers the impact of NOA emissions to be less than significant.

BAAQMD has also established screening criteria that specify an acceptable distance between sensitive receptors and common sources of odors, such as landfills and wastewater treatment plants. BAAQMD specifies that an odor source with five or more confirmed complaints per year averaged over 3 years would be considered to have a significant impact on receptors within the screening distance. BAAQMD acknowledges that a lead agency has discretion under CEQA to use other established odor detection thresholds or other significance thresholds for CEQA review.

Environmental Impacts

Impact AQ-1: Conflict with or Obstruct Implementation of Applicable Air Quality Plans (*Less than Significant*)

The Revised Draft VMP would have a significant impact if it would conflict with or impair implementation of applicable air quality plans that address the SFBAAB's existing nonattainment status of ozone, PM2.5, and PM10 for state and/or federal air quality standards. Applicable air quality plans include the 2010 and 2017 CAPs.

The 2010 CAP (BAAQMD 2010) contains a control strategy that includes measures for stationary sources, mobile sources, transportation controls, land use and local impacts, energy and climate, and additional measures to control ozone and its precursors (ROG and NO_X), PM10, PM2.5, and TACs. The 2017 CAP (BAAQMD 2017b) similarly provides ozone control strategies related to numerous potential ozone precursor sources, including stationary sources, transportation, natural and working lands, waste management, energy, and buildings. In particular, Policy TR-19 of the 2017 CAP provides incentives for lower emission trucks, and Policy TR-22 of the CAP provides incentives for the use of lower-emitting construction equipment. Compliance with these policies would reduce transportation- and construction-related ozone precursor emissions (BAAQMD 2017b).

As shown in Table 2-~~6~~7 in Chapter 2, *Project Description,* and discussed in more detail in Impact AQ-2 and Appendix C of this Recirculated DEIR, hand labor techniques would involve the use of chainsaws, while mechanical techniques would be conducted with heavy-duty off-road equipment such as mowers, tractors, chippers, and excavators. Hand labor and prescribed herbivory activities (grazing) are currently conducted as part of baseline activities in the Revised Draft VMP area, while mechanical treatment and herbicide use would be new activities under the Revised Draft VMP (see **Table 3.3-7**). Policy CL-2 of the ECAP encourages the City to reduce reliance on fossil fuel dependency in City agreements and contracts; compliance with this policy could limit contractors' use of these types of equipment while conducting vegetation management activities. ~~Although the~~The City recently adopted a ban on certain fossil fuel–powered tools (such as leaf blowers), and if these equipment types are used to conduct Revised Draft VMP treatment activities, they would likely rely on batteries charged using grid electricity or portable generators to provide recharging capabilities on site, or some combination of those; therefore, the ban ~~would not affect~~may decrease local and/or total emissions from Revised Draft VMP treatment activities.

Table 3.3-7. Revised Draft VMP and Baseline Treatment Activities

Cal VTP Treatment Activity Category	Acres Treated Per Year	
	Baseline	Revised Draft VMP
Mechanical – Tree removal	0	7~~5~~
Mechanical – Shrub removal	0	5
Mechanical – Grass removal	0	5
Hand labor – Tree removal	0	26~~20~~
Hand labor – Shrub removal	110	145
Hand labor – Grass removal	290	375
Herbicide – Tree removal	0	20
Herbicide – Shrub removal	0	15
Prescribed Herbivory – Tree and shrub removal	900	1,100

The Revised Draft VMP would involve temporary maintenance-related emissions, would not result in induced growth, and would not result in a permanent new source of emissions. As described below in Impact AQ-2, annual emissions from the Revised Draft VMP would be slightly higher than baseline emissions. Over time, Revised Draft VMP emissions from vehicles would decline through compliance with stricter statewide vehicle emission regulations. As shown in **Table 3.3-~~7~~8**, for all criteria pollutant emissions, the existing baseline and Revised Draft VMP-related emissions would be less than the BAAQMD's thresholds and in compliance with the 2017 CAP goals of meeting attainment for these criteria pollutants.

Table 3.3-8. Revised Draft VMP Criteria Pollutant Emissions

Revised Draft VMP Activity	Emissions – Annual (Tons / Year)			
	ROG	NO_X	PM10	PM2.5
Baseline				
Grazing	0.00	0.00	0.00	0.00
~~Worker Trips~~	~~2.61E-03~~	~~0.019~~	~~0.01~~	~~1.64E-03~~
Roadside Treatments (Assume all Hand Labor)	1.00	0.15	0.02	0.02
All Worker, Vendor, and Hauling Trips	0.01 ~~3.59E-03~~	0.02 ~~0.03~~	0.01	0.005 ~~2.26E-03~~
Baseline Total	1.01	0.17 ~~0.20~~	0.03 ~~0.04~~	0.025 ~~0.02~~
Revised Draft VMP				
Grazing	0.00	0.00	0.00	0.00
~~Grazing – Trips~~	~~0.00278~~	~~0.0183~~	~~0.00679~~	~~0.00188~~
Hand Labor	1.91 ~~1.78~~	0.26 ~~0.24~~	0.03	0.02
~~Hand Labor – Trips~~	~~5.29E-03~~	~~3.81E-02~~	~~1.30E-02~~	~~3.58E-03~~
Mechanical	0.02 ~~1.04E-02~~	0.038 ~~2.53E-02~~	0.002 ~~1.95E-03~~	0.002 ~~1.60E-03~~
~~Mechanical – Trips~~	~~1.20E-04~~	~~1.61E-03~~	~~2.80E-04~~	~~1.00E-04~~
Herbicide	0.14	0.00	0.00	0.00
All Worker, Vendor, and Hauling Trips	0.01	0.03	0.02	0.01
Revised Draft VMP Total	2.07 ~~6.00E-05~~	0.33 ~~4.00E-05~~	0.05 ~~1.40E-04~~	0.03 ~~4.00E-05~~

Revised Draft VMP Activity		Emissions – Annual (Tons / Year)			
		ROG	NO_X	PM10	PM2.5
Summary					
Annual		**Emissions – Annual (tons/year)**			
	Revised Draft VMP Total	2.07 ~~1.93~~	0.33 ~~0.33~~	0.05 ~~0.05~~	0.03 ~~0.03~~
	Revised Draft VMP Total – Baseline	1.06 ~~0.93~~	0.15 ~~0.13~~	0.02 ~~0.02~~	0.01 ~~0.01~~
	BAAQMD Threshold	10	10	15	10
Average Daily		**Emissions – Average Daily (lb/day)**			
	Revised Draft VMP Total	16.79 ~~15.98~~	2.63 ~~2.71~~	0.43 ~~0.43~~	0.28 ~~0.24~~
	Revised Draft VMP Total – Baseline	5.03 ~~4.26~~	0.64 ~~0.40~~	0.07 ~~0.02~~	0.04 ~~0.01~~
	BAAQMD Threshold	54	54	82	54
Above Threshold?		No	No	No	No

Conclusion

The Revised Draft VMP would not result in a permanent new source of emissions and would not induce population growth. Therefore, it would not conflict with applicable air quality plans, and this impact would be **less than significant** and no mitigation is required.

Impact AQ-2: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation or Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region Is in Nonattainment (*Less than Significant with Mitigation*)

The Revised Draft VMP would result in emission of criteria pollutants for vegetation management activities through the combustion of fossil fuels by equipment, worker and vendor vehicles, and material-hauling trucks.

The nonattainment status of ozone, PM10, and PM2.5 in the SFBAAB is considered an existing significant cumulative impact. All other criteria pollutants are in attainment. The BAAQMD has established significance thresholds that apply to determining if there would be a violation of any air quality standard or contribute substantially to an existing or projected air quality violation. These thresholds also apply to cumulative air impacts and a project's potential to considerably contribute to a cumulative impact. These significance thresholds were developed considering the region's air pollutant sources and anticipated population growth and related emissions in

the air basin. A project that does not exceed these significance thresholds would not violate or considerably contribute to a cumulative air quality impact. BAAQMD recommends implementation of BMPs to reduce fugitive dust emissions for all projects. With implementation of the BAAQMD BMPs and fugitive dust control measures listed in **Mitigation Measure AQ-1 (Fugitive Dust BMPs)**, BAAQMD considers fugitive dust emissions to be less than significant. Although not required to reduce the significance of fugitive dust emissions or other air quality pollutants, **Mitigation Measure GEO-1 (Minimize Area of Disturbance), Mitigation Measure HAZ-1 (Vehicle and Equipment Maintenance), and Mitigation Measure HAZ-5 (Standard Herbicide Use Requirements)** would further minimize potential air quality pollutant emissions by minimizing the area of disturbance, ensuring proper vehicle and equipment maintenance, and ensuring appropriate use of herbicides.

As demonstrated in the emissions calculations presented in **Table 3.3-8** and Appendix C of this Recirculated DEIR, Revised Draft VMP treatment activities would generate criteria pollutants below the threshold levels established by BAAQMD and those of the City. Further, the Revised Draft VMP's limited activities and short duration at any given treatment area would not be anticipated to generate the traffic conditions requiring a quantitative analysis for local CO concentrations (i.e., would not conflict with an applicable congestion management program established by the county congestion management agency or cause traffic volume increases at affected intersections to more than 44,000 vehicles per hour). As discussed in more detail in Section 3.12, "Transportation," in Impact TRA-2, the addition of 3~~-8~~ workers under the Revised Draft VMP would result in 6~~18-48~~ additional daily vehicle trips beyond the City's current activities for the duration of each project~~, well~~. Thus, even with two crews employed simultaneously with maximum personnel (i.e., two crews of 18 yielding a total of 72 trips), the increase in vehicle trips would be below the City's threshold of 100 trips per day and OPR's threshold of 110 trips per day. The Revised Draft VMP would not exceed the City's thresholds of significance for carbon monoxide and the other criteria pollutants. Additionally, the purpose of the Revised Draft VMP is to decrease the frequency and scale of wildfires in the Revised Draft VMP area that would result in uncontrolled emissions of criteria pollutants, including NO_X and PM.

Mitigation Measures

Mitigation Measure AQ-1: Fugitive Dust BMPs

The City and its contractors will implement the following measures:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California ATCM identified in 13 CCR Section 2485). Clear signage shall be provided for construction workers at all access points.

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

8. Post a publicly visible sign with the telephone number and name of the City staff person to contact regarding dust complaints. Following the review of any dust complaints, the City contact person shall respond and take corrective action within 48 hours. Assessments and responses to dust complaints will be conducted in compliance with the BAAQMD's applicable particulate matter rules and regulations, including but not limited to Regulation 6.

Mitigation Measure GEO-1: Minimize Area of Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculate DEIR.

Mitigation Measure HAZ-1: Vehicle and Equipment Maintenance (VMP BMP GEN-8)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided below.

The City and its contractors shall implement the following measures:

- All vehicles and equipment shall be kept clean. Excessive buildup of oil and grease shall be prevented.

- Incoming vehicles and equipment (including delivery trucks and employee and subcontractor vehicles) shall be checked for leaking oil and fluids. Leaking vehicles or equipment shall not be allowed on-site.

- No heavy equipment shall operate in a running stream.

- No equipment shall be serviced in the creek channel or immediate floodplain.

- If necessary, servicing of equipment at the job site shall be conducted in a designated, protected area to reduce threats to water quality from vehicle fluid spills. Designated service areas shall not connect directly to the ground, surface water, or storm drain system. The service area shall be clearly designated with berms, sandbags, or other barriers. Secondary containment, such as a drain pan, shall be used to catch spills or leaks when removing or changing fluids. Fluids

shall be stored in appropriate containers with covers, and recycled or disposed of properly off-site.

- If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location shall be conducted in the channel or floodplain.

- Equipment shall be cleaned of any sediment or vegetation before being transferred and used in a different watershed, to avoid spreading sediment, pathogens, or exotic/invasive species.

Vehicle and equipment washing can take place on-site only as needed to prevent the spread of sediment, pathogens, or exotic/invasive species. No runoff from vehicle or equipment washing shall be allowed to enter water bodies, including creek channels and storm drains, without being subjected to adequate filtration (e.g., vegetated buffers, hay wattles or bales, and silt screens). The discharge of decant water from any on-site wash area to water bodies or areas outside of the active project site is prohibited.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided below.

The City and its contractors shall implement the following measures:

- Herbicides shall not be used in areas within 0.25 mile of schools. Only hand or mechanical vegetation removal shall be used within 0.25 mile of schools.

- Herbicides (if selected as a vegetation management technique) shall be applied only if hand or mechanical vegetation removal is not feasible, and at no times within 0.25 mile of schools as described above.

- Only herbicides and surfactants that have been approved for use by USEPA and are registered for use by the California Department of Pesticide Regulation (CDPR) shall be used for vegetation control activities.

- Herbicide application shall be consistent with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) label instructions and use conditions issued by USEPA, CDPR, and the Alameda County Agricultural Commissioner.

- Herbicides shall not be applied within 48 hours of predicted rainfall.

- The lowest recommended rates of herbicides and surfactants that achieve project objectives shall be utilized to achieve desired control. Cut-and-daub application of herbicides shall be used where feasible to reduce the amount of herbicide used. This is anticipated to be on the stumps of removed eucalyptus and acacia trees.

- An indicator dye may be added to the tank mix to help the applicator identify areas that have been treated and to better monitor the overall application.

- Herbicides shall not be applied in open water or within 60 feet of streams.

Conclusion

Emissions from Revised Draft VMP treatment activities would be below BAAQMD and City thresholds. Implementing Mitigation Measure AQ-1 would ensure the impact from fugitive dust emissions would be less than significant. Implementing Mitigation Measures GEO-1, HAZ-1, and HAZ-5 would further decrease emissions of criteria pollutants. Additionally, the purpose of the Revised Draft VMP is to decrease the frequency and scale of wildfires in the Revised Draft VMP area that would result in uncontrolled emissions of criteria pollutants, including NO_X and PM. Therefore, this impact would not be cumulatively considerable and would be **less than significant with mitigation**.

Impact AQ-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations (*Less than Significant with Mitigation*)

Mechanical and Hand Labor Treatments

Mechanical treatments would involve the use of off-road equipment such as mowers, chippers, tractors, masticators, and excavators. These types of equipment are often diesel powered and emit DPM. Hand labor treatments would involve the use of chainsaws, which, when powered with gasoline mixed with engine oil, emit VOCs and PM. TAC exposure for short durations is generally not quantified as cancer potency factors are based on lifetime exposure (estimated at 70 years) and there is considerable uncertainty in trying to evaluate the cancer risk from activities that would last only a small fraction of a lifetime (OEHHA 2015). In addition, concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (CARB 2005). At any given treatment area, Revised Draft VMP activities would be of short duration (1 to 5 days). Revised Draft VMP activities would not involve the construction of any homes or creation of new sensitive receptors, and would not expose sensitive receptors to substantial levels of TACs resulting in increased health risks.

Ultramafic rock, which can contain NOA, may be present on Revised Draft VMP parcels near SR 13, Joaquin Miller Road, Skyline Boulevard, and parcels near Lake Chabot. While mechanical treatment activities have the potential to disturb soil, treatment activities would be limited to ~~15~~17 acres per year, with the area of disturbed ground being less than that. As described above, the BAAQMD requires implementation of fugitive dust control-related mitigation measures during construction/maintenance activities to minimize potential emissions or resuspensions of NOA, and enforces compliance with the NOA-related ATCM by requiring that the BAAQMD is notified of maintenance operations and approves asbestos dust mitigation plans prior to the commencement of maintenance activities. In addition to Mitigation Measures AQ-1 and GEO-1, implementation of **Mitigation Measure AQ-2 (Comply with Asbestos ATCM by Obtaining an Approved Asbestos Dust Mitigation Plan or Exemption)** would ensure that the City prepares and implements a BAAQMD-approved asbestos dust mitigation plan, and corresponding dust control BMPs, for treatment activities within potential NOA areas.

Revised Draft VMP treatment activities near individual sensitive receptors would be temporary and infrequent. For these reasons and those described above, the impact from these treatment types would be less than significant with mitigation. Additionally, though difficult to quantify or evaluate, Revised Draft VMP activities would decrease the risk of unpredictable, uncontrolled exposure to pollutant emissions due to large wildfires in the Revised Draft VMP area.

Grazing

Prescribed herbivory would involve transporting goats between Revised Draft VMP treatment areas. Emissions from vehicles used for transportation would be the main source of air quality-related pollutant emissions from this activity. Direct emissions from livestock are discussed in Section 3.7, "Greenhouse Gas Emissions, Climate Change, and Energy." The use of vehicles to transport goats near individual sensitive receptors would be short in duration and infrequent. Therefore, the impact from this treatment type would be less than significant.

Herbicides

This activity would involve the spraying of herbicides on surface fuels (such as French broom, Scotch broom, pampas grass, and jubata grass) and cut-and-daub application of herbicides on stumps of removed trees. Herbicides can be used in numerous formulations that vary in terms of emissions of VOCs and other compounds that could be harmful to sensitive receptors. As detailed in Chapter 2, *Project Description*, and Table 2-54, the application of herbicides in any individual treatment area would be temporary and infrequent, and the volumes used would be limited due to the treatment techniques used. Herbicide use would be conducted in compliance with BAAQMD's applicable permits and regulations, and other applicable laws and regulations related to herbicides (as detailed in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*). Furthermore, **Mitigation Measures HAZ-4 (Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides)** and HAZ-5, include standard herbicide use requirements and measures to avoid or minimize adverse effects on people from use of herbicides. Therefore, this activity would not pose long-term or substantial health risks to nearby residents and workers near Revised Draft VMP treatment sites. Therefore, the impact from this treatment type would be less than significant with mitigation.

Mitigation Measures

Mitigation Measure AQ-2 would limit the potential for sensitive receptors to be exposed to NOA by requiring the preparation and implementation of an asbestos dust mitigation plan. The implementation of Mitigation Measures AQ-1, GEO-1, HAZ-1, and HAZ-5 would further limit the potential for sensitive receptors to be exposed to pollutants.

Mitigation Measure AQ-2: Comply with Asbestos ATCM by Obtaining an Approved Asbestos Dust Mitigation Plan or Exemption

Revised Draft VMP-related ground-disturbing activities greater than 1 acre within potential NOA-containing areas (specifically areas near SR 13, Joaquin Miller Road, Skyline Boulevard, and parcels near Lake Chabot) will be required to comply with CARB's ATCM for NOA. The City and its contractors will prepare and implement an asbestos dust mitigation plan in compliance with the State Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations with the BAAQMD's implementation

requiring submission of an Asbestos Dust Mitigation Plan Application, which includes a checklist of BMPs that must be implemented. The plan will specify actions to be taken during Revised Draft VMP treatment activities to minimize NOA emissions. The plan will also address specific emission sources as identified by the BAAQMD to be: track-out onto the paved public road; active storage piles; inactive disturbed surface areas and storage piles; traffic on unpaved on-site roads; earthmoving activities; off-site transport of materials; and post-project stabilization of disturbed soil surfaces. Specific measures to be implemented will include but not be limited to removing visible track out, keeping active storage piles covered or wet, controlling inactive areas or storage piles, maintain trucks and wet loads to prevent spillage, and limit vehicle speeds. The City and its contractors will submit the plan to BAAQMD for approval prior to implementation, and will not proceed with Revised Draft VMP implementation until BAAQMD has approved the plan and proposed BMPs or an exemption is received

Mitigation Measure AQ-1: Fugitive Dust BMPs

See text ~~for~~ in Impact AQ-2 above.

Mitigation Measure GEO-1: Minimize Area of Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculated DEIR.

Mitigation Measure HAZ-1: Vehicle and Equipment Maintenance (VMP BMP GEN-8)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials.* Full text also provided in Impact AQ-2 above.

Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided below.

The City of Oakland or its contractors shall implement the following measures to avoid or minimize effects on non-target entities from application of herbicides for the Revised Draft VMP:

- Reentry intervals included on the product label shall be followed and enforced for workers and the public. In instances where a reentry interval is not provided on the herbicide product label, a reentry interval of at least 48 hours shall be implemented. Signs shall be installed on all sides of the treatment area clearly stating the date of treatment and reentry interval, and describing potential hazards to people and pets from entering the area prior to the close of the reentry interval.

- Where herbicides are applied in public parks or publicly-accessible areas or in open space areas within 30 feet of public-use trails, or in any other situations where it is reasonably possible that people or pets could enter treated areas, fencing or other material preventing entry shall be temporarily installed around the treated area for the duration of the reentry interval to prevent access.

- Spray application methods shall not be used when wind velocities are greater than 7 miles per hour. Spray application methods shall not be used within 100 feet of any residences or public use areas.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Impact AQ-2 above.

Conclusion

Revised Draft VMP activities would be performed in compliance with BAAQMD's applicable permits and regulations. Activities near individual receptors would be temporary and infrequent. Additionally, Revised Draft VMP activities would decrease the risk of unpredictable, uncontrolled exposure to pollutant emissions from wildfires. Any potential NOA-related impacts from Revised Draft VMP ground-disturbing activities in potential ultramafic rock areas would be fully mitigated by compliance with CARB's ATCM for NOA and implementation of Mitigation Measure AQ-2. Therefore, the Revised Draft VMP's impact on sensitive receptors from fugitive dust and other TACs would be **less than significant with mitigation**.

Impact AQ-4: Result in Other Emissions Such as Odors Adversely Affecting a Substantial Number of People (*Less than Significant*)

Activities associated with the Revised Draft VMP would not generate permanent or long-term objectionable odors but could generate short-term, temporary odors related to grazing livestock; cut, chipped, or stockpiled vegetation; and the operation of gasoline- or diesel-powered equipment.

Revised Draft VMP treatment activities would not include any land uses or operation types identified by BAAQMD as most likely to cause odors (e.g., landfills, wastewater treatment plants) (BAAQMD 2017a). Odors associated with grazing and gasoline- or diesel-powered equipment would not be significant because they would occur for brief periods at any given location. In addition, Revised Draft VMP activities would reduce the likelihood of future uncontrolled wildfires that would expose sensitive receptors to objectionable odors.

Conclusion

Revised Draft VMP activities could generate temporary odors related to grazing livestock; cut, chipped, or stockpiled vegetation; and the operation of fossil fuel-powered equipment. With respect to individual receptors, these activities would be short in duration and infrequent. In addition, Revised Draft VMP activities would reduce the likelihood of future uncontrolled wildfires that would expose sensitive receptors to objectionable odors. Therefore, the potential for the Revised Draft VMP to create objectionable odors that would affect a substantial number of people would be **less than significant** and no mitigation is required.

3.4 BIOLOGICAL RESOURCES

This section presents the environmental setting, regulatory setting, and potential impacts of the Revised Draft VMP related to biological resources. The impact analysis describes the methodology used to evaluate significance and then presents the impact evaluation. Detailed information about special-status species database searches and surveys is provided in **Appendix D**, *Biological Resources Information*, of this Recirculated DEIR. *Note that all figures cited in this section appear at the end of the section.*

3.4.1 Environmental Setting

To identify existing biological conditions in the Revised Draft VMP area, the following information sources, among others, were reviewed:

- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) Report (USFWS ~~2020a~~2023a, provided in Appendix D of this Recirculated DEIR)
- California Natural Diversity Database (CNDDB) (California Department of Fish and Wildlife [CDFW] ~~2020~~2023a) and California Native Plant Society's (CNPS's) Inventory of Rare and Endangered Plants of California (CNPS ~~2020~~2023) queries for the following U.S. Geological Survey (USGS) 7.5-minute quadrangles: Briones Valley, Hayward, Hunters Point, Las Trampas Ridge, Oakland East, Oakland West, Richmond, San Leandro, and Walnut Creek (provided in Appendix D of this Recirculated DEIR)
- California Native Plant Society, East Bay Chapter (CNPSEB) Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties Database, query for the Bay Hills Region (CNPSEB ~~2020~~2023)
- eBird.org records for the Revised Draft VMP area (eBird ~~2020~~2023)

Methods

Field Surveys

Field surveys to map land cover and vegetation and to identify potentially suitable habitat for special-status species within the Revised Draft VMP area were conducted over several weeks by Horizon biologists in 2017, with supplemental site visits conducted in spring 2019 and spring 2020. Biologists visited those portions of the Revised Draft VMP area known from background research (including Laurel Marcus and Associates et al. 2010, USFWS 2010a, USFWS 2015, Bartosh et al. 2010, and Jurjavcic et al. 2015) to have potentially sensitive biological resources on foot. Some portions of the Revised Draft VMP area were observed with binoculars due to limited access. Some parcels that were completely developed were mapped using aerial imagery. Portions of some parcels were mapped using vegetation signatures from aerial imagery. Wildlife species observed or recognized by signs such as scat, tracks, burrows, nests, bird songs, or calls during the survey were identified and data collected. An inventory of plant

and wildlife species observed during the 2017 field surveys is provided in Appendix D of this Recirculated DEIR.

Habitat Classification and Mapping

Habitats were mapped using the California Wildlife Habitat Relationships (CWHR) System (Mayer and Laudenslayer 1988). This classification system was chosen because it is appropriate for California landscapes such as the Oakland Hills, relevant to wildlife, accessible to the public, can be input into the predictive fire models that were used to develop the Revised Draft VMP, and is flexible enough to be used for habitat types over a large survey area. Habitat classification types were entered into ArcGIS 10.3 software to create a "vegetation and land cover" data layer covering the entire Revised Draft VMP area, based on field survey data and interpretation of aerial imagery (**Figure 3.4-1**; all figures appear at the end of this section). A crosswalk to other vegetation classification systems (e.g., Sawyer et al. 2009, CalVeg) is provided in Appendix D of this Recirculated DEIR.

Riverine habitat was mapped using data from the Creek and Watershed Map of Western Alameda County (Sowers et al. 2010), while pond and lake data was mapped from the National Hydrography Dataset (USGS 2016) (**Figure 3.4-2**).

To provide additional information on habitats considered sensitive natural communities, these habitats were mapped using the classification system in *A Manual of California Vegetation* (Sawyer et al. 2009) and are shown in **Figure 3.4-3**.

Taxonomy and Nomenclature

Plant names follow the nomenclature in the Jepson eFlora (Jepson Flora Project ~~2020~~2023). Plants that are designated as invasive are those listed as moderate or high by the California Invasive Plant Council (Cal-IPC) (Cal-IPC ~~2020~~2023).

Habitats in the Revised Draft VMP Area

Topography and land use within the Revised Draft VMP area exhibit substantial variation. Most of the Revised Draft VMP area is situated in the hills of eastern Oakland, California. A smaller portion of the Revised Draft VMP area is located on parcels within urban/residential areas in the vicinity of SR 13 and I-580. Land uses include residential, transportation corridors, open space and park lands, and vacant lots. Elevations in the Revised Draft VMP area range from 100 feet above mean sea level (msl) at an urban parcel on Golf Links Road to approximately 1,540 feet above msl at the top of the ridgeline, near Chabot Science Center.

Prior to urbanization, vegetation in the Revised Draft VMP area was primarily grasslands and shrublands, (Nowak 1993). Only about 2.3 percent of land in the Oakland area was covered by forests, including coast redwood (*Sequoia sempervirens*) forests, coast live oak (*Quercus agrifolia*) stands, and riparian woodlands (Nowak 1993). Major logging of redwood forests occurred in the mid-1800s (Simon 2014). Between 1880 and 1920, large-scale tree planting was undertaken in the Oakland Hills, initially by Joaquin Miller and later by Frank Havens (Nowak 1993). Tree species planted included pines (*Pinus* spp.), acacia (*Acacia* spp.), and eucalyptus (*Eucalyptus* spp.) (Nowak 1993). Havens planted an estimated 3 million blue gum eucalyptus (*Eucalyptus globulus*) and Monterey pine (*Pinus radiata*) seedlings (Simon 2014).

Fire and vegetated fire hazard management have also shaped vegetation in the Oakland Hills. In the last 100 years, 14 significant fires have occurred in the Oakland Hills (City of Oakland 2017). This includes the 1991 Tunnel Fire, which burned 1,700 acres (City of Oakland 2017). Many of the fires burned large areas, restarting succession of vegetation in these areas. Additionally, the City has conducted vegetated fire hazard management activities within the Revised Draft VMP area since 2003. Activities such as goat grazing, brush and French broom removal, mowing, hand removal of weeds, tree trimming, removal of sapling eucalyptus and Monterey pine trees, removal of dead or dying vegetation, and other vegetation management practices have shaped vegetation in the Oakland Hills by removing biomass and, in some cases, shifting successional processes.

The following discussion provides descriptions of habitats present within the Revised Draft VMP area. Terrestrial habitats are generally described in terms of vegetation present. Figure 3.4-1 shows the mapped habitats within the Revised Draft VMP area, and **Table 3.4-1** summarizes habitat area and percentage of the total Revised Draft VMP area. Each community type is described based on the habitat descriptions in the CWHR System and specific conditions encountered within the survey area. Wildlife species typically associated with these biological communities are also described below. Much of the information regarding typical wildlife associated with each habitat type is from the East Bay Regional Park District (EBRPD) *Draft Wildfire Hazard Reduction and Resource Management Plan EIR* (LSA 2009b).

Table 3.4-1. Habitats and Spatial Coverage within the Revised Draft VMP Area

Vegetative Habitat Type	Acres	Percentage
Coast Oak Woodland	630.6	28.1%
Redwood	141.4	6.3%
Valley/Foothill Riparian	1.4	0.1%
Eucalyptus	177.9	7.9%
Closed-cone Pine-Cypress	180.7	8.1%
Coastal Scrub	176.9	7.9%
Mixed Chaparral (Maritime Chaparral)	8.1	0.4%
Annual Grassland	258.1	11.5%
Perennial Grassland (Native Perennial Grassland)	13.4	0.6%
Freshwater Emergent Wetland	0.4	<0.1%
Urban	654.6	29.2%
Total	2,253	***100.0%***

Note: Riverine habitat was not directly mapped and is thus not included in the acreage total.

Terrestrial Habitats

Tree-Dominated

Coast Oak Woodland
This habitat is dominated by coast live oak; the canopy may range from open to relatively closed. This habitat is generally found along drainages within the ~~Plan Area~~Revised Draft VMP area, but is also found along hillslopes and upland flats. In areas along drainages, California bay laurel (*Umbellularia californica*) is common, and may be co-dominant with coast live oak. California buckeye (*Aesculus californica*) is occasionally found in this habitat type. The understory is variable in composition and includes species such as native California blackberry (*Rubus ursinus*), poison oak (*Toxicodendron diversilobum*), oso berry (*Oemleria cerasiformis*), ocean spray (*Holodiscus discolor*), woodfern (*Dryopteris arguta*) and swordfern (*Polystichum munitum*), as well as non-native Himalayan blackberry (*R. armeniacus*). Forests dominated by coast live oak are considered to be one of the most fire resistant tree-dominated habitats (Sugihara et al. 2006). The thick bark and small leaves of coast live oak contribute to the fire resistance of this habitat (Sugihara et al. 2006).

On hill slopes and other non-riparian areas, coast live oaks are generally the main canopy species, and may be more widely spaced. In these locations, various grasses are often dominant in the understory, including wild oats (*Avena* spp.) and ripgut brome (*Bromus diandrus*). Purple needlegrass (*Stipa pulchra [=Nasella pulchra]*) is occasionally found in the understory in coast oak woodlands with a more open canopy.

Coast oak woodland support a diverse assemblage of wildlife. Amphibians associated with this habitat include ensatina (*Ensatina eschscholtzii*), arboreal salamander (*Aneides lugubris*), and California slender salamander (*Batrachoseps attenuatus*) (LSA 2009a). Typical bird species include Nuttall's Woodpecker (*Picoides nuttallii*), Acorn Woodpecker (*Melanerpes formicivorus*), Western Scrub-Jay (*Aphelocoma californica*), Steller's Jay (*Cyanocitta stelleri*), Hutton's Vireo (*Vireo huttoni*), Oak Titmouse (*Baeolophus inornatus*), Violet-green Swallow (*Tachycineta thalassina*), Orange-Crowned Warbler (*Vermivora celata*), Bushtits (*Psaltriparus minimus*), and Dark-Eyed Junco (*Junco hyemalis*). Raptors, including Red-Shouldered Hawk (*Buteo lineatus*) and Cooper's Hawk (*Accipiter cooperii*) may also occur. Amphibians such as California newt (*Taricha torosa*) may be found in this habitat, particularly near streams. Small mammals common to oak woodlands include California mouse (*Peromyscus californicus*), dusky-footed woodrat (*Neotoma fuscipes*), as well as non-native eastern fox squirrel (*Sciurus niger*) (LSA 2009a). Larger mammals typically found in this habitat include bobcat (*Lynx rufus*), coyote (*Canis latrans*), and California mule deer (*Odocoileus hemionus californicus*).

Redwood Forest
Redwood forests are found in a few portions of the Revised Draft VMP area, largely along canyons and drainages within Joaquin Miller Park and Leona Heights Park. Coast redwood ~~(Sequoia sempervirens)~~ is the dominant tree in this habitat. Subdominant trees include coast live oak and bay laurel. The understory is dominated by ferns such as western swordfern (*Polystichum munitum*). Other common understory species include wild ginger (*Asarum caudatum*) and huckleberry (*Vaccinium ovatum*).

Redwood forests provide food, cover, and other habitat elements for a wide variety of wildlife species. Many species associated with coast oak woodland habitat may also be found in the redwood forest. Bird species typical of this habitat include Steller's Jay, Brown Creeper (*Certhia americana*), Hairy Woodpecker (*Picoides villosus*), Pacific Wren (*Troglodytes pacificus*), and Pacific-Slope Flycatcher (*Empidonax difficilis*).

Valley/Foothill Riparian

Valley foothill habitat is associated with the moderately sized and large drainages within the Revised Draft VMP area. Dominant species include willows (*Salix* spp.), mainly arroyo willow (*S. lasiolepis*), and white alder (*Alnus rhombifolia*). Bigleaf maple (*Acer macrophyllum*) is found as a subdominant species, and red alder (*Alnus rubra*) is occasionally found.

This habitat may support many breeding birds, including Warbling Vireo (*Vireo gilvus*), Wilson's Warbler (*Cardellina pusilla*), Downy Woodpecker (*Picoides pubescens*), Northern Flicker (*Colaptes auratus*), Chestnut-Backed Chickadee (*Poecile rufescens*), Swainson's Thrush (*Catharus ustulatus*), Wilson's Warbler (*Cardellina pusilla*), Black-Headed Grosbeak (*Pheucticus melanocephalus*), Song Sparrow (*Melospiza melodia*), and Pacific-Slope Flycatcher. Many other bird species may use this habitat during migration. San Francisco dusky-footed woodrats (*Neotoma fuscipes annectens*) typically use this habitat, as do raccoons (*Procyon lotor*). Riparian habitat provides dispersal corridors for wildlife species. Riparian areas also provide important habitat for amphibians such as Sierran treefrog (*Pseudacris sierra*) and Coast Range newt (*Taricha torosa torosa*).

Eucalyptus Forest

Eucalyptus trees were introduced to the Oakland Hills from Australia, starting in the late 19th century (Nowak 1993). Blue gum eucalyptus is by far the most common eucalyptus species in this habitat. Other trees present as minor components of this community include coast live oak and bay laurel. Understory composition varies and may consist of eucalyptus saplings, shrubs, and non-native grasses such as wild oats, ripgut brome, and panic veldt grass (*Ehrharta erecta*). In some areas, especially in groves with mature eucalyptus trees, the understory is very sparse~~,~~ ~~in part due to the allelopathic (growth-suppressing) effects of the eucalyptus leaf litter (del Moral and Muller 1970).~~ Thick litter may also shield bare soil from sunlight and enhance soil moisture retention. In areas where understory vegetation is present, common shrubs include French broom (*Genista monspessulana*), Scotch broom (*Cytisus scoparius*), poison oak (*Toxicodendron diversilobum*), and cotoneaster (*Cotoneaster* spp.).

Monarch butterflies (*Danaus plexippus*) are known to overwinter in specific eucalyptus groves along the California coast from Mendocino County south to Baja California, Mexico. While observations of some monarchs are known in the Revised Draft VMP area, substantial or significant monarch butterfly overwintering groves are not present in the Revised Draft VMP area (CDFW ~~2020~~2023a, Western Monarch Count Resource Center ~~2020~~2023).

This habitat type provides roosts, perches, and nest sites for a number of bird species, especially raptors. Bird species commonly observed in eucalyptus forests in the Revised Draft VMP area include American Crow (*Corvus brachyrhynchos*), California Scrub-Jay (*Aphelocoma californica*), American Robin (*Turdus migratorius*), Great Horned Owl (*Bubo virginianus*), Red-Tailed Hawk (*Buteo jamaicensis*), and Red-Shouldered Hawk (*Buteo lineatus*). Eucalyptus litter creates micro-habitats for various small vertebrate species that occur in a variety of woodland habitats,

including forest alligator lizard (*Elgaria multicarinata multicarinata*), Pacific gopher snake (*Pituophis catenifer catenifer*), and woodrat (*Neotoma* spp.) (Pearson 1988).

Closed-Cone Pine-Cypress

In the Revised Draft VMP area, closed-cone pine-cypress habitat is dominated by Monterey pine and Monterey cypress (*Hesperocyparis macrocarpa*). Large portions of the Oakland Hills were planted with these species by Joaquin Miller, Frank Haven, and others (Nowak 1993). Monterey pine is native to San Mateo, Monterey, and San Luis Obispo Counties and Monterey cypress is native to Monterey County. Both species have been planted in parks and other urban areas throughout coastal California. Subdominant trees in this habitat include coast live oak and eucalyptus. The understory ranges from sparse to dense, and in some areas resembles coastal scrub habitat (described below). The understory can include species such as sticky monkey flower (*Mimulus aurantiacus*), coyote brush (*Baccharis pilularis*), poison oak, and western bracken fern (*Pteridium aquilinum* var. *pubescens*). Blue elderberry (*Sambucus nigra* ssp. *caerulea*) can be found occasionally scattered in this habitat. Other shrubs may include French broom and Scotch broom.

Bird species that use this habitat include Chestnut-Backed Chickadee, Pine Siskin (*Spinus pinus*), Hairy Woodpecker, Pygmy Nuthatch (*Sitta pygmaea*), Pacific Wren, and Western Bluebird (*Sialia mexicana*); in addition, a variety of migratory birds that may forage in this habitat. Raptors such as Great Horned Owl, Cooper's Hawk (*Accipiter cooperii*), Red-tailed Hawk, and Red-shouldered Hawk may use closed-cone pine-cypress habitat as nest sites. Small vertebrates may use this habitat, but it does not typically support the diverse wildlife assemblages associated with oak and riparian woodlands (LSA 2009a).

Shrub-Dominated

Coastal Scrub

Coastal scrub is dominated by shrub species, including California sagebrush (*Artemisia californica*) and coyote brush. Subdominant shrubs include coffeeberry (*Frangula californica*), sticky monkey flower, western bracken fern, and silver bush lupine (*Lupinus albifrons* var. *albifrons*). Understory species include various annual grasses. Emergent trees may be present at low cover. Some areas mapped as coastal scrub consist of less complex communities dominated by coyote brush or a mix of coyote brush and poison oak. French broom is occasionally a component of this community. These coyote brush–dominated habitats may have been grassland habitats in the past (McBride and Heady 1968). The coyote brush–dominated community generally supports fewer wildlife species, possibly due to lower plant diversity and simpler habitat structure (LSA 2009a). This habitat is typically found on slopes, and large areas are found in Grizzly Peak Open Space, Joaquin Miller Park, Knowland Park, and Sheffield Village Open Space, with smaller areas in other portions of the Revised Draft VMP area.

Birds associated with this habitat include California Towhee (*Melozone crissalis*), California Quail (*Callipepla californica*), Wrentit (*Chamaea fasciata*), Anna's Hummingbird (*Calypte anna*), Allen's Hummingbird (*Selasphorus sasin*), Western Scrub-jay, Bewick's Wren (*Thryomanes bewickii*), and Spotted Towhee (*Pipilo maculates*). Fence lizards (*Sceloporus* spp.) and forest alligator lizard may also be found in this habitat. Mammals typical of this habitat include deer mouse (*Peromyscus maniculatus*), brush rabbit (*Sylvilagus bachmani*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), and mountain lion (*Puma concolor*) (LSA 2009a).

Coastal scrub provides suitable habitat for the Alameda whipsnake (*Masticophis lateralis euryxanthus*), federally listed as threatened.

Mixed Chaparral

In the Revised Draft VMP area, mixed chaparral habitat is dominated by chamise (*Adenostoma fasciculatum*) and typically found on dry, south-facing slopes in Knowland Park. Brittle leaf manzanita (*Arctostaphylos crustacea* ssp. *crustacea*) is present in this habitat (Jurjavcic et al. 2015). This habitat type is also known as maritime chaparral, which is considered a rare remnant vegetation community (Jurjavcic et al. 2015). There is little to no canopy cover in this habitat, and shrubs may be very dense. Other common species in this habitat include sticky monkey flower, coyote brush, poison oak, and soap plant (*Chlorogalum pomeridianum*). Wildlife use of this habitat is similar to coastal scrub, described above. This habitat is highly adapted to rapidly recover in response to fire, and its structure is influenced by fire. Additionally, many plant species within this habitat are dependent upon fire for regeneration.

Grassland/Herbaceous

Grassland habitat supports a variety of native forbs, including California poppy (*Eschscholzia californica*), blue-eyed grass (*Sisyrinchium bellum*), annual lupine (*Lupinus bicolor*), dwarf owl's clover (*Triphysaria pusilla*), and purple owl's clover (*Castilleja exserta*). Non-native forbs present in grasslands include field mustard (*Brassica rapa*), wild radish (*Raphanus sativus*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), filarees (*Erodium* spp.), and milk thistle (*Silybum marianum*).

Various wildlife species use grasslands for breeding and/or foraging. Reptiles that breed in grassland habitats include western fence lizard (*Sceloporus occidentalis*) and California red-sided garter snake (*Thamnophis sirtalis infernalis*) (Kie 1988). Mammals typical of this habitat include California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), and coyote (Kie 1988). Annual grasslands provide foraging habitat for raptors, including Barn Owl (*Tyto alba*), Great Horned Owl, Red-tailed Hawk, and American Kestrel (*Falco sparverius*).

Annual Grassland

Non-native annual grasses such as barleys (*Hordeum* ssp.), bromes (*Bromus* spp.), wild oats, brome fescue (*Festuca bromoides*), and others dominate this community. Non-native perennial grasses in this community include Italian rye grass (*Festuca perennis*). Native grass species such as purple needlegrass (*Stipa pulchra*) are present at low cover in some areas mapped as annual grassland.

Perennial Grassland (Native)

Perennial grassland dominated by native species is found scattered within the more common annual grassland community. These relic stands are remnants of the native perennial grasslands that were more prevalent before non-native annual grasses were introduced to California (Stromberg and Griffen 1996). Native perennial grasses such as purple needlegrass, California oat grass (*Danthonia californica*), foothill needlegrass (*Stipa lepida*), and blue wildrye (*Elymus glaucus*) are characteristic species in this habitat. Non-native annual grasses including barleys, bromes, wild oats, and others are also common in this habitat type.

Perennial grassland dominated by native species is found in a few locations within the Revised Draft VMP area, such as Knowland Park (Bartosh et al. 2010) and Sheffield Village Open Space.

Developed/Landscaped

Urban/Developed
Urban/developed habitat includes paved and unpaved roads, buildings, median strips, lawns, yards, and landscaped parks. This habitat type consists of a mosaic of different vegetation types (McBride and Reid 1988). Most urban/developed habitat within the Revised Draft VMP area may also be classified as being within the "urban residential zone" or "suburban zone" (McBride and Reid 1988). Plant species composition and cover in this habitat varies because of its artificial character, human influence (e.g., mowing, irrigating, planting, weeding), and past disturbance. A variety of bird species may use this habitat, including Mourning Dove (*Zenaida macroura*), Anna's Hummingbird, American Robin (*Turdus migratorius*), Scrub-Jay, Northern Mockingbird (*Mimus polyglottos*), House Finch (*Haemorhous mexicanus*), Wrentit, Bushtit (*Psaltriparus minimus*), and Oak Titmouse (*Baeolophus inornatus*) (McBride and Reid 1988). Common wildlife in these areas includes raccoon, Virginia opossum (*Didelphis virginiana*), and striped skunk (*Mephitis mephitis*) (McBride and Reid 1988). California mule deer (*Odocoileus hemionus californicus*) may also be found in this habitat.

Aquatic and Wetland Habitats

Riverine

Riverine habitat in the Revised Draft VMP area includes perennial, intermittent, and ephemeral streams. Major streams within the Revised Draft VMP area are shown on Figure 3.4-2. Perennial streams flow year-round, while intermittent streams dry down seasonally and ephemeral streams flow for only a short period. All of these streams provide water sources for wildlife and important habitat for aquatic species. Coast Range newt occurs in this habitat. Rainbow trout (*Oncorhynchus mykiss*) are known to occur in perennial streams in the Revised Draft VMP area, including Sausal, Palo Seco, and Shepherd Creeks (Laurel Marcus and Associates et al. 2010).

Freshwater Emergent Wetland

Freshwater emergent wetlands provide food, water, and cover for many bird species, and are among the most productive wildlife habitats in California (Kramer 1988). A small emergent wetland is located in the northeastern portion of Joaquin Miller Park between the Fern Creek trail and Skyline Boulevard. This wetland is dominated by California blackberry (*Rubus ursinus*) and rushes (*Juncus* spp.). A second small emergent wetland is located within Knowland Park and is dominated by rushes and sedges. An emergent wetland is also present in Garber Park. Small areas with emergent wetlands may be present along streams in the Revised Draft VMP area.

Sensitive Natural Communities in the Revised Draft VMP Area

Portions of the Revised Draft VMP area contain sensitive natural communities as identified by California Department of Fish and Wildlife (CDFW ~~2019a~~2023b). Although Monterey pine forest and Monterey cypress (*Hesperocyparis macrocarpa*) stands are considered sensitive natural communities in their native range, these vegetation types within the Revised Draft VMP area represent stands that were planted and would not be considered sensitive in the Revised Draft

VMP area. Global Rank (G) and State Rank (S) are listed. Natural communities with ranks of S1-S3 are considered Sensitive Natural Communities. Figure 3.4-3 shows mapped occurrences of the following sensitive natural communities in the Revised Draft VMP area:

- *Sequoia sempervirens* (redwood forest) Alliance (Alliance code 86.100.00, G3 S3): Joaquin Miller Park, Leona Heights Park, Dimond Canyon Park
- *Nassella* spp. – *Melica* spp. (needle grass – melic grass grassland) Alliance (Alliance code 41.151.00, ~~G4 S4~~G3G4 S3S4): Knowland Park, Sheffield Village Open Space
- *Umbellularia californica* (California bay forest) Alliance (Alliance code 74.100.00, G4 S3): Joaquin Miller Park, Dimond Canyon Park, Knowland Park, Sheffield Village Open Space
- *Diplacus aurantiacus* (bush monkeyflower scrub) Alliance (Alliance code 32.082.00, G3 S3?): Knowland Park, Sheffield Village Open Space
- *Arctostaphylos* (*crustacea*, *tomentosa*) (brittle leaf – woolly leaf manzanita chaparral) Alliance (Alliance code 37.308.00, G3 S3): Knowland Park
- *Alnus rubra* (red alder forest) Alliance (Alliance code 61.410.00, G5 S4): Dimond Canyon Park

Areas mapped as Freshwater Emergent Wetland and Valley/Foothill Riparian are generally considered sensitive natural communities. As described below in Section 3.4.2, "Regulatory Setting," wetlands and waters are protected by both federal and state regulations. Although not directly within the Revised Draft VMP area, the serpentine prairie located within Redwood Regional Park represents a sensitive natural community and is located immediately adjacent to the Revised Draft VMP area. It is closest to roadside treatment areas along Skyline Boulevard that are within the Revised Draft VMP area.

Critical Habitat

USFWS and the National Marine Fisheries Service (NMFS) have designed critical habitat for some species listed under the federal Endangered Species Act (ESA). Critical habitat is a specific geographic area that contains features essential to the conservation of a listed species and that may require special management and protection. The USFWS Critical Habitat Mapper (USFWS ~~2020b~~2023b) and NMFS critical habitat shapefiles were consulted to determine the presence of designated Critical Habitat within the Revised Draft VMP area. Critical habitat for Alameda whipsnake is present within the Revised Draft VMP area (**Figure 3.4-4**).

Wildlife Movement Corridors and Nurseries

The Revised Draft VMP area is located within the WUI, where recreational trails and nearby residential development represent most of the surrounding land uses. Portions of the Revised Draft VMP area, particularly large parks (such as Joaquin Miller Park and Knowland Park) and parks along streams (such as Dimond Canyon Park and Leona Heights Park) and associated riparian habitat provide important movement corridors for wildlife.

Portions of the Revised Draft VMP area provide important habitat for wildlife, including breeding habitat. Grasslands, shrubs, trees, and other substrates within the Revised Draft VMP area provide nesting habitat for birds. Streams in the Revised Draft VMP area provide breeding

habitat for amphibians and fish, while uplands provide breeding habitat for other wildlife. Trees in the Revised Draft VMP area provide breeding roost habitat for bats.

Biological Resources by Parcel Type and Topography

The Revised Draft VMP area encompasses a large area with various types of parcels and topographic features, including urban and residential areas, canyon areas, ridgetops, City parks and open spaces, and roadside clearance areas. While the discussion above summarizes habitat types present throughout the Revised Draft VMP area, the discussion that follows generally describes the types of habitats present on these various parcel types. The range of vegetation and habitat types on a parcel reflect site conditions such as the site's position in the watershed, physiographic setting, slope aspect, underlying geology and soil, soil moisture, and past land uses. Figure 2-2, sheets 1 through 10, in Chapter 2, *Project Description*, show the parcel types in the Revised Draft VMP.

Urban and Residential Areas

Urban and residential parcels contain a variety of habitat types (Figure 3.4-1), largely because of the artificial character of landscaping (e.g., planted, maintained) in these areas. These parcels are generally much smaller than other parcel types, but may still contain ecologically valuable plant and wildlife resources, especially if they are located near larger undeveloped parcels.

Canyon Areas

Canyon areas within the Revised Draft VMP area include portions of Garber Park, Dimond Canyon Park, Shepherd Canyon Park and the Montclair Railroad Trail, and Leona Heights Park.

Garber Park

Garber Park is dominated by coast live oak and bay laurel, with big leaf maple and California buckeye subdominant (Figure 3.4-1, Sheet 1). A grove of eucalyptus is also present. A small freshwater emergent wetland is located in the southeastern portion of the park. The volunteer group Garber Park Stewards has conducted regular restoration activities within the park to remove invasive species and restore native habitat. This park contains a diverse community of native plant species, including yarrow (*Achillea millefolium*), common snowberry (*Symphoricarpos albus*), and blue wildrye.

Dimond Canyon Park

Dimond Canyon Park is dominated by a mix of coast live oak and bay laurel (Figure 3.4-1, Sheet- 2). A narrow band of riparian habitat follows Sausal Creek in the southern portion of park, although it is too narrow to appear at the mapped scale. At the southern end of Dimond Canyon Park is developed urban habitat, with structures, lawn, oak trees, and a demonstration garden of California native plants. The golf course to the north is also characterized as urban habitat. Redwoods become dominant in the portion of the park along Palo Seco Creek. The volunteer group Friends of Sausal Creek has conducted restoration activities within the park since 1996 (Laurel Marcus and Associates et al. 2010). The City has also initiated and managed large-scale restoration projects in Sausal Creek.

Shepherd Canyon Park and Montclair Railroad Trail

Shepherd Canyon Park contains a developed area with sports fields near Shepherd Canyon Road (Figure 3.4-1, Sheet 2). Outside of the developed area, the park is dominated by coast live oak woodland, with patchy areas of Monterey pine and cypress, annual grassland, and eucalyptus. Eucalyptus is dominant in the western portion of the Montclair Railroad Trail, and patches of broom are also common. Coast live oak becomes dominant in the northeastern portion of the trail.

Leona Heights Park

A redwood forest community dominates the portion of Leona Heights Park along the stream. Further upslope, coast live oak becomes dominant. Broom is sporadically common along the trails within the oak-dominated habitat. Coastal scrub and annual grassland characterize the eastern portion of the park on more exposed south-facing slopes.

Ridgetop Areas

Ridgetop areas within the Revised Draft VMP area include portions of the North Oakland Regional Sports Field, Grizzly Peak Open Space, and City Stables.

North Oakland Regional Sports Field

The northern portion of the North Oakland Regional Sports Field is dominated by a eucalyptus forest. The understory of this forest is mainly broom, especially in the most northern portion of the site. Scattered coast live oak and bay laurel are present within the eucalyptus forest.

The central area of the North Oakland Regional Sports Field consists of urban/developed habitat, including sports fields and a fire road. A small area of riparian habitat is located along a stream that runs east to west across the central portion of the sports field. The southern portion of the site consists of coast oak woodland, with a small patch of coastal scrub, both along north-facing slopes.

Grizzly Peak Open Space

Grizzly Peak Open Space is dominated by two habitats. Coastal scrub is the dominant habitat in the northern and central portions of this area, mainly on south- and southeastern-facing slopes; a Monterey pine community is dominant is the southern and central portions of the area, often on northwestern-facing slopes. The Monterey pine community has an open canopy, and the species composition of the understory in this community is similar to the coastal scrub habitat. Dominant shrubs include coyote brush and sticky monkeyflower. Compared to earlier mapping efforts in this area (Federal Emergency Management Agency [FEMA] 2014), the Revised Draft VMP area mapping indicates that the extent of Monterey pine may have expanded. A portion of the southern part of the Grizzly Peak Open Space is characterized by a eucalyptus forest community.

City Stables

Habitat at the City Stables is characterized as urban, with most of the site being developed.

City Park Lands and Open Space

City park lands and open space within the Revised Draft VMP area include Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, and King Estate Open Space Park.

Sheffield Village Open Space

Sheffield Village Open Space is dominated by coast oak woodland and coastal scrub habitats, with patches of annual grassland present on some south- and west-facing slopes. The coastal scrub habitat is dominated by coyote brush in areas adjacent to the Lake Chabot Golf Course but is generally more diverse in areas toward the central portion of the open space.

Knowland Park

Knowland Park is the largest of the open space areas in the Revised Draft VMP area, covering approximately 470 acres. It contains a diverse assemblage of habitats and has been identified as a Botanical Protection Priority Area by the CNPSEB (Bartosh et al. 2010). It also contains the developed habitat of the Oakland Zoo. Coast oak woodlands dominate the northeastern portion of the park, as well as drainages throughout the park. Both coastal scrub and mixed chaparral (also known as maritime chaparral) are present, generally along south-facing slopes but also on some north-facing slopes. Coastal scrub in the eastern portion of the park is generally a simple assemblage of coyote brush and poison oak. This same species assemblage is also found in some of the coastal scrub community mapped south of Golf Links Road. Smaller patches of coastal scrub contain a more diverse mix of shrub species, including California sagebrush and lupines. Annual grasslands dominate the southern and central portions of the park, typically on south-facing slopes, with islands of native perennial grasslands dominated by purple needlegrass. Other native perennial grass species in the park include blue wildrye, California oat grass, and California brome (*Bromus carinatus*).

Joaquin Miller Park

Redwood forest covers most of the eastern portion of Joaquin Miller Park. Coast oak woodland is dominant along drainages in the eastern and northern portions of the park. The southwestern portion is landscaped and contains buildings and other developed spaces, including Woodminster Amphitheater, a nursery, dog play areas, ranger station, and community center. Stands of Monterey pine and Monterey cypress are scattered throughout the park, with a large stand west of the Sequoia Arena. A large stand of eucalyptus is found at the western edge of the park, near Castle Drive. Small areas of coastal scrub are also present, generally on south-facing slopes. Several canyons are present in the park, including Palo Seco and Cinderella Canyons and Fern Ravine.

The Chabot Space and Science Center and the associated pallid manzanita (*Arctostaphylos pallida*) restoration site are located adjacent to the park's northern property boundary, partially within the park and partially off site. Other populations of the federally threatened pallid manzanita are present, including on both sides of Skyline Boulevard near the Redwood Glen Trailhead, approximately 500 feet west of the Roberts Park main entrance (this is known as the "'Big Trees'" pallid manzanita population). Pallid manzanita planting areas are also located adjacent to the nursery. Most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*) is known to occur within the park in grassland along the Sunset Trail, west of Castle Park Trail (CNPSEB 2023).

Serpentine soils are located in the southernmost portion of the park, near the intersection of Skyline Boulevard and Joaquin Miller Road. These soils support occurrences of special-status plant species such as Presidio clarkia (*Clarkia franciscana*) and Tiburon buckwheat (*Eriogonum luteolum* var. *caninum*).

King Estate Open Space Park

King Estate Open Space Park is dominated by annual grassland, with coast oak woodland present in drainages. Coastal scrub dominated by coyote brush is also present on slopes in some portions of the park. Acacias are present at the park's western boundary.

Roadside Clearance Areas

Roadside clearance areas are located throughout the Revised Draft VMP area and contain a variety of the habitats described above. These areas generally provide limited habitat for wildlife due to their proximity to roadways. As described above, a population of pallid manzanita is located on both sides of Skyline Boulevard near the Redwood Glen Trailhead in Joaquin Miller Park. The federally listed Presidio clarkia is known to occur on City-owned medians in the vicinity of Skyline Boulevard and Chadbourne Way (USFWS 2010a). This species also occurs on roadsides nearby, specifically along the north side of Kimberlin Heights Drive, Colgett Drive, ~~and~~ Crestmont Drive at the junction with Westfield Way, and along Old Redwood Road (USFWS 2010a, CDFW 2023a). Most beautiful jewelflower is also known to occur along serpentine roadcuts on Butters Drive, near the junction of Crestmont Drive and Westfield Way, and in the vicinity of Merritt College (CDFW 2023b).

Special-Status Plant and Wildlife Species

Special-status plant and wildlife species identified as present or potentially occurring within the Revised Draft VMP area are listed, and photographs provided, in Appendix D of this Recirculated DEIR. Analysis conducted for this Recirculated DEIR identified 181 special-status plant species and 12~~10~~ special-status animal species as documented to occur or having potential to occur in or near the Revised Draft VMP area.

Special-Status Plants

For purposes of this evaluation, special-status plants are plant species that are listed under or included in:

- the federal ESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species;
- the California Endangered Species Act (CESA) as threatened, endangered, rare, or a candidate species;
- the CNPS's California Rare Plant Rank (CRPR) designations as rare or endangered with ranks of 1A, 1B, 2A, or 2B (defined in footnote of **Table 3.4-2**);
- the CRPR with ranks 3 or 4 (defined in footnote of Table 3.4-2); or
- the CNPSEB Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties Database with an A rank that are known from the Bay Hills region.

A list of special-status plant species known or thought to have potential for occurrence in the Revised Draft VMP area was compiled using CNPS lists (CNPS ~~2020, Lake 2020~~2023, CNPSEB 2023), and CNDDB records (CDFW ~~2020~~2023a) (**Figure 3.4-5**). Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing as CRPR 1B or 2 are, in general, considered to meet CEQA's Section 15380 criteria (described under "California Environmental Quality Act" in Section 3.4.2, "Regulatory Setting," below), and adverse effects on these species may be considered significant. Impacts on plants that are listed by the CNPS as CRPR 3 or 4 are also considered during CEQA review; because these species are typically not as rare as CRPR 1B or 2, however, impacts on them are less frequently considered significant. Additionally, plants with an A Rank on the CNPSEB Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties Database are included in this analysis, although these species may not meet CEQA's Section 15380 criteria.

Table 3.4-2 identifies special-status plant species that are federally listed or state listed as endangered or threated; plants that are considered "state rare"; CRPR 1, 2, 3 or 4 species; and CNPSEB A-ranked species that are known to have occurred or may occur in or near the Revised Draft VMP area. Special-status plant species with occurrence potential identified as "none" or "not expected" are included in Table D-1 of Appendix D of this Recirculated DEIR. Their distribution, legal status, general habitat requirements, and known occurrences in the Revised Draft VMP area are also provided.

Special-Status Wildlife

For purposes of this evaluation, special-status wildlife are species that are:

- Listed under the ESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species;
- Listed under the CESA as threatened, endangered, or a candidate species;
- Designated by CDFW as a California species of special concern; or
- Listed in the California Fish and Game (F&G) Code as a fully protected species (birds at Section 3511, mammals at Section 4700, reptiles and amphibians at Section 5050, and fish at Section 5515).

Table 3.4-3 identifies special-status wildlife species that are known to occur or may occur in or near the Revised Draft VMP area. Their distribution, legal status, general habitat requirements, potential to occur, and known occurrences in the Revised Draft VMP area are also provided. Special-status wildlife species with occurrence potential identified as "none" or "not expected" are included in Table D-2 of Appendix D of this Recirculated DEIR. **Figure 3.4-6** shows known occurrences of special-status wildlife in the Revised Draft VMP area. Figure 3.4-4 shows critical habitat in the Revised Draft VMP area. These species are described further below.

Fish

Sausal Creek supports resident rainbow trout (*Oncorhynchus mykiss*) (Leidy et al. 2005, Laurel Marcus and Associates et al. 2010). The Sausal Creek watershed historically supported steelhead trout, the anadromous special-status form of *O. mykiss*; however, there is currently no evidence

of anadromy in the *O. mykiss* population there (Leidy et al. 2005). Resident rainbow trout are not a special-status species.

Amphibians and Reptiles

Special-status reptiles with the potential to occur in the Revised Draft VMP area include western pond turtle (*Emys marmorata*), Alameda whipsnake, and California red-legged frog. Alameda whipsnake is most likely to occur within coastal scrub and chaparral habitats, but this species may also use adjacent habitats such as grasslands and oak woodlands (USFWS 2011). Portions of the Revised Draft VMP area are within designated areas of critical habitat for this species, particularly the Grizzly Peak Open Space (Figure 3.4-4). Western pond turtles have the potential to occur within the Revised Draft VMP area within aquatic habitat such as perennial streams.

Birds

Special-status birds with the potential to occur in the Revised Draft VMP area include White-tailed Kite (*Elanus leucurus*), Golden Eagle (*Aquila chrysaetos*), and Yellow Warbler (*Setophaga petechial*).

Mammals

Special-status mammals with the potential to occur in the Revised Draft VMP area include western red bat (*Lasiurus blossevillii*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), and San Francisco dusky-footed woodrat. Western red bats and western mastiff bats may roost in trees in the Revised Draft VMP area. San Francisco dusky-footed woodrat stick houses were observed in many locations within the Revised Draft VMP area and were most often encountered in oak woodlands and riparian areas.

Invertebrates

Special-status invertebrates with the potential to occur in the Revised Draft VMP area include monarch butterfly and Crotch bumble bee (*Bombus crotchii*).

Table 3.4-2. Special-Status Plant Species with Potential to Occur in the Revised Draft VMP Area

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Federally Listed or State-listed Endangered and Threatened Plant Species					
Arctostaphylos pallida pallid manzanita	FT	SE	1B.1	Broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub. Grows on uplifted marine terraces on siliceous shale or thin chert. May require fire. 180-460 meters. Blooms December through March.	**Present.** This species is present in Joaquin Miller Park, near Chabot Space and Science Center, and along Skyline Boulevard near these areas. Possible in Garber Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland or closed-cone pine-cypress habitats).
Clarkia franciscana Presidio clarkia	FE	SE	1B.1	Coastal scrub, valley and foothill grassland. Serpentine outcrops in grassland or scrub. Strict serpentine endemic. 20-305 meters. Blooms May through July.	**Present.** A CNDDB occurrence is present in the Revised Draft VMP area in Joaquin Miller Park, along Old Redwood Road, and in the median strip between Chadbourne Way and Skyline Boulevard. This species also occurs on roadsides nearby, specifically along the north side of Kimberlin Heights Drive, Colgett Drive, and Crestmont Drive at the junction with Westfield Way (USFWS 2010a). Possible in adjacent areas on serpentine substrate.
Plagiobothrys diffusus San Francisco popcornflower	-	SE	1B.1	Valley and foothill grassland, coastal prairie. Historically from grassy slopes with marine influence. 45-360 meters. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Knowland Park, Joaquin Miller Park, Sheffield Village Open Space, King Estate Open Space Park, and urban and residential parcels (with annual or perennial grasslands).

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
California Rare Plant Rank 1 and 2 Species					
Amsinckia lunaris bent-flowered fiddleneck	-	-	1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. 3-795 meters. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland). A 1938 CNDDB occurrence from "southern slopes of Redwood Ridge" with 1-mile accuracy overlaps portions of Joaquin Miller Park.
Balsamorhiza macrolepis big-scale balsamroot	-	-	1B.2	Chaparral, valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 35-1,465 meters. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland or annual grassland).
Blepharizonia plumosa big tarplant	-	-	1B.1	Valley and foothill grassland. Dry hills and plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. 30-505 meters. Blooms July through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Sheffield Village Open Space, Knowland Park, King Estate Open Space Park, and urban and residential parcels (with annual grassland).

Scientific Name Common Name	Status[1]			Habitat Association	Potential to Occur in the Revised Draft VMP Area
	Federal	State	CRPR/ CNPSEB		
Dirca occidentalis western leatherwood	-	-	1B.2	Broad-leafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. 25-425 meters. Blooms January through April.	**Present.** A CNDDB occurrence is present in the Revised Draft VMP area in Joaquin Miller Park. (CDFW 2023b). Possible in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Grizzly Peak Open Space, Sheffield Village Open Space, Knowland Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland).
Eriogonum luteolum var. *caninum* Tiburon buckwheat	-	-	1B.2	Chaparral, valley and foothill grassland, cismontane woodland, coastal prairie. Serpentine soils; sandy to gravelly sites. 0-700 meters. Blooms May through September.	**Present.** This species is present within the Revised Draft VMP area in Joaquin Miller Park. and in serpentine roadcuts on Butters Drive near the intersection with Burdeck Dr (CDFW 2023b). Possible on serpentine soils along roadside clearance areas in the Crestmont neighborhood and in serpentine areas along Skyline Boulevard.
Fissidens pauperculus minute pocket moss	-	-	1B.2	North coast coniferous forest. Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 10-1,024 meters.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Fritillaria liliacea fragrant fritillary	-	-	1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported though usually on clay, in grassland. 3-400 meters. Blooms February through April.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland or grassland).

Scientific Name Common Name	Status[1]			Habitat Association	Potential to Occur in the Revised Draft VMP Area
	Federal	State	CRPR/ CNPSEB		
Helianthella castanea Diablo helianthella	-	-	1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 45-1,070 meters. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland or grassland).
Hemizonia congesta ssp. *congesta* congested-headed hayfield tarplant	-	-	1B.2	Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 20-560 meters. Blooms April through November.	**Present.** A documented occurrence is present in the Revised Draft VMP area ~~(Lake 2020)~~ in Knowland Park~~.~~ (CNPSEB 2023). Possible in Sheffield Village Open Space, King Estate Open Space Park, Joaquin Miller Park, and urban and residential parcels (with annual grassland).
Meconella oregana Oregon meconella	-	-	1B.1	Coastal prairie, coastal scrub. Open, moist places. 60-640 meters. Blooms March through April.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Grizzly Peak Open Space, Joaquin Miller Park, Leona Heights Park, and Knowland Park.
Polemonium carneum Oregon polemonium	-	-	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. 0-1,830 m. Blooms April through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Grizzly Peak Open Space, North Oakland Sports Field, Joaquin Miller Park, Leona Heights Park, King Estate Open Space Park, Knowland Park, and Sheffield Village Open Space.

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Streptanthus albidus ssp. *peramoenus* (=*Streptanthus glandulosus* ssp. *glandulosus*) most beautiful jewelflower	-	-	1B.2	Chaparral, valley and foothill grassland, cismontane woodland. Serpentine outcrops, on ridges and slopes. 95-1,000 meters. March through October.	**Present.** This species is present in the Revised Draft VMP area in Joaquin Miller Park (~~Lake 2020) and~~ CNPSEB 2023), in Knowland Park (OWLS 2017), along serpentine roadcuts on Butters Drive, near the junction of Crestmont Drive and Westfield Way, and in the vicinity of Merritt College (CDFW 2023b). Possible on serpentine soils along roadside clearance areas in the Crestmont neighborhood and in serpentine areas along Skyline Boulevard.
Viburnum ellipticum oval-leaved viburnum	-	-	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. 215-1,400 meters. Blooms May through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland).
California Rare Plant Rank 3 and 4 Species					
Androsace elongata ssp. *acuta* California androsace	-	-	4.2	Chaparral, cismontane woodland, coastal sage scrub, valley and foothill grassland, meadows and seeps, pinyon and juniper woodland. Highly localized and often overlooked due to small size. 150-1,200 meters. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Grizzly Peak Open Space, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland).

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Calochortus umbellatus Oakland star-tulip	-	-	4.2	Chaparral, lower montane coniferous forest, broad-leafed upland forest, valley and foothill grassland, cismontane woodland. Often on serpentine. 100-700 meters. Blooms March through May.	**Present.** Suitable habitat is present in the Revised Draft VMP area. Documented in Knowland Park (Placemakers 2011), Joaquin Miller Park, and Leona Heights Park. Possible in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, North Oakland Regional Sports Field, Sheffield Village Open Space, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland or annual grassland).
Castilleja ambigua var. *ambigua* johnny-nip	-	-	4.2	Coastal bluff scrub, coastal scrub, coastal prairie, marshes and swamps, valley and foothill grassland, vernal pool margins. 0-435 meters. Blooms March through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Grizzly Peak Open Space, Sheffield Village Open Space, Knowland Park, King Estate Open Space Park, and urban and residential parcels (with annual grassland).
Galium andrewsii ssp. *gatense* phlox-leaf serpentine bedstraw	-	-	4.2	Chaparral, cismontane woodland, lower montane coniferous forest. Dry, rocky places in serpentine soil. 150-1,450 meters. Blooms April through July.	**Possible.** Possible on serpentine soils along roadside clearance areas in the Crestmont neighborhood, in serpentine areas of Joaquin Miller Park, and in serpentine areas along Skyline Boulevard.
Leptosiphon aureus (=Leptosiphon acicularis) bristly leptosiphon	-	-	4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Grassy areas, woodland, chaparral. 55-1,500 meters. Blooms April through July.	**Present.** Documented in Knowland Park in 2013 (Calflora 2020). Possible in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland or grassland).

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Leptosiphon grandiflorus large-flowered leptosiphon	-	-	4.2	Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland. Open, grassy flats, generally sandy soil. 5-1,200 meters. Bloom April through August.	**-Possible.** Suitable habitat is present in the Revised Draft VMP area and there is one historic (1900) record near Skyline High School.
Micropus amphibolus Mt. Diablo cottonweed	-	-	3.2	Valley and foothill grassland, cismontane woodland, chaparral, broad-leafed upland forest. Bare, grassy or rocky slopes. 45-825 meters. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with coast oak woodland or grassland).
Microseris sylvatica sylvan microseris	-	-	4.2	Chaparral, cismontane woodland, Great Basin scrub, pinyon and juniper woodland, valley and foothill grassland. Serpentine. 45-1,500 meters. Blooms March through June.	**Possible.** Possible on serpentine soils along roadside clearance areas in the Crestmont neighborhood, in serpentine areas of Joaquin Miller Park, and in serpentine areas along Skyline Boulevard.
Ranunculus lobbii Lobb's aquatic buttercup	-	-	4.2	Cismontane woodland, valley and foothill grassland, vernal pools, north coast coniferous forest. Mesic sites. Generally occurs in wetlands. 15-470 meters. Blooms February through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, and King Estate Open Space Park.

Scientific Name Common Name	Status[1]			Habitat Association	Potential to Occur in the Revised Draft VMP Area
	Federal	State	CRPR/ CNPSEB		
Plants of Local or Regional Significance (California Native Plant Society, East Bay Chapter A-Ranked Species)					
Adiantum aleuticum five-finger fern	-	-	A1	Riparian, mixed evergreen forest, chaparral, yellow pine forest, red fir forest, lodgepole forest, subalpine forest, Douglas-fir forest.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Agoseris apargioides var. *apargioides* seaside agoseris	-	-	A2	Forest, grassland, sand/ sandstone, scrub. Blooms April through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Agoseris heterophylla var. *cryptopleura* mountain dandelion	-	-	A1	Many plant communities, weak serpentine affinity. Blooms May through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Agoseris heterophylla var. *heterophylla* annual agoseris	-	-	A1	Many plant communities, weak serpentine affinity. Blooms May through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Agoseris retrorsa spear-leaved agoseris	-	-	A2	Scrub, oak woodland, conifer forest. Blooms April through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Agrostis hallii Hall's bent grass	-	-	A2	Forest, woodland. Blooms May through July.	**Present.** Present in Knowland Park (OWLS 2017).
Allium amplectens narrow-leaved onion	-	-	A2	Dry slopes, serpentine, woodlands. Blooms April through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Allium falcifolium sickle-leaved onion	-	-	A1	Rock/talus/scree, serpentine. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Alnus rubra red alder	-	-	A2	Riparian. Blooms February through March.	**Present.** Present in Garber Park and Leona Heights Park (OWLS 2017).

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Amaranthus californicus Californian amaranth	-	-	A2	Wetlands. Blooms July through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Amaranthus powellii Powell's amaranth	-	-	A1	Disturbed habitats. Blooms June through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Ammannia coccinea long-leaved ammannia	-	-	A1	Riparian, wetlands. Blooms June through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Aphyllon vallicolum California broom-rape	-	-	A2	Forest, woodlands. Blooms July through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Apocynum androsaemifolium bitter dogbane	-	-	A2	Chaparral, dry slopes, rock/talus/ scree. Blooms May through October.	**Present.** Present in Dimond Canyon Park (~~Lake 2020~~CNPSEB 2023).
Asclepias speciosa showy milkweed, milkweed	-	-	A2	Many habitats, including roadsides. Blooms May through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Asarum caudatum wild-ginger	-	-	A2	Forest, redwood forest. Blooms March through August.	**Present.** Present in Dimond Canyon Park and Joaquin Miller Park (OWLS 2017).
Berberis nervosa Oregon grape	-	-	A1	Forest. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Brodiaea terrestris ssp. *terrestris* dwarf brodiaea	-	-	A2	Grassland, wetlands, woodlands. Blooms April through July.	**Present.** Present in Knowland Park (OWLS 2017).
Calycadenia multiglandulosa sticky calycadenia	-	-	A2	Rock/talus/scree, scrub, serpentine. Blooms May through October.	**Possible.** Possible on serpentine soils along roadside clearance areas in the Crestmont neighborhood, in serpentine areas of Joaquin Miller Park, and in serpentine areas along Skyline Boulevard.
Carex brevicaulis short-stemmed sedge	-	-	A1	Rock/talus/scree, sand/ sandstone. Blooms April through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.

Scientific Name **Common Name**	**Status[1]**			**Habitat Association**	**Potential to Occur in the Revised Draft VMP Area**
	Federal	**State**	**CRPR/ CNPSEB**		
Carex densa dense sedge	-	-	A2	Wetlands. Blooms April through July.	**Present.** Present in Knowland Park (OWLS 2017). Possible in other wetlands.
Carex globosa round-fruited sedge	-	-	A2	Well-drained soil of wooded areas, edges. Blooms April through June.	**Present.** Present in Knowland Park (OWLS 2017).
Carex gracilior slender sedge	-	-	A1	Forest, grassland, wetlands. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Carex leptopoda slender-footed sedge, short-scaled sedge	-	-	A1	Wetlands. Blooms May through August.	**Present.** Present in Beaconsfield Canyon and Knowland Park (OWLS 2017). Possible in other wetlands.
Carex multicostata many-ribbed sedge	-	-	A1	Dry soil, meadows, open conifer forest. Blooms July through September.	**Present.** Present in Knowland Park (OWLS 2017).
Carex senta western rough sedge, rough sedge	-	-	A2	Riparian, wetlands Blooms April through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Castilleja applegatei ssp. *martinii* wavy-leaved indian paintbrush	-	-	A2	Chaparral, scrub. Blooms May through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Castilleja exserta ssp. *latifolia* owl's-clover	-	-	A1	Coastal bluff, sand/sandstone. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Castilleja subinclusa ssp. *franciscana* Franciscan indian paintbrush	-	-	A1	Chaparral and scrub. Blooms March through July.	**Present.** Present in Knowland Park (OWLS 2017).

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Chorizanthe polygonoides var. *polygonoides* knotweed spineflower	-	-	A1	Gravel, sand/sandstone. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area. Historically (1891) documented in the vicinity of Leona Heights (~~Lake 2020~~CNPSEB 2023).
Chrysolepis chrysophylla var. *minor* golden chinquapin	-	-	A2	Chaparral, forest, sand/sandstone. Blooms June through September.	**Present.** Present in Joaquin Miller Park (OWLS 2017) and along Grizzly Peak Boulevard (~~Lake 2020~~CNPSEB 2023).
Cicendia quadrangularis timwort	-	-	A2	Grassland. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Cicuta douglasii water-hemlock	-	-	A2	Freshwater marsh, wetlands. Blooms June through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Cirsium quercetorum brownie thistle	-	-	A2	Grassland, woodlands. Blooms April through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Clarkia purpurea ssp. *purpurea* purple clarkia	-	-	A2	Grassland. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Clarkia purpurea ssp. *viminea* large godetia	-	-	A1	Open, grassy or shrubby places. Blooms May through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Clintonia andrewsiana red clintonia	-	-	A1	Redwood forest. Blooms May through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Corallorhiza maculata var. *maculata* spotted coralroot	-	-	A2	Forests and woodlands. Blooms May through August.	**Present.** Present in Garber Park, Joaquin Miller Park, and Knowland Park (OWLS 2017).
Cornus glabrata brown dogwood	-	-	A1	Riparian. Blooms May through June.	**Possible.** Suitable habitat is present in riparian habitat in the Revised Draft VMP area.
Cryptantha micromeres minute-flowered cryptantha	-	-	A1	Burns, chaparral, woodlands. Blooms March through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.

Scientific Name Common Name	Status[1]			Habitat Association	Potential to Occur in the Revised Draft VMP Area
	Federal	State	CRPR/ CNPSEB		
Cryptantha microstachys Tejon cryptantha	-	-	A2	Chaparral, woodlands. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Cryptantha torreyana var. *pumila* Torrey's cryptantha	-	-	A2	Forest, dry slopes. Blooms April through June.	**Present.** Present in Knowland Park (~~Lake 2020~~CNPSEB 2023).
Cuscuta californica var. *californica* California dodder	-	-	A1	Chaparral, grassland. Blooms May through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Cyperus erythrorhizos red-rooted cyperus	-	-	A2	Riparian. Blooms July through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Cyperus niger black sedge	-	-	A1	Wetlands. Blooms July through November.	**Present.** Present in Leona Heights Park (OWLS 2017).
Cyperus odoratus coarse cyperus	-	-	A1	Wetlands. Blooms July through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Deinandra corymbosa (=*Hemizonia corymbosa*) coast tarweed	-	-	A2	Coastal bluff, grassland. Blooms March through November.	**Present.** Present in Knowland Park (OWLS 2017).
Delphinium californicum ssp. *californicum* coast larkspur, California larkspur	-	-	A2	Chaparral. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Dendromecon rigida bush poppy	-	-	A2	Burns, chaparral, scrub. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Dicentra formosa Pacific bleeding heart	-	-	A2	Forest and redwood forest. Blooms March through July.	**Present.** Present in Marjorie Saunders Park (OWLS 2017).
Dichondra donelliana California ponysfoot	-	-	A1	Coastal prairie, coastal scrub. Blooms January through March.	**Present.** Present in Joaquin Miller Park (OWLS 2017).

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Echinodorus berteroi burhead	-	-	A1	Freshwater marsh.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Eclipta prostrata false daisy	-	-	A1	Wetlands. Blooms June through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Elatine brachysperma waterwort	-	-	A1	Freshwater marsh, wetlands. Blooms April through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Elatine californica waterwort	-	-	A2	Freshwater marsh. Blooms March through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Elymus stebbinsii Stebbins' wheat grass	-	-	A1	Chaparral, forest, dry slopes. Blooms June through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Epilobium ciliatum ssp. *watsonii* San Francisco willowherb	-	-	A2	Freshwater marsh, riparian. Blooms May through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Ericameria arborescens golden-fleece	-	-	A2	Chaparral, forest, woodlands. Blooms August through November.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Erigeron petrophilus var. *petrophilus* rock daisy	-	-	A2	Rock/talus/scree, serpentine. Blooms May through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Eriogonum fasciculatum var. *foliolosum* leafy California buckwheat, California buckwheat	-	-	A1	Dry slopes. Blooms June through August.	**Present.** Present in Joaquin Miller Park, although these observations are planted (Lake 2020).
Eriogonum luteolum var. *luteolum* golden-carpet wild buckwheat, golden carpet	-	-	A2	Gravel, sand/sandstone, serpentine. Blooms July through November.	**Present.** Historically (1901) present in Joaquin Miller Park (~~Lake 2020~~CNPSEB 2023).
Eschscholzia caespitosa tufted poppy	-	-	A1	Chaparral. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Euonymus occidentalis var. *occidentalis* burning bush	-	-	A1	Riparian. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Festuca elmeri Elmer's fescue	-	-	A1	Moist, wooded slopes, under trees in rich soil. Blooms May through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Gaultheria shallon salal	-	-	A1	Forest and redwood forest. Blooms April through July.	**Present.** Present in Joaquin Miller Park (OWLS 2017).
Gilia achilleifolia ssp. *achilleifolia* California gilia	-	-	A2	Open or shaded, generally grassy places, sandy or rocky soil. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Gilia tricolor ssp. *tricolor* birds-eye gilia	-	-	A2	Grassland. Blooms June through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Githopsis diffusa ssp. *robusta* southern bluecup	-	-	A1	Shaded or disturbed area, burns. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Githopsis specularioides common bluecup	-	-	A2	Burns, chaparral, woodland. Blooms April through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Glyceria xoccidentalis western manna grass	-	-	A2	Wetlands. Blooms June through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Hordeum jubatum ssp. *jubatum* foxtail barley	-	-	A2	Many plant communities. Blooms May through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Horkelia californica var. *californica* California horkelia	-	-	A1	Grassland, scrub. Blooms March through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Horkelia californica var. *elata* tall horkelia	-	-	A2	Wetlands, riparian. Blooms June through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Hosackia stipularis var. *stipularis* stipulate lotus	-	-	A1	Chaparral. Blooms April through June.	**Present.** Present in Joaquin Miller Park (OWLS 2017).
Iris douglasiana Douglas iris	-	-	A2	Mixed evergreen forest, coastal prairie. Blooms March through July.	**Present.** Present in Beaconsfield Canyon, Dimond Canyon Park, Garber Park, Joaquin Miller Park, Knowland Park, and Marjorie Saunders Park (OWLS 2017).
Juncus oxymeris pointed rush	-	-	A1	Swales, wetlands. Blooms July through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Juncus phaeocephalus var. *phaeocephalus* brownheaded rush	-	-	A2	Wetlands. Blooms June through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Layia chrysanthemoides smooth layia	-	-	A1	Grassland. Blooms March through June.	**Present.** Present in King Estate Open Space Park (Lake 2020).
Layia gaillardioides woodland layia	-	-	A2	Scrub, woodlands. Blooms March through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Layia hieracioides tall layia	-	-	A2	Open, semi-shady, or disturbed sites, in light soil. Blooms April through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Leptosiphon liniflorus flax-flowered leptosiphon	-	-	A1	Scrub, serpentine, woodlands. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Ligusticum apiifolium Pacific lovage	-	-	A2	Coastal bluff, grassland, scrub, woodlands. Blooms June through July.	**Present.** Present in the Revised Draft VMP area on Grizzly Peak Boulevard, approximately 500 feet west of the intersection with Fish Ranch Road.
Lilium pardalinum ssp. *pardalinum* leopard lily	-	-	A1	Freshwater marsh, riparian. Blooms May through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Limosella acaulis southern mudwort	-	-	A2	Wetlands. Blooms May through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Lithophragma bolanderi Bolander starflower	-	-	A2	Open slopes, riparian, woodland. Blooms February through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Lomatium caruifolium var. *caruifolium* caraway-leaved lomatium	-	-	A2	Wetland riparian. Blooms March-May.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park, on the Sinawik Loop trail (~~Lake 2020~~CNPSEB 2023).
Lupinus affinis fleshy lupine	-	-	A1	Coastal prairie, northern coastal scrub, mixed evergreen forest. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Lythrum californicum California loosestrife	-	-	A2	Wetlands. Blooms April through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Madia anomala plump-seeded madia	-	-	A1	Grassland. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Mentha canadensis American cornmint, Japanese peppermint	-	-	A1	Wetlands, riparian. Blooms July through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Micropus californicus var. *subvestitus* slender cottonweed	-	-	A1	Many plant communities, dry slopes. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Microseris acuminata Sierra Foothills microseris	-	-	A2	Grassland. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Microseris campestris San Joaquin microseris	-	-	A1	Grassland, vernal pool. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Microseris elegans elegant microseris	-	-	A2	Grassland, vernal pool. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Mimulus douglasii (=*Diplacus douglasii*) Douglas monkeyflower	-	-	A2	Chaparral, gravel, rock/talus/scree, serpentine, woodlands. Blooms February through April.	**Possible.** Possible on serpentine soils along roadside clearance areas in the Crestmont neighborhood, in serpentine areas of Joaquin Miller Park, and in serpentine areas along Skyline Boulevard. This species was reported from the Serpentine Prairie in Redwood Regional Park in 1991 but has not been found in subsequent surveys (~~Lake 2020~~CNPSEB 2023).
Minuartia californica California sandwort	-	-	A1	Chaparral, grassland, dry slopes, rock/talus/scree, sand/ sandstone, serpentine. Blooms February through April.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Monardella douglasii Douglas' monardella	-	-	A2	Chaparral, grassland, serpentine, woodlands. Blooms May through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Morella californica wax myrtle	-	-	A2	Forest, redwood forest, scrub. Blooms March through April.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Muilla maritima common muilla	-	-	A2	Alkali areas, grassland, wetlands, dry slopes, scrub, serpentine, woodlands. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Oenothera elata ssp. *hookeri* evening-primrose	-	-	A2	Wetlands. Blooms June through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Osmorhiza brachypoda California cicely	-	-	A2	Forest, riparian, woodlands. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Oxalis oregana redwood sorrel	-	-	A1	Redwood forest. Blooms February through August.	**Present.** Present in the Revised Draft VMP area in Dimond Canyon and Joaquin Miller Park (OWLS 2017).

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Oxalis pilosa hairy wood-sorrel	-	-	A1	Chaparral, grassland, scrub. Blooms February through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Pectocarya pusilla little pectocarya	-	-	A2	Grassland, woodlands. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Penstemon heterophyllus var. *purdyi* foothill penstemon	-	-	A1	Chaparral, forest, grassland. Blooms May through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Pentachaeta alsinoides tiny pentachaeta	-	-	A2	Grassland. Blooms March through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Pentachaeta exilis ssp. *exilis* meager pentachaeta	-	-	A1	Grassland. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Perideridia oregana yampah	-	-	A1	Dry slopes, rock/talus/scree, woodlands. Blooms July through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Persicaria lapathifolia willow weed	-	-	A2	Wetlands. Blooms June through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Petasites frigidus var. *palmatus* western sweet coltsfoot	-	-	A1	Riparian, redwood forest. Blooms January through April.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Phacelia ramosissima branching phacelia	-	-	A2	Dry slopes, dry wash, grassland. Blooms April through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Phacelia tanacetifolia tansy phacelia	-	-	A2	Gravel, sand/sandstone. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Phalaris arundinacea reed canary grass	-	-	A1	Wetlands, riparian. Blooms May through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Phyla nodiflora turkey tangle frogfruit	-	-	A1	Wetland, riparian. Blooms May through June.	**Present.** Present in the Revised Draft VMP area in Leona Heights Park (OWLS 2017).

Scientific Name Common Name	Status[1]			Habitat Association	Potential to Occur in the Revised Draft VMP Area
	Federal	State	CRPR/ CNPSEB		
Pinus attenuata knobcone pine	-	-	A1	Burns, chaparral, forest, sand/ sandstone. Blooming period not provided.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Pinus coulteri Coulter pine	-	-	A2	Chaparral, forest. Blooms May through June.	**Present.** Present in the Revised Draft VMP area in Knowland Park (OWLS 2017).
Piperia elongata dense flower rein orchid	-	-		Forest, scrub. Blooms May through July.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park (OWLS 2017).
Plagiobothrys fulvus var. *campestris* field popcornflower, fulvous popcornflower	-	-	A2	Grassland, gravel, sand/sandstone, woodlands. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Poa howellii Howell's bluegrass	-	-	A1	Chaparral, rock/talus/scree, woodlands. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Polypodium scouleri leather-leaf fern	-	-	A2	Coastal prairie, coastal strand, redwood forest, mixed evergreen forest, coastal bluff.	**Possible.** Suitable habitat is present in the Revised Draft VMP area. Species occurrences documented near VMP area.
Polystichum californicum California sword fern	-	-	A1	Redwood forest, mixed evergreen forest.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Pseudognaphalium biolettii Bioletti's cudweed	-	-	A2	Dry slopes, sand/sandstone. Blooms April through June.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park (OWLS 2017).
Pseudognaphalium microcephalum white everlasting	-	-	A1	Chaparral, dry slopes. Blooms June through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Quercus chrysolepis canyon live oak	-	-		Chaparral, scrub. Blooms April through May.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park and Knowland Park (OWLS 2017).
Quercus durata var. *durata* leather oak	-	-	A2	Chaparral, serpentine. Blooms April through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area on serpentine soils.

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Quercus parvula var. *shrevei* island scrub oak	-	-	A1	Chaparral, woodlands. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Ranunculus occidentalis var. *occidentalis* western buttercup	-	-	A2	Grassland, woodlands. Blooms March through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Ribes aureum var. *gracillimum* golden currant	-	-	A2	Riparian. Blooms February through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Rorippa palustris ssp. *palustris* marsh yellow-cress	-	-	A2	Wetlands. Blooms March through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Salix scouleriana Scouler's willow	-	-	A2	Wetlands. Blooms February through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Sambucus racemosa var. racemosa red elderberry	-	-	A1	Riparian. Blooms May through July.	**Present.** Present in the Revised Draft VMP area in Beaconsfield Canyon and Joaquin Miller Park (OWLS 2017).
Sanicula laciniata coast sanicle	-	-	A2	Chaparral, scrub, woodlands. Blooms March through May.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park and Knowland Park (OWLS 2017).
Scutellaria californica California skullcap	-	-	A2	Scrub, woodlands. Blooms June through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Setaria parviflora knotroot bristle grass, perennial foxtail	-	-	A1	Chaparral, grassland. Blooms May through September.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park (OWLS 2017).
Sidalcea diploscypha fringed checkerbloom	-	-	A1	Grassland, woodlands. Blooms April through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Sisyrinchium californicum golden-eyed-grass	-	-	A1	Freshwater marsh. Blooms March through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Spiranthes romanzoffiana hooded ladies' tresses	-	-	A1	Coastal bluff, freshwater marsh. Blooms May through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Stachys ajugoides bugle hedge nettle	-	-	A2	Wetlands. Blooms April through September.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Stephanomeria elata stephanomeria	-	-	A2	Dry slopes. Blooms July through November.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Stylocline gnaphaloides everlasting neststraw	-	-	A2	Sand/sandstone. Blooms March through May.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park (~~Lake 2020~~CNPSEB 2023).
Symphyotrichum lanceolatum var. *hesperium* marsh aster	-	-	A2	Riparian, wetlands. Blooms July through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Taxus brevifolia pacific yew	-	-	A1	Woodlands. Blooms June through July.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Tetrapteron graciliflorum hill sun cup	-	-	A2	Grassland, dry slopes, scrub, woodlands. Blooms March through April.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Trifolium barbigerum bearded clover	-	-	A2	Wetlands. Blooms February through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Trifolium depauperatum var. *depauperatum* dwarf sack clover	-	-	A2	Grassland, wetlands. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Trifolium dichotomum branched indian clover	-	-	A2	Coastal bluff, grassland, dry slopes, woodlands. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Trifolium macraei Macrae's clover, double-headed clover	-	-	A1	Sand/sandstone, many plant communities. Blooms March through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.

Scientific Name Common Name	Status[1] Federal	State	CRPR/ CNPSEB	Habitat Association	Potential to Occur in the Revised Draft VMP Area
Trifolium olivaceum olive clover	-	-	A2	Valley grassland, foothill woodland. Blooms April through May.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Trifolium wormskioldii cow clover	-	-	A1	Wetlands. Blooms May through October.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Trillium ovatum ssp. *ovatum* white trillium	-	-	A2	Forest, redwood forest. Blooms February through April.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park (OWLS 2017).
Triodanis biflora Venus' looking-glass	-	-	A2	Burns, many plant communities, disturbed. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Triphysaria versicolor ssp. *faucibarbata* smooth owl's-clover	-	-	A2	Grassland. Blooms April through June.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Trisetum canescens tall trisetum	-	-	A2	Forest. Blooms May through August.	**Possible.** Suitable habitat is present in the Revised Draft VMP area.
Viola adunca ssp. *adunca* western blue violet	-	-	A1	Forest. Blooms April through August.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park (OWLS 2017).
Viola glabella stream violet	-	-	A2	Forest, riparian. Blooms March through August.	**Present.** Present in the Revised Draft VMP area in Joaquin Miller Park (OWLS 2017).
Viola sempervirens evergreen violet, redwood violet	-	-	A1	Redwood forest. Blooms January through July.	**Present.** Present in the Revised Draft VMP area in Dimond Canyon Park and Joaquin Miller Park (OWLS 2017).

Notes: [1] Status Codes:

Federal

- FE Listed as endangered under the Endangered Species Act
- FT Listed as threatened under the Endangered Species Act

State

- SE Listed as endangered under the California Endangered Species Act
- ST Listed as threatened under the California Endangered Species Act
- SC Candidate for listing under the California Endangered Species Act
- SR Listed as rare under the Native Plant Protection Act

California Rare Plant Rank (CRPR)

- 1B Plants rare, threatened, or endangered in California and elsewhere
- 2B Plants rare, threatened, or endangered in California but more common elsewhere
- 3 Plants about which information is needed-a review list
- 4 Plants of limited distribution-a watch list
- .1 seriously threatened in California
- .2 moderately threatened in California
- .3 not very threatened in California

East Bay Chapter of the California Native Plant Society (EBCPS)

- A1 Species known from 2 or less botanical regions in Alameda and Contra Costa Counties, either currently or historically.
- A1x Species previously known from Alameda or Contra Costa Counties, but now believed to have been extirpated, and no longer occurring here.
- A2 Species currently known from 3 to 5 regions in the two counties, or, if more, meeting other important criteria such as rare statewide, small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.

Abbreviations: CNDDB = California Natural Diversity Database; CDFW = California Department of Fish and Wildlife; OWLS = Oakland Wildland Stewards; USFWS = U.S. Fish and Wildlife Service.

Table 3.4-3. Special-status Wildlife Species with Potential to Occur in the Revised Draft VMP Area

Scientific Name **Common Name**	**Status[1]**		**Habitat Association**	**Potential to Occur in the Revised Draft VMP Area**
	Federal	**State**		
Federal or State Endangered, Threatened, and Candidate Animal Species				
Bombus crotchii Crotch bumble bee	-	SC	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia,* and *Eriogonum*.	**Possible.** The Revised Draft VMP area is within the current known range of this species (CDFW 2023c), and suitable habitat is present.
Danaus plexippus plexippus *monarch butterfly*	FC	-	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts are located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	**Possible.** No monarch butterfly overwintering sites have been documented within the Revised Draft VMP area (CNDDB 2023a, Xerces Society 2016). Tree species typically used by monarch butterflies as overwintering sites are present within the Revised Draft VMP area. However, overwintering sites in California are typically located within 1.5 miles of the Pacific Ocean or San Francisco Bay (Xerces Society 2016). As the Revised Draft VMP area is greater than 1.5 miles from the San Francisco Bay and Pacific Ocean, no monarch overwintering sites are anticipated to occur. However, individual monarch butterflies may be present in the Revised Draft VMP area.
Masticophis lateralis euryxanthus Alameda whipsnake	FT	ST	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna, and woodland habitats. Mostly south-facing slopes and ravines, with rock outcrops, deep crevices, or abundant rodent burrows, where shrubs form a vegetative mosaic with oak trees and grasses.	**Present.** Present in the Revised Draft VMP area in Knowland Park (Placemakers 2011). Possible in Grizzly Peak Open Space (critical habitat for this species), North Oakland Sports Field, Joaquin Miller Park, and Sheffield Village Open Space.

Scientific Name **Common Name**	**Status[1]**		**Habitat Association**	**Potential to Occur in the Revised Draft VMP Area**
	Federal	**State**		
Rana draytonii California red-legged frog	FT	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in North Oakland Sports Field, Dimond Canyon Park, Joaquin Miller Park, Leona Heights Park, Knowland Park, and Sheffield Village Open Space.
California Fully Protected or Species of Special Concern				
Emys marmorata western pond turtle	-	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Requires basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg-laying.	**Present.** Suitable habitat is present in the Revised Draft VMP area, including aquatic portions of Garber Park, North Oakland Sports Field, Dimond Park, Joaquin Miller Park, Leona Heights Park, Knowland Park, and Sheffield Village Open Space. Observed in the Sausal Creek watershed (Lowe 2000).
Aquila chrysaetos Golden Eagle	-	SP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	**Possible (Foraging only).** Species may use grasslands for foraging, but nesting is not expected. Possible foraging in King Estate Open Space Park, Knowland Park, and Sheffield Village Open Space.
Elanus leucurus White-tailed Kite	-	SP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Possible.** Suitable habitat is present in the Revised Draft VMP area. Possible in King Estate Open Space Park, Knowland Park, and Sheffield Village Open Space.

Scientific Name **Common Name**	**Status[1]**		**Habitat Association**	**Potential to Occur in the Revised Draft VMP Area**
	Federal	**State**		
Setophaga petechia Yellow Warbler	-	SSC	Riparian plant associations near water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants, including cottonwoods, sycamores, ash, and alders.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in riparian areas within North Oakland Sports Field, Dimond Canyon Park, Joaquin Miller Park, Leona Heights Park, Knowland Park, and Sheffield Village Open Space.
Antrozous pallidus pallid bat	-	SSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Grizzly Peak Open Space, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with forested or grassland habitats).
Eumops perotis californicus western mastiff bat	-	SSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Grizzly Peak Open Space, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with forested or grassland habitats).

Scientific Name **Common Name**	**Status[1]**		**Habitat Association**	**Potential to Occur in the Revised Draft VMP Area**
	Federal	**State**		
Lasiurus blossevillii western red bat	-	SSC	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	**Possible.** Suitable habitat is present in the Revised Draft VMP area in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Grizzly Peak Open Space, Sheffield Village Open Space, Knowland Park, Joaquin Miller Park, King Estate Open Space Park, and urban and residential parcels (with forested or grassland habitats).
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	-	SSC	Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	**Present.** This species is present in both tree-dominated and shrub-dominated communities in the Revised Draft VMP area. Present in Joaquin Miller Park and Knowland Park. Possible in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Grizzly Peak Open Space, Sheffield Village Open Space, and King Estate Open Space Park.

Notes: [1] Status Codes:

Federal

- FE Listed as endangered under the Endangered Species Act
- FT Listed as threatened under the Endangered Species Act
- FC Candidate for listing under the Endangered Species Act
- FD Delisted under the Endangered Species Act

State

- SE Listed as endangered under the California Endangered Species Act
- ST Listed as threatened under the California Endangered Species Act
- SC Candidate for listing under the California Endangered Species Act
- SD Delisted under the California Endangered Species Act
- SSC California Species of Special Concern
- SP State fully protected

Abbreviations: CNDDB = California Natural Diversity Database; CDFW = California Department of Fish and Wildlife.

3.4.2 Regulatory Setting

Biological resources are regulated by the following federal, state, and local laws and ordinances.

Federal Laws, Regulations, and Policies

Federal Endangered Species Act

The ESA (16 USC Section 1531 et seq.; 50 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. 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 U.S. Code [USC] Section 1532). The USFWS regulations define the term "harm" to include significant habitat modification or degradation that kills or injures wildlife by significantly impairing essential behavioral patterns (50 CFR Section 17.3). Section 7 of the ESA (16 USC Section 1531 et seq.) outlines the procedures for federal interagency cooperation to conserve federally listed species and designated critical habitats. Listed plant species are legally protected from take under the ESA only if they occur on federal lands or if the project requires a federal action, such as a Clean Water Act (CWA) Section 404 fill permit from USACE. Section 10(a)(1)(B) of the ESA provides a process by which nonfederal entities may obtain an incidental take permit from USFWS or NMFS for otherwise lawful activities that may incidentally result in "take" of endangered or threatened species, subject to specific conditions. A habitat conservation plan (HCP) must accompany an application for an incidental take permit.

Based on a review of recent ecological studies of other projects in the vicinity; aerial photos and topographic maps; and other relevant scientific literature, technical databases, and resource agency reports, the following federally listed wildlife species occur, or have potential to occur, in the Revised Draft VMP area: Alameda whipsnake and California red-legged frog (*Rana draytonii*). If the Revised Draft VMP would result in take of a federally listed wildlife species, incidental take approval would be required through either Section 7 or Section 10 consultation with USFWS.

In addition, the following federally listed plant species occur, or have potential to occur, in the Revised Draft VMP area: pallid manzanita and Presidio clarkia. If Revised Draft VMP activities requiring a Section 404 permit would result in adverse effects on any federally listed plant species, Section 7 consultation with USFWS would be required. However, the City would not need incidental take approval for impacts on federally listed plant species occurring on City-owned land.

USFWS and NMFS have designed critical habitat for some listed species. Critical habitat is a specific geographic area that contains features essential to the conservation of a listed species and that may require special management and protection. Critical habitat for Alameda whipsnake is present within the Revised Draft VMP area (Figure 3.4-4).

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (16 USC Section 1801 et seq.) governs all fishery management activities that occur in federal waters within the United States' 200-nautical-mile limit. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans (FMPs) to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from NMFS, establish Essential Fish Habitat (EFH) in FMPs for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with the NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to recommendations by the NMFS.

The Pacific Fisheries Management Council (PFMC) has designated EFH for the following three FMPs in the Revised Draft VMP area: Pacific coast groundfish, coastal pelagic species, and Pacific coast salmon. Thus, if the Revised Draft VMP would result in impacts on EFH, consultation with NMFS would be required. Such consultation would occur during the Section 7 or 10 consultation process (see "Federal Endangered Species Act" above).

Federal Migratory Bird Treaty Act

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

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

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

Federal Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions (16 USC Section 668). Under the Bald and Golden Eagle Protection Act, it is a violation to "take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest or egg, thereof." "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or 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."

Clean Water Act

The CWA (33 USC Section 1251 et seq.) establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and regulating quality standards for surface waters. Section 404 of the CWA regulates the discharge of dredged and fill materials into waters of the U.S., which includes all navigable waters, their tributaries, lakes and ponds, and impoundments of jurisdictional waters, as well as some wetlands adjacent to the aforementioned waters (33 CFR Section 328.3). Areas typically not considered to be jurisdictional waters include ephemeral features, diffuse stormwater runoff and directional sheet flow over upland, non-tidal drainage and irrigation ditches excavated on dry land, prior converted cropland, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial waterbodies such as swimming pools, vernal pools, water-filled depressions, stormwater control features, groundwater recharge structures, water reuse and wastewater recycling structures, and waste treatment systems (33 CFR Section 328.3). Areas meeting the regulatory definition of waters of the U.S. are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under the provisions of CWA Section 404. Activities involving placement of fill into jurisdictional waters of the U.S. 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 CWA.

Section 401 of the CWA 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 U.S. In California, the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) issue water quality certifications. Each RWQCB is responsible for implementing Section 401 in compliance with the CWA and its water quality control plan (also known as a Basin Plan). Applicants for a federal license or permit to conduct activities that may result in a discharge to waters of the U.S. (including wetlands or vernal pools) must also obtain a Section 401 water quality certification to ensure that any such discharge will comply with the applicable provisions of the CWA.

State Laws, Regulations, and Policies

California Endangered Species Act

The CESA (F&G Code Chapter 1.5, Sections 2050-2116 and 14 Cal. Code Regs. Sections 783-787.9) prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with the CESA, CDFW has jurisdiction over state-listed species. CDFW regulates activities that may result in "take" (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of individuals listed under the CESA. Habitat degradation or modification is not expressly included in the definition of "take" under the F&G Code. CDFW has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification."

Based on a review of recent ecological studies of other projects in the vicinity; aerial photographs and topographic maps; and other relevant scientific literature, technical databases, and resource agency reports, one state-listed wildlife species occurs, or has potential to occurs,

in the Revised Draft VMP area: Alameda whipsnake. Three state-listed plant species occur, or have potential to occur, in the Revised Draft VMP area: pallid manzanita, Presidio clarkia, and San Francisco popcornflower (*Plagiobothrys diffusus*). If Revised Draft VMP activities would result in take of a state-listed species, an incidental take permit would be required through Section 2081 consultation with CDFW.

California Environmental Quality Act

Under CEQA (Pub. Res. Code Section 21000 et seq.), a project is normally considered to result in a significant environmental impact on biological resources if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants. The CEQA Guidelines (14 Cal. Code Regs. Section 15380) define "endangered" as when an animal or plant's survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors." A species of animal or plant is rare when either "[a]lthough not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens or [t]he species is likely to become endangered in the future." A species is presumed threatened or endangered based on its listing under the CESA and ESA, as well as any other species that meet the criteria of the resource agencies or local agencies (e.g., CDFW-designated "species of special concern" and species ranked as CRPR 1 or 2).

California Fish and Game Code

The F&G Code includes various statutes that protect biological resources, including the Native Plant Protection Act of 1977 (NPPA) and the CESA (F&G Code Sections 2050–2098). The NPPA (F&G Code Section 1900-1913) authorizes the Fish and Game Commission to designate plants as endangered or rare and prohibits take of any such plants, except as authorized in limited circumstances.

The CESA prohibits state agencies from approving a project that would jeopardize the continued existence of a species listed under the CESA as endangered or threatened. Section 2080 of the F&G Code prohibits the take of any species that is state listed as endangered or threatened, or designated as a candidate for such listing. CDFW may issue an incidental take permit authorizing the take of listed and candidate species if that take is incidental to an otherwise lawful activity, subject to specified conditions.

F&G Code Sections 3503 and 3513 protect native and migratory birds, including their nests and eggs, from all forms of take. In addition, Section 3511 lists fully protected birds, Section 5515 lists fully protected fish, Section 4700 lists fully protected mammals, and Section 5050 lists fully protected amphibians.

CDFW regulates activities that will interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Section 1602 of the F&G Code requires that CDFW be notified of lake or streambed alteration activities. If CDFW subsequently determines that such an activity might adversely affect an existing fish and wildlife resource, it has the authority to issue a streambed alteration agreement, including requirements to protect biological resources and water quality.

Porter-Cologne Water Quality Control Act

The SWRCB works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region and may approve, with or without conditions, or deny projects that could affect waters of the state. Their authority comes from the CWA and the State's Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (California Water Code Section 13000 et seq.). The Porter-Cologne Act broadly defines waters of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because the Porter-Cologne Act applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that shallow waters of the state include headwaters, wetlands, and riparian areas. Where riparian habitat is not present, such as may be the case at headwaters, jurisdiction is taken to the top of bank.

On April 2, 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, which became effective on May 28, 2020. In these new guidelines, riparian habitats are not specifically described as waters of the state but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The Procedures describe riparian habitat buffers as important resources that may be included in required mitigation packages when granting permits that involve impacts to waters of the state, as well as to other areas requiring permit authorization from the RWQCBs.

Pursuant to the CWA, projects that are regulated by USACE must also obtain a Section 401 water quality certification from the RWQCB. This certification ensures that the proposed project will uphold state water quality standards. Because California's jurisdiction to regulate its water resources is much broader than that of the federal government, proposed impacts on waters of the state require water quality certification even if the area occurs outside of USACE jurisdiction. Moreover, the RWQCB may impose mitigation requirements even if USACE does not, such as for riparian habitats which are buffers to waters of the state. Under the Porter-Cologne Act, the SWRCB and RWQCBs also have the responsibility of granting CWA National Pollutant Discharge Elimination System (NPDES) permits and waste discharge requirements for certain point-source and non-point-source discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

Any activities within the Revised Draft VMP area that affect waters of the United States or waters of the state would require Section 401 water quality certification and/or waste discharge requirements from the San Francisco Bay RWQCB. Most wetlands and open water features in the Revised Draft VMP area are considered both waters of the United States and waters of the State. It is possible that some features, such as ditches, that are not considered waters of the United States may be subject to the jurisdiction of the San Francisco Bay RWQCB as waters of the state.

Local Laws, Regulations, and Policies

Applicable local plans, policies, regulations, and ordinances are presented below.

City of Oakland Protected Trees Ordinance

Oakland Municipal Code Chapter 12.36 (Protected Trees) was enacted to protect and preserve trees by regulating their removal; prevent unnecessary tree loss and minimize environmental damage from improper tree removal; encourage appropriate tree replacement plantings; effectively enforce tree preservation regulations; and promote the appreciation and understanding of trees. The ordinance defines protected trees as California or coast live oak trees measuring 4 inches in trunk diameter at breast height (dbh, defined as approximately 4.5 feet above existing grade) or larger, and any other tree (except eucalyptus and Monterey pine) measuring 9 inches dbh or larger on any property. Protected trees also include Monterey pine trees where they occur on City property and in development-related situations where more than five Monterey pine trees per acre are proposed to be removed. Monterey pine trees are not protected in non-development-related situations or in situations involving removal of five or fewer trees per acre; however, public posting and written notice of proposed tree removal to the City's Office of Parks and Recreation is required per Section 12.36.070A and Section 12.36.080A, respectively. Except as noted above, eucalyptus and Monterey pine trees are not protected by this ordinance. To remove any protected trees, a tree removal permit is required.

City of Oakland Hazardous Trees Ordinance

Oakland Municipal Code Chapter 12.40 (Hazardous Trees) defines a "hazardous tree" as any tree that poses an imminent threat to life or property, as determined by inspection using the criteria established by Section 12.40.030. The ordinance defines procedures for removing hazardous trees to prevent personal injury or damage to neighboring properties.

City of Oakland Creek Protection Ordinance

The purpose and intent of the City of Oakland's Creek Protection Ordinance (Oakland Municipal Code Chapter 13.16) is to:

- Safeguard and preserve creeks and riparian corridors in a natural state;
- Preserve and enhance creekside vegetation and wildlife;
- Prevent activities that would contribute significantly to flooding, erosion, or sedimentation; destroy riparian areas; or inhibit their restoration;
- Enhance recreational and beneficial uses of creeks;
- Control erosion and sedimentation;
- Protect drainage facilities; and
- Protect the public health and safety, and public and private property.

The ordinance includes permitting guidelines for development and construction projects taking place in or near creeks. Activities subject to the guidelines include the clearing of vegetation for wildfire hazard reduction purposes. Vegetation management activities on any creekside property require a Creek Protection Permit. "Creekside properties" are defined as properties

located within Oakland, as identified by the Watershed Programs Manager, that have a creek or riparian corridor crossing the property and/or are contiguous to a creek or riparian corridor. Creekside properties within the Revised Draft VMP area are shown on Figure 3.4-2. The intent is to ensure that permitted activities will avoid or limit, to the extent feasible, adverse impacts to creeks. For vegetation management activities within creekside properties under the Revised Draft VMP, OFD will obtain a Creek Protection Permit, as outlined in the ordinance.

A Creek Protection Plan is required for approval of a Creek Protection Permit when the work falls within Categories III and IV (Oakland Municipal Code Section 13.16.130). The Creek Protection Plan must include BMPs to protect the creek. Category III includes work that may adversely impact the creek beyond the 20-foot setback from the top of bank of the creek and is within 100 feet of the centerline of the creek. Category IV includes work that is conducted between the centerline of the creek and the 20-foot setback from the top of bank of the creek.

City of Oakland General Plan

The Open Space, Conservation, and Recreation Element of the City's General Plan (City of Oakland 1996) is the official policy document addressing the management of open land, natural resources, and parks in Oakland. The following objectives and policies from the City of Oakland General Plan are relevant to the Revised Draft VMP:

Objective OS-1: Resource Conservation Areas – To conserve and appropriately manage undeveloped areas in Oakland which have high natural resource value, scenic value, or natural hazards which preclude safe development.

> **Policy OS-1.1:** Wildland Parks – Conserve existing City and Regional Parks characterized by steep slopes, large groundwater recharge areas, native plant and animal communities, extreme fire hazards, or similar conditions. These areas are included in Figure 4 as Potential Resource Conservation Areas. Manage such areas to protect public health and safety and conserve natural resources.

Objective CO-1: Soil Conservation – To protect and preserve soil as a resource for healthy plant, animal, and human life.

Objective CO-6: Surface Waters – To protect the ecology and promote the beneficial uses of Oakland's creeks, lakes, and nearshore waters.

> **Policy CO-6.1:** Creek Management – Protect Oakland's remaining natural creek segments by retaining creek vegetation, maintaining creek setbacks, and controlling bank erosion. Design future flood control projects to preserve the natural character of creeks and incorporate provisions for public access, including trails, where feasible. Strongly discourage projects which bury creeks or divert them into concrete channels.

Objective CO-7: Plant Resources – To minimize the loss of native plant communities and restore these communities where they have been damaged or lost, and to preserve Oakland's trees unless there are compelling safety, ecological, public safety, or aesthetic reasons for their removal.

Policy CO-7.1: Protection of Native Plant Communities – Protect native plant communities, especially oak woodlands, redwood forests, native perennial grasslands, and riparian woodlands, from the potential adverse impacts of development. Manage development in a way which prevents or mitigates adverse impacts to these communities.

Policy CO-7.2: Native Plant Restoration – Encourage efforts to restore native plant communities in areas where they have been compromised by development or invasive species, provided that such efforts do not increase an area's susceptibility to wildfire.

Policy CO-7.3: Forested Character – Make every effort to maintain the wooded or forested character of tree-covered lots when development occurs on such lots.

Policy CO-7.4: Tree Removal – Discourage the removal of large trees on already developed sites unless removal is required for biological, public safety, or public works reasons.

Policy CO-7.5: Non-native Plant Removal – Do not remove non-native plants within park and open space areas solely because they are non-natives. Plant removal should be related to other valid management policies, including fire prevention.

Policy CO-7.6: Rehabilitation of Damaged or Dead Vegetation – Encourage programs which rehabilitate, enhance, or replace damaged or dead vegetation as appropriate.

Objective CO-8: Wetlands – To conserve wetlands so that they may continue to provide habitat for fish and wildlife.

Policy CO-8.1: Mitigation of Development Impacts – Work with federal, state, and regional agencies on an on-going basis to determine mitigation measures for development which could potentially impact wetlands. Strongly discourage development with unmitigable adverse impacts.

Objective CO-9: Rare, Endangered, and Threatened Species – To protect rare, endangered, and threatened species from the impacts of urbanization.

Policy CO-9.1: Habitat Protection – Protect rare, endangered, and threatened species by conserving and enhancing their habitat and requiring mitigation of potential adverse impacts when development occurs within habitat areas.

Objective CO-10: Vegetation Management – To manage vegetation so that the risk of catastrophic wildfire is minimized.

Policy CO-10.1: Flammable Vegetation Control – Subject to the availability of City resources and at the direction of the City Council and applicable City departments, control flammable vegetation on public and private open space lands in the Oakland Hills to reduce wildfire hazards.

Policy CO-10.2: Fire Prevention Measures – As determined necessary by the City, require individual property owners and developers in high hazard areas to reduce fire

hazards on their properties through a range of preventative measures. Landscaping and site planning in these high hazard areas should minimize future wildfire hazards.

Objective CO-11: Wildlife – To sustain a healthy wildlife population within the City of Oakland.

Policy CO-11.1: Protection from Urbanization – Protect wildlife from the hazards of urbanization, including loss of habitat and predation by domestic animals.

Policy CO-11.2: Migratory Corridors – Protect and enhance migratory corridors for wildlife. Where such corridors are privately owned, require new development to retain native habitat or take other measures which help sustain local wildlife population and migratory patterns.

North Oakland Hill Area Specific Plan

North Oakland Hill Area Specific Plan (City of Oakland 1986) is a document addressing land use, infrastructure, zoning, and development in a portion of the Oakland hills. The area covered by this specific plan is generally located along the ridgeline northwest of Shepherd Canyon Road. This specific plan includes vegetation management prescription.

3.4.3 Impact Analysis

Methodology

The biological resources analysis for ~~the~~this Recirculated DEIR relies on both a review of existing databases and a baseline evaluation of biological resources that were conducted during VMP development, as described in Section 3.4.1. The following impact analysis focuses on reasonably foreseeable effects of the Revised Draft VMP compared with baseline conditions at the time the NOP was published (November 2019).

As described in Section 3.1, *Overview*, certain activities that are proposed as part of the Revised Draft VMP have been undertaken by OFD in the past on an ongoing basis. Therefore, the baseline was established by averaging the amount of vegetation management activities conducted annually over the last 15 years, which amounts to 900 acres of goat grazing and 400 acres of roadside treatment and small parcel activities, using a combination of hand labor and mechanical techniques. These activities have not typically involved removal of mature trees, although saplings have been removed. Under the Revised Draft VMP, treatment of roadside areas and urban/residential parcels would be anticipated to encompass ~~500~~508 acres per year, an increase of ~~25~~27 percent over baseline conditions.

The proposed Revised Draft VMP activities that have not been routinely conducted in the past are primarily tree removal and herbicide application. In terms of spatial distribution, areas of mechanical and hand labor have largely been restricted to roadside areas and small parcels under baseline conditions. Under baseline conditions, grazing has occurred within Shepherd Canyon Park, Leona Heights Park, Beaconsfield Canyon, North Oakland Sports Field, Grizzly Peak Open Space, Sheffield Village Open Space, Knowland Park and Arboretum, King Estate Open Space Park, and Joaquin Miller Park. With implementation of the Revised Draft VMP, mechanical and hand labor techniques would take place more broadly within the boundaries of parks and open spaces, rather than being limited to roadsides or access points.

It is important to note that the potential impacts associated with vegetation management activities to reduce fuel loads and associated fire risk are generally temporary in nature as vegetation and habitats change and develop over time. The Revised Draft VMP does not propose vegetation type conversion (such as conversion from oak woodland to grassland). Additionally, site-specific biological resource surveys would be conducted, as appropriate and as required by the mitigation measures identified below, before the implementation of individual Revised Draft VMP treatment projects.

The potential direct and indirect effects of the Revised Draft VMP are described and evaluated according to significance criteria from Appendix G of the CEQA Guidelines and the City's adopted significance criteria. Direct impacts are those that would be caused by Revised Draft VMP activities and occur at the same time and place as those activities, whereas indirect impacts are those that are reasonably foreseeable and caused by Revised Draft VMP activities, but would occur at a different time or place. For project impacts that would be significant, feasible mitigation measures are identified, and any residual impact is evaluated to determine whether mitigation measures would reduce the impact to a less-than-significant level or whether the impact would remain significant and unavoidable.

Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines and the City of Oakland CEQA Thresholds of Significance, it was determined that the Revised Draft VMP would result in a significant impact on biological resources if it would:

- 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, USFWS, or NMFS;
- 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, USFWS, or NMFS;
- 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;
- 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;
- Fundamentally conflict with local policies or ordinances protecting biological resources, or conflict with the provisions of an adopted HCP or Natural Community Conservation Plan (NCCP);
- Fundamentally conflict with the City of Oakland Tree Protection Ordinance (Oakland Municipal Code Chapter 12.36) by removal of protected trees under certain circumstances; or
- Fundamentally conflict with the City of Oakland Creek Protection Ordinance (Oakland Municipal Code Chapter 13.16) intended to protect biological resources.

Environmental Impacts

The impact analysis describes the potential effects on biological resources that may result from Revised Draft VMP activities, including mechanical treatment techniques, hand labor techniques, herbicide application, and grazing.

Impact BIO-1: Potential Adverse Effects on Special-Status Plant Species (*Less than Significant with Mitigation*)

~~Impact BIO-1A: State-Listed and/or Federally Listed Special-Status Plants (Less than Significant with Mitigation)~~

As described in Section 3.4.1, "Environmental Setting," three state-listed and/or federally listed (hereafter jointly referred to as "listed") plant species are known to occur or have potential to occur in the Revised Draft VMP area: pallid manzanita, Presidio clarkia, and San Francisco popcornflower.

As described above, pallid manzanita is a shrub that is present within Joaquin Miller Park, including on both sides of Skyline Boulevard near the Redwood Glen Trailhead, approximately 500 feet west of the Roberts Park main entrance (known as the "Big Trees" pallid manzanita population). Pallid manzanita planting areas are also located adjacent to the nursery. The Chabot Space and Science Center and the associated pallid manzanita restoration site is located partially within park boundaries and partially off site adjacent to the park's northern property boundary. Habitat for this species includes broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub. Potentially suitable habitat is present for this species in Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, North Oakland Regional Sports Field, Sheffield Village Open Space, Knowland Park, King Estate Open Space Park, and on some urban and residential parcels that have coast oak woodland or closed-cone pine-cypress habitats). The pathogen *Phytophthora cinnamomi* has killed individual pallid manzanitas within the Revised Draft VMP area (USFWS 2015).

Presidio clarkia, an annual plant, is also present within Joaquin Miller Park, on serpentine soils located in the southernmost portion of the park, near the intersection of Skyline Boulevard and Joaquin Miller Road. Presidio clarkia is also known to occur on City-owned medians near Skyline Boulevard and Chadbourne Way (USFWS 2010a). This species also occurs on roadsides nearby, specifically along the north side of Kimberlin Heights Drive, Colgett Drive, and Crestmont Drive at the junction with Westfield Way (USFWS 2010a). There are also other observations of this species in the nearby Crestmont neighborhood, including along Old Redwood Road (CDFW ~~2020~~2023a).

San Francisco popcornflower has not been observed within the Revised Draft VMP area; however, a 1997 CNDDB occurrence is located near the intersection of Redwood Road and Skyline Boulevard. This occurrence is listed in the ~~EBCNPD~~CNPSEB database with a note stating that the identification is uncertain (~~Lake 2020~~CNPSEB 2023). This species occurs in vernally moist grassland habitats. Potentially suitable habitat for this species is present in Knowland Park, Joaquin Miller Park, Sheffield Village Open Space, King Estate Open Space Park, and urban and residential parcels that have annual grasslands.

In addition to the listed plant species discussed above, 13 special-status plant species are listed in the CNPS Rare Plant Inventory as CRPR 1B or 2 and are either known to occur or have potential to occur in the Revised Draft VMP area:

- bent-flowered fiddleneck (*Amsinckia lunaris*),
- big-scale balsamroot (*Balsamorhiza macrolepis*),
- big tarplant (*Blepharizonia plumose*),
- western leatherwood (*Dirca occidentalis*),
- Tiburon buckwheat,
- minute pocket moss (*Fissidens pauperculus*),
- fragrant fritillary (*Fritillaria liliacea*),
- Diablo helianthella (*Helianthella castanea*),
- congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*),
- Oregon meconella (*Meconella oregana*),
- Oregon polemonium (*Polemonium carneum*),
- most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus* [=*Streptanthus glandulosus* ssp. *glandulosus*]), and
- oval-leaved viburnum (*Viburnum ellipticum*).

Table 3.4-2 lists information about these plant species. Of the CRPR 1B or 2 plant species with potential to occur within the Revised Draft VMP area, four are known to be present. Western leatherwood and Tiburon buckwheat are present in Joaquin Miller Park (CDFW 2023b). Tiburon buckwheat is also found in serpentine roadcuts on Butters Drive near the intersection with Burdeck Drive (CDFW 2023b). Congested-headed hayfield tarplant is present in Knowland Park (CNPSEB 2023). Most beautiful jewelflower is present in Joaquin Miller Park, Knowland Park, along serpentine roadcuts on Butters Drive, near the junction of Crestmont Drive and Westfield Way, and in the vicinity of Merritt College (CDFW 2023b).

Nine special-status plant species are listed in the CNPS Rare Plant Inventory as CRPR 3 or 4 and are known to occur or have potential to occur in the Revised Draft VMP area:

- California androsace (*Androsace elongata* ssp. *acuta*),
- Oakland star-tulip (*Calochortus umbellatus*),
- johnny-nip (*Castilleja ambigua* var. *ambigua*),
- phlox-leaf serpentine bedstraw (*Galium andrewsii* ssp. *gatense*),
- bristly leptosiphon (*Leptosiphon acicularis*),
- large-flowered leptosiphon (*Leptosiphon grandifloras*),
- Mt. Diablo cottonweed (*Micropus amphiboles*),

- sylvan microseris (*Microseris sylvatica*), and
- Lobb's aquatic buttercup (*Ranunculus lobbii*).

Table 3.4-2 lists information about these plant species. Of the CRPR 3 or 4 plant species with potential to occur within the Revised Draft VMP area, two are known to be present. Oakland star-tulip has been documented in Knowland, Joaquin Miller, and Leona Heights parks. Bristly leptosiphon has been documented in Knowland Park.

Additionally, 155 special-status plant species with an A rank in the CNPSEB Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties Database (A-ranked species) are known to occur or have potential to occur in the Revised Draft VMP area. Table 3.4-2 lists information about these plant species.

As described in Section 2.6 in Chapter 2, *Project Description*, of this Recirculated DEIR, OFD will reach out to the local park stewardship groups during the annual work plan development process to solicit input or feedback on current vegetation management needs in the specific park, as well as potential treatment options, treatment timing, and local site conditions. This conversation will include discussion of any special-status plants (naturally occurring or planted by stewardship groups) that are known to occur near or within treatment areas.

~~Impacts to listed plants that would adversely affect more than 5 percent of a given population for state-listed or federally listed species, 10 percent for CRPR List 1B and 2 species, and 20 percent for CRPR List 3 or 4 or A-ranked species would be significant, as they would have an increased likelihood of reducing the resiliency of local populations to repopulate and recover. The lower thresholds reflect the relative regional rarity of the different categories of these species (state-listed or federally listed species, CRPR List 1B and 2 species, and CRPR List 3 or 4 or A-ranked species) and, therefore, the potential for impacts of VMP activities on regional populations of these species to substantially reduce the number or restrict the range of a special-status plant species.~~

Mechanical and Hand Labor Treatments

Potential adverse effects from mechanical and hand labor treatments include physical removal of ~~listed~~special-status plants due to trampling or vehicle access to treatment areas, as well as accidental direct removal during Revised Draft VMP activities. Mechanical methods also have the potential to spread pathogens such as *Phytophthora*, which is spread through cutting by contaminated equipment and contaminated soil (see Impact BIO-3B for further discussion on pathogens), or to introduce invasive species into listed plant populations.

USFWS listed vegetation and fire management, including mowing, weed whacking, and weed eating, as one of the primary threats to subpopulations of Presidio clarkia in the Oakland Hills (USFWS 2010a). USFWS also states:

> Presidio clarkia within the Chadbourne Way, Kimberlin Heights Drive, Colgett Drive, Crestmont Drive, and Old Redwood Road subpopulations continue to be threatened by road maintenance and vegetation and fire management activities implemented by the City of Oakland before the clarkia plants have released and dispersed their seeds" (USFWS 2010a).

While carefully planned and timed mowing can result in improved habitat conditions for Presidio clarkia (Naumovich 2019), mowing can also remove individual Presidio clarkia plants. Mowing or other direct removal of Presidio clarkia plants prior to seed set and dispersal would be a significant impact.

Implementation of **Mitigation Measure BIO-1 (Provide Biologist Review and Worker Training), Mitigation Measure GEO-1 (Minimize Area of Disturbance), Mitigation Measure BIO-2a (Avoid Special-Status Plant Species), Mitigation Measure BIO-2b (Provide Compensatory Mitigation for Special-Status Plant Species), Mitigation Measure BIO-3 (Seeding with Native Species)** and **Mitigation Measure BIO-4 (Avoid Presidio Clarkia Sensitive Time Periods)** would reduce these impacts on ~~listed~~special-status plant species. Mitigation Measure BIO-1 requires a training program for all staff, contractors, and volunteers who would perform vegetation management work. The training program would be conducted by a qualified biologist and would describe special-status species, including plants, and how to avoid harming the species. This training program would reduce the incidence of accidentally destroying a ~~listed~~special-status plant or plant population. Mitigation Measure BIO-2a requires pre-activity surveys to identify and flag protected plants, implement avoidance buffers, and implement appropriate treatment windows to avoid sensitive seasons (e.g., avoiding seed set and dispersal) during the species' lifecycles. If special-status plants cannot be completely avoided, a qualified botanist has determined that the treatment activity will not be beneficial to the special-status plant population, ~~and impacts would be above the threshold (5 percent of a population for listed plants, 10 percent for CRPR List 1B and 2 species, and 20 percent for CRPR List 3 or 4 or A ranked species),~~ Mitigation Measure BIO-2b would require compensation for significant impacts on populations of special-status plants through a combination of preservation and enhancement of those species' populations outside Revised Draft VMP treatment areas. Mitigation Measure BIO-3 would require seeding of soils exposed by Revised Draft VMP activities with native plant or annual sterile seeds, which would minimize the potential for invasive plant species to colonize exposed soils and subsequently spread into adjacent ~~listed~~special-status plant populations. Mitigation Measure BIO-4 would require surveys for Presidio clarkia ~~annual~~annually prior to implementing Revised Draft VMP treatments in areas known to support Presidio clarkia populations. Revised Draft VMP treatments would not occur within areas supporting Presidio clarkia populations until a qualified biologist determines that the Presidio clarkia have released their seeds for the season, and no herbicide use would be allowed in these areas. Mitigation Measure GEO-1 would minimize the area of soil disturbance when Revised Draft VMP activities are conducted, reducing the potential for impacts to ~~listed~~special-status plant species. With implementation of these mitigation measures, mechanical and hand labor impacts on ~~listed~~special-status plant populations would be less than significant.

Grazing

Allowing animals to graze in areas where pre-construction surveys have not been completed or protection fencing has not been installed around ~~listed~~special-status plants could result in animals trampling or consuming ~~listed~~special-status plants, which would be a significant impact. As described above, implementation of Mitigation Measure BIO-2a would require pre-activity surveys to identify and flag protected plants, implement avoidance buffers, and implement appropriate treatment windows to avoid sensitive seasons during the species' lifecycles. Implementation of **Mitigation Measure BIO-5 (Grazing)** would require exclusion of grazing animals from ~~listed~~special-status plant populations unless a qualified botanist determines that

grazing would be beneficial to the population, in which case grazing may occur within the population under the direct supervision of a qualified botanist. With implementation of these mitigation measures, grazing impacts on ~~listed~~special-status plant populations would be less than significant.

Herbicides

Herbicides, if used in the vicinity of ~~listed~~special-status plant populations, could result in the death of individual ~~listed~~special-status plants; this would be a significant impact. Herbicide impacts to ~~listed~~special-status plants could occur from inadvertent direct application to a ~~listed~~special-status plant, off-target herbicide contact via drift, or residual herbicide in soil. Implementation of Mitigation Measure BIO-1 would minimize potential herbicide impacts by training staff, contractors, and volunteers about special-status species, including plants, and how to avoid harming these species. This training would reduce the potential for accidentally applying herbicide to a ~~listed~~special-status plant or plant population. Implementation of Mitigation Measure BIO-2a would require pre-activity surveys to identify and flag protected plants and establish avoidance buffers and would prohibit the use of herbicide within 100 feet of ~~listed~~special-status plants, minimizing the potential for herbicide impacts to ~~listed~~special-status plants. By conducting the surveys prior to the activities, the surveys would most accurately identify the locations of existing plants. A lead agency may rely on future studies to devise the specific design of a mitigation measure when the results of later studies are used to tailor mitigation measures to fit on-the-ground environmental conditions. (*Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 524 [upholding mitigation measures, based on preconstruction surveys, requiring identified steps for avoiding impacts to biological resources to be implemented].) Implementation of **Mitigation Measure HAZ-5 (Standard Herbicide Use Requirements)** would reduce the potential for herbicide impacts to ~~listed~~special-status plants by using the lowest recommended application rates of herbicides and surfactants, and avoiding application of herbicides within 48 hours of predicted rainfall (which would minimize the potential for herbicide to run off into adjacent areas). Implementation of Mitigation Measure HAZ-5 also requires herbicides to be applied by or under the supervision of a licensed applicator. **Mitigation Measure HAZ-4 (Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides)** would avoid use of herbicides under wind conditions that would exacerbate herbicide drift, by prohibiting the use of spray herbicide application when wind velocities are greater than 7 miles per hour. These mitigation measures would minimize the potential for herbicide drift onto ~~listed~~special-status plants. As herbicide would not be applied in areas with ~~listed~~special-status plants, residual soil effects of herbicides would have no impact on ~~listed~~special-status plants. With implementation of these mitigation measures, herbicide impacts on ~~listed~~special-status plant populations would be less than significant.

Mitigation Measures

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

The City shall retain a qualified biologist to review the annual work plan each year prior to conducting proposed Revised Draft VMP activities. The qualified biologist shall provide detailed guidance to staff regarding special status-species, sensitive habitats, and implementation of relevant mitigation measures described in this EIR. The qualified biologist shall also develop and present an environmental training program to all staff

responsible for performing Revised Draft VMP treatment activities, including City contractors and volunteers. The training program shall be presented annually, at a minimum. Staff shall be trained to recognize special-status species and their habitats within the applicable Revised Draft VMP treatment areas. The training shall include maps and photos of known special-status species populations and location of riparian corridors or sensitive habitats. Staff shall also be trained to use protective measures, including those described in Mitigation Measures BIO-2a through BIO-5, BIO-13, BIO-14, GEO-1, and HAZ-4 and HAZ-5, to ensure that such species are not adversely impacted by Revised Draft VMP activities.

Mitigation Measure BIO-2a: Avoid Special-Status Plant Species (revised from VMP BMP BIO-3)

The City and its contractors shall ensure that, before conducting treatment activities, Revised Draft VMP treatment areas shall be surveyed for special-status plants with the potential to occur in the Revised Draft VMP area. Avoidance of Presidio Clarkia is described in Mitigation Measure BIO-4. To avoid and/or minimize potential impacts on special-status plants, the following actions shall be taken:

1. A qualified botanist shall conduct protocol-level surveys for special-status plants within the treatment area following survey methods from CDFW's Protocols for Surveying and Evaluating Impacts on Special Status Native Plant Populations and Natural Communities (CDFW 2018), or most updated version. Surveys shall be conducted during the appropriate blooming period before commencement of work.

2. If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the ~~5~~3 years before implementation of the Revised Draft VMP treatment project and no special-status plants were found, and no treatment activity occurred after the protocol-level survey, treatment may proceed in that area without additional plant surveys.

3. If special-status plants are not found, the botanist will document the findings in a report to the City and no further mitigation will be required. Botanical survey reports will be made available to the public upon request.

4. If special-status plant species are present at the treatment area based on the pre-treatment survey, the City's preferred approach is to avoid causing any impacts to the special-status species or its habitat, if feasible. In the event that complete avoidance is not possible, the qualified biologist shall minimize impacts on the species by implementing one or more of the following measures, as appropriate based upon the plant identified, the nature of the treatment, and the location:

    A. Flag or otherwise delineate in the field the special-status plant populations and/or sensitive natural community to be protected;

B. Allow adequate (large enough to avoid direct or indirect impacts to the plants or habitat) buffers around plants or habitat; the location of the buffer zone shall be shown on the contract documents and marked in the field with stakes and/or flagging in such a way that exclusion zones are visible to personnel without excessive disturbance of the sensitive habitat or population itself (e.g., from installation of fencing); and

C. Schedule vegetation treatment or other activities to take place during dormant and/or non-critical life cycle period.

5. If special-status plant species are identified at the treatment area and treatment is not planned for two years, the qualified biologist will conduct a follow-up survey prior to treatment to determine if the boundaries of the population have shifted and to implement the measures outlined in step (4) above.

6. Herbicides, if chosen as a Revised Draft VMP treatment method, shall not be used within 100 feet of special-status plant populations.

7. If impacts to special-status plant populations cannot be completely avoided or minimized to a less than significant level, the City shall implement the following measures:

   - The qualified botanist will determine if the special-status plant population will benefit from treatment in the occupied habitat area even though some of the individual plants may be adversely affected during treatment activities. If the qualified botanist determines that treatment activities will be beneficial to a special-status plant population, no compensatory mitigation will be required. For a treatment to be considered beneficial to special-status plants, the qualified botanist will demonstrate that habitat function is expected to improve with implementation of the treatment such that special-status plant populations would expand, regenerate, or display increased vigor after treatment implementation. This determination will consider and cite scientific studies demonstrating that the species or a similar species has benefitted from increased sunlight from canopy opening, eradication of invasive species, or otherwise reduced competition for resources. This determination will be documented in the survey results letter report. The City may consult with CDFW and/or USFWS for technical information regarding this determination.

   - If a qualified botanist determines that treatment activities will not be beneficial to a special-status plant population ~~and if the impacts are above the specified thresholds (5 percent for state-listed or federally listed species, 10 percent for CRPR List 1B and 2 species, and 20 percent for CRPR List 3 or 4 or A-ranked species),~~ then Mitigation Measure BIO-2b shall be implemented.

Mitigation Measure BIO-2b: Provide Compensatory Mitigation for Special-Status Plant Species

The City shall prepare a Compensatory Mitigation Plan and provide compensatory mitigation for impacts on special-status plant populations where such impacts are unavoidable, and a qualified botanist has determined that the treatment activity will not be beneficial to the special-status plant population~~, and impacts are above the specified thresholds: 5 percent for state-listed or federally listed species, 10 percent for CRPR List 1B and 2 species, and 20 percent for CRPR List 3 or 4 or A-ranked species~~.

The Compensatory Mitigation Plan will detail the compensatory mitigation strategy for unavoidable impacts on special-status plants. Compensation for unavoidable impacts on populations of special-status plants shall be provided by a combination of preservation and enhancement of those species' populations. For impacts on populations (including partial populations) of a specific special-status plant species, compensatory mitigation shall include preservation, enhancement, and management of lands that (a) already support equal or greater numbers (and health) of individuals of that species and (b) contain sufficient unoccupied habitat to allow for an increase in populations (at least equivalent to the number affected) through habitat enhancement and management. Compensatory mitigation may also include creating off-site populations on mitigation sites through seed collection or transplantation and/or restoring or creating suitable habitat. To determine the magnitude of the impact to the entire population of the species, the number of individuals affected will be determined by using the highest number of individuals known to be present in the impact area within the prior 10 years (if the impact area has undergone multiple surveys in recent years). If the special-status plant taxa impacted are listed under ESA, CESA, or NPPA, the Compensatory Mitigation Plan will be submitted to CDFW and/or USFWS (as appropriate) for review and comment.

Success criteria for preserved and compensatory populations shall include:

- The extent of occupied area and plant density (number of plants per unit area) in compensatory populations would be equal to or greater than the affected occupied habitat.
- Compensatory and preserved populations would be self-producing. Populations would be considered self-producing when:
    - plants reestablish annually for a minimum of five years with no human intervention such as supplemental seeding; and
    - reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types in the treatment area vicinity.

If off-site conservation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the Compensatory Mitigation Plan shall include details of these measures, including information on responsible parties for long-term management, conservation easement holders, long-

term management requirements, success criteria such as those listed above and other details, as appropriate to target the preservation of long-term viable populations.

If relocation efforts are part of the Compensatory Mitigation Plan, the plan shall include details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, success criteria such as those listed above, and remedial action responsibilities should the initial effort fail to meet long-term conservation requirements.

After the Compensatory Mitigation Plan has been implemented, the City shall document the results in a mitigation monitoring report until the success criteria in the plan are met.

Mitigation Measure BIO-3: Seeding with Native Species (VMP BMP BIO-10)

To minimize the potential for invasive plant species to colonize exposed soils and subsequently spread into adjacent listed plant populations, the City and its contractors shall reseed exposed soil resulting from Revised Draft VMP activities as follows:

1. Sites where vegetation management activities result in exposed soil shall be stabilized to prevent erosion. Disturbed areas shall be seeded with native seed as soon as is appropriate after vegetation management activities are completed. An erosion control seed mix may be applied to exposed soils, including down to the ordinary high water mark on stream banks.

2. The erosion control seed mix shall consist of California native grasses (such as, but not limited to *Hordeum brachyantherum*, *Elymus glaucus*, *Stipa pulchra*, *Danthonia californica*, and *Festuca microstachys*) or annual, sterile seed. If feasible, the collection sources of native seeds will be from local or regional sources.

Mitigation Measure BIO-4: Avoid Presidio Clarkia Sensitive Time Periods

If Revised Draft VMP treatment activities, including mowing and weed eating, are planned within known habitat for Presidio clarkia (defined as the median strips and roadside along Skyline Boulevard and Chadbourne Way between Crestmont Drive and Redwood Road, roadsides along the north side of Kimberlin Heights Drive, Colgett Drive, the roadside of Crestmont Drive at the junction with Westfield Way, the roadside of Old Redwood Road, and the portion of Joaquin Miller Park located south of Skyline Boulevard near the junction with Joaquin Miller Road), the City and its contractors shall ensure that the following processes are followed:

- Annually prior to the implementation of proposed Revised Draft VMP treatment activities within Presidio clarkia known habitat areas, a qualified botanist shall conduct a survey of Presidio clarkia distribution in areas where Revised Draft VMP treatments are proposed during the blooming period for this species (typically May and June). The botanist shall mark the limits of the Presidio clarkia distribution, and no work shall occur in these areas until a qualified

botanist determines that the Presidio clarkia have released their seeds, which typically occurs in the late summer.

- If Revised Draft VMP treatments occur in areas adjacent to marked Presidio clarkia populations during the species growing season prior to Presidio clarkia seed release, a biological monitor shall be present during treatment implementation. The biological monitor shall monitor work crews to prevent accidental entry into the Presidio clarkia areas.

- Herbicides, if chosen as a Revised Draft VMP treatment method, shall not be used within 100 feet of Presidio clarkia known habitat areas.

Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)

1. Livestock shall generally (in >80 percent of situations) be excluded from riparian areas where feasible, and shall be entirely (i.e., completely) excluded from streams with steep banks. Grazing contractors shall provide alternative water sources to avoid livestock reliance on natural water sources. Prior to conducting grazing on creekside properties (as defined in the Creek Protection Ordinance), the City shall obtain a Creek Protection Permit.

2. If temporary fencing is used during grazing treatments, wildlife-friendly fencing design shall be used. The fencing shall minimize the chance of wildlife entanglement by avoiding barbed wire, loose or broken wires, or any material that could impale or snag a leaping animal. The fencing shall be highly visible to birds and mammals by using high-visibility tape or wire, flagging, or other markers. Fencing shall be constructed to allow wildlife to jump over easily without injury by installing the top wire low enough (no more than approximately 40 inches high on flat ground) to allow adult deer to jump over it.

3. Livestock shall be excluded from known locations of special-status plant species and mixed chaparral habitat. If a qualified botanist determines that grazing would be beneficial to a special-status plant species, grazing may occur within the special-status plant population under the direct supervision of a qualified botanist.

4. Livestock shall be monitored to ensure over-grazing of treatment areas does not occur. Grasslands should not be grazed to less than 4 inches.

5. Livestock shall be excluded from areas treated with herbicide for, at a minimum, the post-treatment exclusion period included on the herbicide product label.

Mitigation Measure GEO-1: Minimize Area of Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculated DEIR.

Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Conclusion

Revised Draft VMP treatments could result in impacts to ~~listed~~special-status plant species from physical removal by hand or mechanical treatments, grazing, or accidental herbicide application to ~~listed~~special-status plants. Implementation of Mitigation Measures BIO-1 through BIO-5, GEO-1, HAZ-4, and HAZ-5 would reduce potential impacts through staff training, pre-treatment surveys for ~~listed~~special-status plants, implementation of avoidance buffers, seeding with native plant species, exclusion of grazing animals from ~~listed~~special-status plant populations, avoidance of Presidio clarkia sensitive time periods, and minimizing potential for herbicide to inadvertently be applied to ~~listed~~special-status plants plants. Therefore, impacts would be **less than significant with mitigation.**

~~Impact BIO-1B: CRPR 1B or 2 Plants (Less than Significant with Mitigation)~~

~~In addition to the listed plant species discussed above, 13 special-status plant species are listed in the CNPS Rare Plant inventory as CRPR 1B or 2 and are either known to occur or have potential to occur in the VMP area. Table 3.4-2 lists information about these plant species.~~

~~Because CRPR 1B or 2 plant species are generally somewhat more widespread than listed plant species discussed in Impact BIO-1A, the threshold for a significant impact on CRPR 1B or 2 plant species is 10 percent (see explanation of numerical thresholds in Impact BIO-1A). If impacts on CRPR 1B or 2 plant species are unavoidable, a qualified botanist has determined that the treatment activity will not be beneficial to the special-status plant population, and more than 10 percent of a specific population would be affected, the impact would be significant because of the potential to substantially reduce the size of the regional population.~~

~~Mechanical and Hand Labor Treatments~~

~~Potential impacts on CRPR 1B or 2 plant species as a result of mechanical and hand labor activities would be similar to those described for listed plants in Impact BIO-1A. Implementation of Mitigation Measures BIO-1, BIO-2a, BIO-2b, BIO-3, and GEO-1 would reduce these impacts. Mitigation Measure BIO-1 requires a training program for all staff, contractors, and volunteers who would perform vegetation management work. The training would describe special-status species, including plants, and how to avoid harming the species. This training would reduce the incidence of accidentally destroying a listed plant or plant population. Mitigation Measure BIO-2a requires pre-activity surveys to identify and flag protected plants, implement avoidance buffers, and implement appropriate treatment windows to avoid sensitive seasons during the species' lifecycles (e.g., avoiding seed set and dispersal). If special-status plants cannot be completely avoided, a qualified botanist has determined that the treatment activity will not be~~

~~beneficial to the special-status plant population, and impacts would be above the threshold (10 percent of a population for CRPR 1B or 2 plants), Mitigation Measure BIO-2b would require compensation for significant impacts on populations of special-status plants through a combination of preservation and enhancement of those species' populations outside VMP treatment areas. Mitigation Measure BIO-3 would require seeding of soils exposed by VMP activities with native plant or annual sterile seeds, which would minimize the potential for invasive plant species to colonize exposed soils and subsequently spread into adjacent listed plant populations. Mitigation Measure GEO-1 would minimize the area of soil disturbance when VMP activities are conducted, reducing the potential for impacts to listed plant species. With implementation of these mitigation measures, mechanical and hand labor impacts on CRPR 1B or 2 plants would be less than significant.~~

~~Grazing~~

~~Allowing animals to graze in areas where pre-construction surveys have not been completed or protection fencing has not been installed around CRPR 1B or 2 plants could result in animals trampling or consuming CRPR 1B or 2 plants, which would be a significant impact. As described in Impact BIO-1A, implementation of Mitigation Measure BIO-2a would require pre-activity surveys to identify and flag protected plants, implement avoidance buffers, and implement appropriate treatment windows to avoid sensitive seasons during the species' lifecycles. Implementation of Mitigation Measure BIO-5 would require exclusion of grazing animals from CRPR 1B or 2 plant populations unless a qualified botanist determines that grazing would be beneficial to the population, in which case grazing may occur within the population under the direct supervision of a qualified botanist. With implementation of these mitigation measures, grazing impacts on CRPR 1B or 2 plants would be less than significant~~.

Herbicides

~~Herbicides, if used in the vicinity of CRPR 1B or 2 plant populations, could result in the death of individual CRPR 1B or 2 plants; this would be a significant impact. Herbicide impacts to CRPR 1B or 2 plants could occur from inadvertent direct application to a plant, off-target herbicide contact via drift, or residual herbicide in soil. Implementation of Mitigation Measure BIO-1 would minimize potential herbicide impacts by training staff, contractors, and volunteers about special-status species, including plants, and how to avoid harming the species. This training would reduce the potential for of accidentally applying herbicide to a CRPR 1B or 2 plant or plant population. Implementation of Mitigation Measure BIO-2a would require pre-activity surveys to identify and flag protected plants and establish 100-foot minimum avoidance buffers, minimizing the potential for herbicide impacts to CRPR 1B or 2 plants. If special-status plants cannot be completely avoided and impacts would be above the threshold (5 percent for state-listed or federally listed species, 10 percent for CRPR List 1B and 2 species, and 20 percent for CRPR List 3 or 4 or A-ranked species), Mitigation Measure BIO-2b would require compensation for significant impacts on populations of special-status plants through a combination of preservation and enhancement of those species' populations outside VMP treatment areas. Herbicide application would only occur in upland areas, and the implementation of Mitigation Measure HAZ-5 would reduce the potential for herbicide impacts to CRPR 1B or 2 plants by using the lowest recommended application rates of herbicides and surfactants, and avoiding application of herbicides within 48 hours of predicted rainfall (which would minimize the potential for herbicide to run off into adjacent areas). Implementation of Mitigation Measure HAZ-5 also requires~~

~~*herbicides to be applied by a licensed applicator. Mitigation Measure HAZ-4 avoids use of herbicides under wind conditions that would exacerbate herbicide drift, by prohibiting the use of spray herbicide application when wind velocities are greater than 7 miles per hour. These mitigation measures would minimize the potential for herbicide drift onto CRPR 1B or 2 plants. As herbicide would not be applied in areas with CRPR 1B or 2 plants, residual soil effects of herbicides would have no impact on soil plants. With implementation of these mitigation measures, herbicide impacts on CRPR 1B or 2 plants would be less than significant.*~~

~~*Mitigation Measures*~~

~~*Mitigation Measure BIO-1: Provide Biologist Review and Worker Training*~~

~~*See text in Impact BIO-1A above.*~~

~~*Mitigation Measure BIO-2a: Avoid Special-Status Plant Species (revised from VMP BMP BIO-3)*~~

~~*See text in Impact BIO-1A above.*~~

~~*Mitigation Measure BIO-2b: Provide Compensatory Mitigation for Special-Status Plant Species*~~

~~*See text in Impact BIO-1A above.*~~

~~*Mitigation Measure BIO-3: Seeding with Native Species (VMP BMP BIO-10)*~~

~~*See text in Impact BIO-1A above.*~~

~~*Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)*~~

~~*See text in Impact BIO-1A above.*~~

~~*Mitigation Measure GEO-1: Minimize Area of Disturbance (VMP BMP GEN-2)*~~

~~*See text in Section 3.6, "Geology, Soils, and Seismicity."*~~

~~*See text in Section 3.8, "Hazards and Hazardous Materials."*~~

~~*Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)*~~

~~*See text in Section 3.8, "Hazards and Hazardous Materials."*~~

~~*Conclusion*~~

~~*VMP treatments could result in impacts to CRPR 1B or 2 plant species from physical removal by hand labor or mechanical treatments, grazing, or accidental herbicide application. Implementation of Mitigation Measures BIO-1 through BIO-3, BIO-5, GEO-1, HAZ-4, and HAZ-5 would reduce potential impacts through staff training, pre-treatment surveys for CRPR 1B or 2 plants, implementation of avoidance buffers, compensatory mitigation if impacts are above thresholds, seeding with native plant species, exclusion of grazing animals from plant populations, and minimizing potential for herbicide to inadvertently be applied to CRPR 1B or 2 plants. Therefore, impacts would be less than significant with mitigation.*~~

~~*Impact BIO-1C: CRPR 3 or 4 Plants and Plants Listed in the CNPSEB Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties Database with an A rank (Less than Significant with Mitigation)*~~

~~*Five special-status plant species are listed in the CNPS Rare Plant inventory as CRPR 3 or 4 and are known to occur or have potential to occur in the VMP area: California androsace (Androsace elongata ssp.* Oakland star-tulip (Calochortus umbellatus), johnny-nip (Castilleja ambigua var. ambigua), phlox-leaf serpentine bedstraw (Galium andrewsii ssp. gatense), and bristly leptosiphon (Leptosiphon acicularis). Additionally, 155 special-status plant species with an A rank in the CNPSEB Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties Database (A-ranked species) are known to occur or have potential to occur in the VMP area. Table 3.4-2 lists information about CRPR 3 or 4 and A-ranked species.~~

~~The potential impacts of VMP activities on CRPR 3 or 4 and A-ranked plant species are similar to those discussed in Impact BIO-1B. The mechanisms by which impacts are expected to occur for CRPR List 3 or 4 and A-ranked species are the same as those discussed for CRPR List 1B or 2 plants. CRPR List 3 or 4 and A-ranked plant species tend to be more widespread and abundant than CRPR List 1B or 2 species, however, and are less likely to experience a substantial reduction in population, which would be a significant impact.~~

~~Because CRPR 3 or 4 plant and A-ranked plant species are generally more widespread than CRPR 1B or 2 plant species, the threshold for a substantial impact on CRPR 3 or 4 special-status plant species is 20 percent. If impacts on CRPR 3 or 4 or A-ranked plant species are unavoidable, a qualified botanist has determined that the treatment activity will not be beneficial to the special-status plant population, and more than 20 percent of a specific population would be affected, the impact would be significant because of the species' regional rarity and the potential to substantially reduce the size of the regional population. Implementation of Mitigation Measures BIO-1 through BIO-3, BIO-5, GEO-1, HAZ-4, and HAZ-5 would reduce potential impacts through staff training, pre-treatment surveys for CRPR 3 or 4 or A-ranked plants, implementation of avoidance buffers, compensatory mitigation if impacts are above thresholds, seeding with native plant species, exclusion of grazing animals from special-status plant populations unless a qualified botanist determines that grazing would be beneficial the population, in which case grazing may occur within the special-status plant population under the direct supervision of a qualified botanist, and minimizing potential for herbicide to inadvertently be applied to special-status plants. Implementation of these mitigation measures would reduce the impact on CRPR 3 or 4 or A-ranked plant species to a less-than-significant level.~~

~~Mitigation Measures~~

~~Mitigation Measure BIO-1: Provide Biologist Review and Worker Training~~

~~See text in Impact BIO-1A above.~~

~~Mitigation Measure BIO-2a: Avoid Special-Status Plant Species (revised from VMP BMP BIO-3)~~

~~See text in Impact BIO-1A above.~~

~~Mitigation Measure BIO-2b: Provide Compensatory Mitigation for Special-Status Plant Species~~

~~See text in Impact BIO-1A above.~~

~~Mitigation Measure BIO-3: Seeding with Native Species (VMP BMP BIO-10)~~

~~See text in Impact BIO-1A above.~~

~~Mitigation Measure BIO-5: Grazing (VMP BMP BIO-6)~~

~~See text in Impact BIO-1A above.~~

~~Mitigation Measure GEO-1: Minimize Site Disturbance (VMP BMP GEN-2)~~

~~See text in Section 3.6, "Geology, Soils, and Seismicity."~~

~~Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides~~

~~See text in Section 3.8, "Hazards and Hazardous Materials."~~

~~Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)~~

~~See text in Section 3.8, "Hazards and Hazardous Materials."~~

~~Conclusion~~

~~VMP treatments could result in impacts to CRPR 3 or 4 or A-ranked plant species by physical removal from hand labor or mechanical treatments, grazing, or accidental herbicide application. Implementation of Mitigation Measures BIO-1 through BIO-3, BIO-5, GEO-1, HAZ-4, and HAZ-5 would reduce potential impacts through staff training, pre-treatment surveys for CRPR 3 or 4 or A-ranked plants, implementation of avoidance buffers, compensatory mitigation if impacts are above thresholds, seeding with native plant species, exclusion of grazing animals from special-status plant populations, and minimizing potential for herbicide to inadvertently be applied to special-status plants. Therefore, impacts would be less than significant with mitigation.~~

Impact BIO-2: Potential Adverse Effects on Special-Status Wildlife Species (*Less than Significant with Mitigation*)

The following discussions evaluate impacts on special-status wildlife species.

Impact BIO-2A: *Potential Adverse Effects on Special-Status Amphibians and Reptiles (*Less than Significant with Mitigation*)*

Special-status reptiles with the potential to occur in the Revised Draft VMP area include western pond turtle and Alameda whipsnake (Table 3.4-3). California red-legged frog is the only special-status amphibian with potential to occur in the Revised Draft VMP area (Table 3.4-3).

Alameda whipsnake occurs primarily in coastal scrub and chaparral communities, but also forages in a variety of other nearby communities (typically within 500 feet of coastal scrub and chaparral) in the inner Coast Range, including grasslands and open woodlands (Swaim 1994). Chaparral and coastal scrub habitats serve as the core habitat for Alameda whipsnake home ranges (USFWS 2011). Other important habitat features usually found in "core" habitat include small mammal burrows, rock outcrops, talus, and other forms of shelter (USFWS 2011). This species' range includes five specific areas; this includes, within the Revised Draft VMP area, from the Anthony Chabot area to Las Trampas Ridge (USFWS 2017). Alameda whipsnake is most likely to occur within coastal scrub and chaparral habitats, but this species may also use adjacent habitats such as grasslands and oak woodlands. Portions of the Revised Draft VMP area are within critical habitat for this species, particularly the Grizzly Peak Open Space (Figure 3.4-4).

Western pond turtles have the potential to occur within the Revised Draft VMP area in aquatic habitat such as perennial streams, marshes, and ponds, and have been observed within the Sausal Creek Watershed. Western pond turtles may move up 1,150 feet away from aquatic habitat to nest in or travel through upland areas, although most individuals typically remain much nearer to their respective waterbodies (Pilliod et al. 2013).

California red-legged frog has potential to occur in aquatic habitat such as streams, freshwater pools, and ponds with emergent or overhanging vegetation. Within the Revised Draft VMP area, California red-legged frog is expected to occur within streams, wetlands, and riparian habitat immediately adjacent to aquatic movement and breeding habitat. The species' preferred breeding habitat consists of deep perennial pools with emergent vegetation for egg mass attachment, but this species is also known to breed in streams, backwaters within streams and creeks, ponds, and marshes (USFWS 2002). Non-breeding frogs may also be found within riparian areas (USFWS 2002). During the dry season, California red-legged frog is not typically found far from water, but this species is known to disperse up to 1.7 miles from aquatic habitat through upland habitats during periods of wet weather (USFWS 2002, Fellers and Kleeman 2007). Use of upland areas is expected to occur only during dispersal during wet periods.

All Treatments

Revised Draft VMP activities would generally occur in upland areas, which would reduce the potential for impacts to western pond turtle and California red-legged frog. Revised Draft VMP activities are generally anticipated to occur further than 100 feet from streams, in accordance with the Creek Protection Ordinance. A Creek Protection Permit would be required for any projects on creekside parcels. The City will minimize vegetation management within 100 feet of streams, but some vegetation management, including removal of dead and dying trees within 30-100 feet of roads, could still be needed near creeks to reduce fire hazard. **Table 3.4-4** shows priority projects located on creekside parcels, indicates whether the projects are within 100 feet of creek centerlines and provides acreages of these projects. Table 3.4-4 is based on a GIS analysis of distance from streams. Smaller drainage features that would be considered streams

under the Creek Protection ordinance may not be fully captured in this GIS analysis. The majority (58.6 acres out of a total of 92 acres) of the Revised Draft VMP treatment project acreage within 100 feet of streams consists of grazing treatments. Revised Draft VMP treatments could increase erosion and, subsequently, sedimentation within aquatic habitat for these species, reducing habitat quality. This would be a significant impact. Implementation of Mitigation Measures GEO-1 and GEO-2 would reduce the potential for sedimentation-related impacts to aquatic habitat by minimizing the area of Revised Draft VMP treatments to the minimum footprint necessary and by implementation of erosion and sediment control measures.

Table 3.4-4. Priority Projects within Creekside Properties

Revised Draft VMP Treatment Project Number	Priority	Within 100 feet of Creek?	Acreage of Revised Draft VMP Treatment Projects within 100 Feet of Creek
Garber Park			
GAR-1	1	Yes	0.6
GAR-2	1	No	0
GAR-3	1	No	0
North Oakland Sports Field			
NOR-1	1	Yes	1.8
NOR-2	2	No	0
NOR-3	3	Yes	2.5
Shepherd Canyon Park			
SHP-1*	1	Yes	1.4
SHP-2*	1	Yes	1.2
SHP-3*	2	No	0
SHP-4*	3	Yes	5.9
Beaconsfield Canyon			
BCN-1	1	Yes	0.4
BCN-2	2	Yes	0.9
Marjorie Saunders Park			
MJS-1	1	Yes	0.2
MJS-2	2	Yes	0.6
Dimond Canyon Park			
DIM-1*	1	Yes	0.7
DIM-2	1	Yes	0.5
DIM-3	1	No	0

Revised Draft VMP Treatment Project Number	Priority	Within 100 feet of Creek?	Acreage of Revised Draft VMP Treatment Projects within 100 Feet of Creek
Joaquin Miller Park			
JMP-1	1	Yes	2.2
JMP-2	1	Yes	0.2
JMP-3	2	No	0
JMP-4	3	Yes	3.3
Leona Heights Park			
LHT-1	1	Yes	3.8
LHT-2	1	Yes	0.3
LHT-3	2	Yes	0.4
Police/Safety Department Property			
PSD-1	1	No	0
PSD-2	1	Yes	0.1
Knowland Park and Arboretum			
KNO-1	1	Yes	1.2
KNO-2	1	Yes	3.2
KNO-3	2	Yes	1.5
KNO-4	2	Yes	0.2
KNO-5*	3	Yes	23.2
Sheffield Village Open Space			
SHF-1	1	Yes	4.0
SHF-2	2	Yes	2.2
SHF-3	3	Yes	26.2
Urban and Residential Parcels			
URB-1*	1	Yes	3.2
Tunnel Road Open Space			
TRO-1	1	Unknown**	Unknown**
Blue Rock Court			
BLU-1	1	Unknown**	Unknown**
BLU-2	2	Unknown**	Unknown**
BLU-3	3	Unknown**	Unknown**
King Estate Open Space Park			
KES-1	1	Unknown**	Unknown**
KES-2	3	Unknown**	Unknown**
Oak Knoll			

Revised Draft VMP Treatment Project Number	Priority	Within 100 feet of Creek?	Acreage of Revised Draft VMP Treatment Projects within 100 Feet of Creek
OKN-1	1	Unknown**	Unknown**
OKN-2	3	Unknown**	Unknown**
Grizzly Peak Open Space			
GPO-1	1	Unknown**	Unknown**
GPO-2	2	Unknown**	Unknown**
GPO-3	3	Unknown**	Unknown**
GPO-4	3	Unknown**	Unknown**
		Total	***92.0***

* Some parcels within this priority project are considered creekside parcels, but not all parcels are.

** These Revised Draft VMP projects would be on creekside parcels but creek mapping information was not available.

Workers implementing Revised Draft VMP treatments could attract predators of California red-legged and Alameda whipsnake by leaving food scraps or other trash at Revised Draft VMP treatment areas. Increased predation of California red-legged frog, western pond turtle, and Alameda whipsnake would be a significant impact. Implementation of **Mitigation Measure BIO-6 (Trash Removal)** would reduce the potential for workers to attract predators of these species by requiring all waste and contaminants to be contained and removed daily from the work site. With implementation of these mitigation measures, impacts from erosion, sedimentation, and trash on Alameda whipsnake, California red-legged frog, and western pond turtle would be less than significant.

Mechanical and Hand Labor Treatments

Revised Draft VMP activities would occur in chaparral and coastal scrub habitats and areas adjacent to these habitats. Activities within these areas could impact Alameda whipsnake, if present, through injury or mortality. Injury or mortality could be caused by equipment, vehicle traffic, and worker foot traffic and exposure to chemicals from equipment leaks. Revised Draft VMP activities within such habitat would also result in temporary habitat impacts (e.g., vehicles or equipment denuding or crushing grassland vegetation, localized noise disturbance or vibration from equipment or hand-held machinery) while mechanical and hand labor treatments are taking place. Thinning within suitable habitat would reduce vegetation density, but it is not expected to prevent the species' use of affected areas because individuals routinely use adjacent open habitats.

Injury or mortality of Alameda whipsnake individuals would be a significant impact. Implementation of Mitigation Measure BIO-1, which requires worker training, and **Mitigation Measure BIO-7 (Protection of Alameda Whipsnake)**, which requires pre-treatment surveys of scrub habitat, avoidance of the Alameda whipsnake breeding period, biological monitoring of Revised Draft VMP treatment implementation in Alameda whipsnake habitat, and prohibition of

erosion control materials containing plastic monofilament, would reduce the potential for impacts.

Alameda whipsnake may use existing animal burrows within suitable habitat as refugia. Revised Draft VMP treatment activities within suitable habitat for Alameda whipsnake could result in temporary impacts to suitable habitat through vegetation removal by both mechanical and hand labor techniques and collapsing of burrows or other refugia by the passage of heavy equipment. Although habitat conversion is not the intended goal of the Revised Draft VMP, removal of trees in areas adjacent to coastal scrub habitat (such as within the closed-cone pine-cypress habitat in Grizzly Peak Open Space under projects GPO-1 and GPO-2) would improve habitat for Alameda whipsnake by decreasing shading of coastal scrub shrubs (which are preferred habitat for this species) and allowing these shrubs to become relatively more dominant within this habitat.

No Revised Draft VMP treatments are proposed within California red-legged frog breeding habitat or aquatic habitat for western pond turtle. As described above, most Revised Draft VMP treatments would occur in upland habitat and habitats that are more than 100 feet away from streams. These aspects of the Revised Draft VMP would minimize potential impacts to these species. However, some Revised Draft VMP treatments would occur within 100 feet of streams, as indicated in ~~Table 3.4-4~~Table 3.4-4. Implementation of Revised Draft VMP treatments in habitats within 100 feet of streams could impact California red-legged frogs or western pond turtle through injury or mortality. Hand labor treatments have a smaller chance of impacting these species, while mechanical treatments with heavy equipment have a greater chance. Implementation of **Mitigation Measure BIO-8 (Protection of California Red-legged Frogs and Western Pond Turtles)** would minimize the potential for impacts to these species through avoidance of treatment activities immediately following rain storms (when these species are most likely to venture into upland areas farther from aquatic habitat), pre-construction surveys within 100 feet of aquatic habitat, establishment of no-work buffers if these species are detected, and relocation of these species by a qualified biologist. With implementation of Mitigation Measures BIO-1, BIO-7, and BIO-8, mechanical and hand labor impacts on Alameda whipsnake, California red-legged frog, and western pond turtle would be less than significant.

Grazing

VMP grazing treatments are not anticipated to result in direct injury or mortality of Alameda whipsnake, California red-legged frog, or western pond turtle. As described above, the majority of the Revised Draft VMP treatment project acreage within 100 feet of streams consists of grazing treatments. If grazing were to occur within riparian or aquatic habitats, temporary impacts could occur to habitats that support California red-legged frog and western pond turtle. Grazing could increase sedimentation into aquatic habitats, temporarily reducing habitat quality for California red-legged frog and western pond turtle. Over several years, grazing could cumulatively result in stream bank failure, erosion, and successive sedimentation, all of which could permanently alter suitable California red-legged frog and western pond turtle aquatic habitat. Implementation of Mitigation Measure BIO-5 would reduce these impacts by generally excluding (in >80 percent of situations) livestock from riparian areas, completely excluding livestock from streams with steep banks, require grazing lessees or contractors to provide alternative (i.e., other than natural) water sources for livestock, and monitoring to prevent over-grazing. With implementation of this mitigation measure, grazing impacts on Alameda whipsnake, California red-legged frog, and western pond turtle would be less than significant.

Herbicides

Herbicide use could result in adverse effects on special-status amphibians and reptiles. Glyphosate-based herbicide appears to have limited impacts on amphibians (USFWS 2002). The ester formulation of triclopyr may have direct impacts on amphibians, while the parent compound of triclopyr has been shown to be practically nontoxic to fish (USFWS 2002). In general, USEPA uses bird toxicity data as a surrogate for terrestrial-phase reptiles and amphibians and fish toxicity data as a surrogate for aquatic-phase amphibians (USEPA 2020). Herbicide use near streams or wetlands could enter these aquatic resources, resulting in impacts to California red-legged frog or western pond turtle, if present. Implementation of **Mitigation Measure BIO-9 (Protection of California Red-legged Frogs from Herbicide Use)** would reduce the potential for herbicide impacts to special-status reptiles and amphibians by using the lowest recommended rates of herbicides and surfactants, not applying herbicides to open water or riparian corridors, and not applying herbicides within 48 hours of predicted rainfall (which would minimize the potential for herbicide to run off into aquatic features). Implementation of Mitigation Measure HAZ-4 would restrict herbicide application to low- to no-wind conditions to prevent drift into sensitive areas. Implementation of **Mitigation Measure HYD/WQ-1 (Work Windows)** would reduce the potential for herbicides to enter aquatic habitat by restricting their application to the dry season. With implementation of these mitigation measures, herbicide impacts on Alameda whipsnake, California red-legged frog, and western pond turtle would be less than significant.

Mitigation Measures

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

See text in Impact BIO-~~1A~~1 above.

Mitigation Measure BIO-5: Grazing (VMP BMP BIO-6)

See text in Impact BIO-~~1A~~1 above.

Mitigation Measure BIO-6: Trash Removal (revised from VMP BMP BIO-7)

The City and its contractors shall be required to keep all waste and contaminants contained and remove them daily from the work site. Wildlife-proof trash receptacles shall be used. Uneaten human food and trash attracts predators of the California red-legged frog and Alameda whipsnake. A litter control program shall be instituted at each vegetation treatment site. All workers shall ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. The trash containers shall be removed from the vegetation treatment site at the end of each working day.

Mitigation Measure BIO-7: Protection of Alameda Whipsnake (revised from VMP BMP BIO-5)

1. Prior to implementing vegetation treatments in suitable Alameda whipsnake habitat (within 500 feet of core habitat), personnel involved in vegetation removal and earth-disturbing activities shall participate in an Environmental Awareness Training per Mitigation Measure BIO-1. Workers shall be informed

about Alameda whipsnake and their habitat, conservation goals, identification, and procedures to follow in the event of a possible sighting.

2. Any coastal scrub and chaparral habitat present within a vegetation treatment area shall be inspected by a qualified biologist prior to treatment to determine the presence or potential presence of Alameda whipsnakes.

3. To the maximum extent practicable, vegetation clearing activities in coastal scrub habitats shall be scheduled to avoid the breeding period for the Alameda whipsnake (March 15 through June 15).

4. A qualified biological monitor shall monitor vegetation removal and ground disturbance within Alameda whipsnake habitat, or other activities that may result in take of Alameda whipsnake. The biological monitor shall have the authority to stop any work that could result take of Alameda whipsnake. If an Alameda whipsnake is observed, the snake will be allowed to leave the area on its own volition.

5. The biological monitor shall inspect the treatment area for Alameda whipsnake each day before work begins by checking debris piles, and also beneath vehicles/equipment before it is moved.

6. If erosion control is needed, plastic monofilament netting or similar material containing netting shall not be used, as Alameda whipsnake may become entangled in this material. Coconut coir matting or tackified hydroseeding compounds are acceptable alternatives.

Mitigation Measure BIO-8: Protection of California Red-legged Frogs and Western Pond Turtles (based on VMP BMP BIO-4)

If vegetation treatment areas are planned within 100 feet of aquatic habitat, the City and its contractors shall implement the following measures.

1. A qualified biologist shall conduct one daytime survey for California red-legged frog and western pond turtle within 48 hours before commencement of vegetation management activities.

2. If no California red-legged frogs or western pond turtles are found within the activity area during the survey, the work may proceed.

3. If a California red-legged frog or western pond turtle, or the eggs or hatchlings of western pond turtle, are found within the activity area during the survey or during VMP activities, the qualified biologist shall implement the following measures:

    A. For vegetation management activities that will take less than 1 day, conduct a survey for red-legged frogs and western pond turtles on the morning of and before the scheduled work.

I. If no California red-legged frogs, western pond turtles, or turtle nests are found, the work may proceed.

II. If eggs or larvae of either species are found, a 100-foot no-disturbance buffer zone shall be established around the location of the eggs. Work may proceed outside of the buffer zone; however, work within the buffer zone shall be postponed until the eggs have hatched and young turtles have moved outside of the work area. The monitoring biologist shall determine the buffer size based on the specific site conditions and type of vegetation management.

III. If an active western pond turtle nest is detected within the treatment area, a 100-foot buffer zone around the nest shall be maintained during the breeding and nesting season (April 1-August 31). The buffer zone shall remain in place until the young have left the nest and moved outside of the work area, as determined by a qualified biologist.

IV. If adult or juvenile California red-legged frogs or western pond turtles are found, the qualified biologist shall implement one of the following two procedures:

a.) If, in the opinion of the qualified biologist, the individual(s) are likely to leave the work area on their own, and work can be feasibly rescheduled, a buffer zone shall be established around the location of the individual(s). Work may proceed outside of the buffer zone. Work within the buffer zone shall be postponed until the individual(s) have left the area, as determined by the qualified biologist. The monitoring biologist shall determine the buffer size based on the specific site conditions and type of vegetation management.

b.) If, in the opinion of the qualified biologist, capture and removal of the individual(s) to a safe location outside of the work area is less likely to result in adverse effects than leaving the individual(s) in place and rescheduling the work (e.g., if the individual[s] could potentially hide and be missed during a follow-up survey), the individual(s) shall be captured and relocated by a qualified biologist (with USFWS and/or CDFW approval, depending on the listing status of the species in question), and work may proceed.

B. For vegetation management that will take more than 1 day, the qualified biologist shall conduct a survey for California red-legged frogs and western pond turtles each morning before the scheduled work commences.

I. If an active western pond turtle nest is detected within the treatment area, a 100-foot buffer zone around the nest shall be established and maintained during the breeding and nesting season (April 1-August 31). The buffer zone shall remain in place until the young have left the nest

and moved outside of the work area, as determined by a qualified biologist.

II. If adult or juvenile California red-legged frogs or western pond turtles are found, the individual(s) shall be captured and relocated by a qualified biologist (with USFWS and/or CDFW approval, depending on the listing status of the species in question), and work may proceed.

Mitigation Measure BIO-9: Protection of California Red-legged Frogs from Herbicide Use (VMP BMP BIO-2)

- In accordance with Mitigation Measure HAZ-5, only herbicides approved for use by USEPA and registered for use by CDPR shall be used for vegetation management, and approved herbicides shall be applied in accordance with federal, state, and local regulations.

- In accordance with Mitigation Measure HAZ-5, no herbicides shall be applied in open water or within 60 feet of streams.

- In project areas identified as providing suitable habitat for the California red-legged frog, the City shall ensure that any applications of sprayable formulations of herbicides shall:

  1. be applied only when the air is calm or moving away from red-legged frog habitat;

  2. begin in the portion of the work area nearest the suitable habitat and proceed away from the habitat; and

  3. not be conducted within 40 yards upwind of suitable habitat when air currents are moving toward the habitat

Mitigation Measure GEO-1: Minimize Soil Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculated DEIR.

Mitigation Measure GEO-2: Erosion and Sediment Control Measures (VMP BMP GEN-3)

See text in Section 3.6 of the prior 2020 DEIR, *Geology, Soils, and Seismicity*. Full text also provided below.

The City and its contractors shall implement the following measures:

- Upland soils exposed by maintenance activities shall be seeded and stabilized using erosion control fabric or hydroseeding.

- Erosion control fabrics shall consist of natural fibers that biodegrade over time. No plastic or other non-porous material shall be used as part of a permanent erosion control approach. Plastic sheeting may be used to protect a slope from runoff temporarily, but only if there are no indications that special-status

species would be affected by the application, as determined by a qualified biologist.

- Erosion control materials shall be absent of monofilament material or netting that can entrap wildlife.
- Erosion control measures shall be installed according to manufacturer's specifications.
- Appropriate measures include, but are not limited to, the following:
  - silt fences
  - straw bale barriers
  - brush or rock filters
  - storm drain inlet protection
  - sediment traps
  - sediment basins
  - erosion control blankets and mats
  - soil stabilization (e.g., tackified straw with seed, jute, or geotextile blankets, broadcast and hydroseeding)
- All temporary construction-related erosion control methods (e.g., silt fences) shall be removed at the completion of the project.
- The City and its contractors shall comply with California Stormwater Quality Association (CASQA) Construction BMPs guidance and specifications on implementation of the erosion control measures listed above (see also www.casqa.org/resources/bmp-handbooks/construction):
  - SC-3. Sediment Basins
  - SC-4. Straw or Sand Bag Barriers
  - SC-5. Sediment Traps
  - SC-6. Silt Fences
  - SS-1. Erosion Control Blankets, Mats, and Geotextiles
  - VR-1. Brush or Rock Filters
  - VR-4a. Temporary Outlet Protection
  - VR-4b. Storm Drain Inlet Protection
  - WD-1. Earth Dike
  - WD-1. Slope Drain
  - WD-3. Temporary Drains and Swales

Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality*, of this Recirculated DEIR.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality*, of this Recirculated DEIR.

Mitigation Measure HYD/WQ-1: Work Windows (VMP BMP GEN-1)

See text in Section 3.9, *Hydrology and Water Quality*, of this Recirculated DEIR.

Conclusion

Revised Draft VMP activities could result in impacts on California red-legged frog, western pond turtle, and Alameda whipsnake through direct mortality (e.g., crushing, herbicide toxicity) and injury, or through indirect habitat degradation (e.g., removal of cover, water quality degradation), increased exposure to predators, or reduced fecundity. Implementation of Mitigation Measures BIO-5 through BIO-9, GEO-1, GEO-2, HAZ-4, HAZ-5, and HYD/WQ-1, would generally avoid grazing in riparian habitat and restrict grazing from streams to prevent erosion and sedimentation, prevent increased predation pressure on special-status amphibians and reptiles through proper trash storage and removal, require pre-activity surveys and implement necessary avoidance measures to prevent impacts on California red-legged frog and western pond turtle, and require pre-activity surveys and implement avoidance measures to prevent impacts on Alameda whipsnake, minimize the footprint of disturbance, implement erosion and sediment controls to prevent impacts to aquatic habitat, restrict herbicide use near suitable California red-legged frog aquatic habitat, prevent herbicide use in riparian habitat and contact with aquatic habitat, and reduce the potential for herbicides to enter aquatic habitat by restricting their application to the dry season. The implementation of these mitigation measures would prevent potential impacts to these species and their habitat during Revised Draft VMP treatment, which reduces the potential impact on California red-legged frog, western pond turtle, and Alameda whipsnake to a less-than-significant level. The impact would be **less than significant with mitigation.**

Impact BIO-2B: *Potential Adverse Effects on Special-Status Birds and Other Protected Bird Nests* (Less than Significant with Mitigation)

Special-status birds with the potential to occur in the Revised Draft VMP area include White-tailed Kite, Golden Eagle, and Yellow Warbler. Golden Eagle is not anticipated to nest in the Revised Draft VMP area due to lack of suitable nesting habitat, but this species may forage within grasslands in the Revised Draft VMP area. White-tailed Kite and Yellow Warbler may both nest and forage within the Revised Draft VMP area. White-tailed Kites could forage in grasslands and nest in trees adjacent to these areas. Yellow Warbler may nest and forage in riparian habitat within the Revised Draft VMP area. Other bird species that are protected by the MBTA and F&G Code Sections 3503 and 3503.5 could nest in grasslands, shrubs, trees, and other substrates within the Revised Draft VMP area. Due to seasonal curing times for fine fuels, and associated fire risk, complete avoidance of the bird nesting season is not possible.

All Treatments

Adult special-status birds and birds associated with active nests are not expected to be killed or injured by Revised Draft VMP activities because they could easily fly from the work site during staging, personnel arrival, and initial startup of equipment. However, eggs or young in nests may be killed, injured, or abandoned as a result of destruction by maintenance personnel or equipment, or removal of vegetation containing nests, as described below. This would be a significant impact on special-status bird species and other protected bird nests. Workers implementing Revised Draft VMP treatments could attract predators to active nests by leaving food scraps or other trash at Revised Draft VMP treatment areas. In some areas, Revised Draft VMP treatments would remove trees and shrubs that are suitable nesting habitat for White-tailed Kite and, potentially, Yellow Warbler, as well as other species with active nests. However, this is not anticipated to be a substantial loss of suitable nesting substrate when compared to the overall nesting substrate available in the Revised Draft VMP area and the surrounding vicinity. Implementation of **Mitigation Measure BIO-10 (Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures)** would reduce the potential for significant impacts on active bird nests by conducting pre-construction surveys and establishing buffers around nests identified during surveys. In addition, implementation of Mitigation Measures BIO-1 and BIO-6 would reduce impacts on active bird nests by requiring staff training and proper trash storage and disposal to avoid attracting predators to active nests. With implementation of these mitigation measures, impacts on adult special-status birds and birds associated with active nests would be less than significant.

Mechanical and Hand Labor Treatments

Removal of vegetation and trees, including removal of dead and dying trees within 30-100 feet of roads, could potentially harm the nests, eggs, or juvenile birds in nests protected by the MBTA and F&G Code and nests belonging to special-status birds through direct removal. Noise from vegetation management treatments could adversely affect nesting success of these species. Mechanical and hand labor treatments that employ the use of power tools (e.g., chainsaw) and equipment (e.g., masticator) are anticipated to have higher noise levels than other treatments types (as discussed in Section 3.10 of the prior 2020 DEIR, *Noise and Vibration*), and would therefore have the highest potential for adverse noise impacts on nesting special-status birds and other protected bird nests. Such an impact on an active protected nest or special-status bird species would be significant. Implementation of Mitigation Measure BIO-10 would reduce the potential for significant impacts on active bird nests.

Foraging special-status and other birds are expected to avoid Revised Draft VMP treatment areas during implementation activities due to increased noise and human activity. These impacts would be temporary, would occur only during implementation of mechanical treatments, and would not substantially reduce the relatively abundant foraging habitat elsewhere in unaffected portions of the Revised Draft VMP area and the surrounding areas. With implementation of Mitigation Measure BIO-10, impacts of mechanical and hand labor treatments on foraging special-status birds and other birds would be less than significant.

Grazing

Grazing is not anticipated to generate excessive noise that would disrupt nesting or directly affect trees used by special-status bird species or other nesting birds. Yellow Warblers nest in

riparian areas, including riparian shrubs. Their nests, if present in riparian shrubs, could be disturbed by goats, which would be a significant impact. However, goats would generally be excluded from riparian areas and would be strictly excluded from streams in accordance with Mitigation Measure BIO-5, which would reduce the potential for significant impacts on active Yellow Warbler nests. Additionally, approximately 900 acres within the Revised Draft VMP area are currently grazed each year for fire risk reduction under baseline conditions. During implementation of the Revised Draft VMP, a maximum of 1,100 acres of annual grazing would occur; therefore, the increased amount of grazing would not result in a substantial increase in the potential for disturbance of special-status bird species or other nesting birds. With implementation of Mitigation Measure BIO-5, impacts of grazing on special-status birds and other birds would be less than significant.

Herbicides

As with other Revised Draft VMP treatment techniques, herbicide application would eliminate treated vegetation and potentially alter vegetation structure in some portions of the Revised Draft VMP area. Herbicides would be used to control regrowth of removed trees and shrubs, and to kill or prevent growth of vegetation within targeted portions of the Revised Draft VMP area. Herbicide application would primarily occur within two feet of ground level, but may be applied within 10 feet of ground level (for foliar herbicide application to shrubs) and would be unlikely to affect species that nest in trees or other substrates above that height. Herbicides used under the Revised Draft VMP are generally not anticipated to result in significant impacts to special-status birds given the relatively abundant foraging habitat and nesting substrate available in untreated portions of the Revised Draft VMP area and surrounding vicinity. In addition, implementation of Mitigation Measure HAZ-5 would prevent herbicide use within riparian habitat, which is suitable habitat for Yellow Warbler. The application of herbicide to an active nest belonging to special-status or other bird species could result in mortality of individuals, nest abandonment, or reduced fitness, all of which would be a significant impact. Implementation of Mitigation Measure BIO-10 would minimize potential impacts to active special-status and other bird nests from herbicide use by creating avoidance buffers around active nests. With implementation of Mitigation Measures BIO-10 and HAZ-5, impacts of herbicides on special-status birds and other birds would be less than significant.

Mitigation Measures

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

See text in Impact BIO-~~1A~~1 above.

Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)

See text in Impact BIO-~~1A~~1 above.

Mitigation Measure BIO-6: Trash Removal (revised from VMP BMP BIO-7)

See text in Impact BIO-2A above.

Mitigation Measure BIO-10: Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures (revised from VMP BMP BIO-1)

- When feasible, tree and shrub removal shall be conducted outside of the typical bird nesting season (February 1 and August 31).
- For activities occurring between February 1 and August 31, project areas shall be surveyed by a qualified biologist for nesting birds within 2 weeks prior to starting work. If a lapse in project-related work of 2 weeks or longer occurs, the treatment area shall be resurveyed before project work can be reinitiated.
- If nesting birds are found, a buffer shall be established around the nest and maintained until the young have fledged. Appropriate buffer widths are 250 feet for raptors, herons, and egrets; 25 feet for ground-nesting non-raptors; and 50 feet for non-raptors nesting on trees, shrubs, and structures. A qualified biologist may identify an alternative buffer based on a site-specific evaluation. No work shall occur within the buffer without written approval from a qualified biologist, for as long as the nest is active.
- The boundary of each buffer zone shall be marked with fencing, flagging, or other easily identifiable marking if work will occur immediately outside the buffer zone.
- All protective buffer zones shall be maintained until the nest becomes inactive, as determined by a qualified biologist.
- If monitoring shows that disturbance to actively nesting birds is occurring, buffer widths shall be increased until monitoring shows that disturbance is no longer occurring. If this is not possible, work shall cease in the area until young have fledged and the nest is no longer active.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality*, of this Recirculated DEIR.

Conclusion

Revised Draft VMP treatments have the potential to impact special-status birds (i.e., White-tailed Kite, Golden Eagle, and Yellow Warbler) and protected bird nests through direct removal of nests and noise impacts to nesting birds. Such an impact would be significant. Implementation of Mitigation Measures BIO-1, BIO-5, BIO-6, BIO-10, and HAZ-5 would reduce the potential for significant impacts by staff training, restricting grazing in riparian habitat, requiring proper trash storage and disposal to avoid attracting predators to active nests, conducting pre-activity nesting bird surveys and establishing species-appropriate avoidance buffers where active bird nests are found, and restricting the use of herbicides in riparian habitat. The implementation of these mitigation measures would prevent potential impacts to special-status bird species and other protected bird nests during Revised Draft VMP treatment, which reduces the potential impact to a less-than-significant level. Therefore, impacts would be **less than significant with mitigation.**

Impact BIO-2C: *Potential Adverse Effects on Special-Status Mammals and CEQA-relevant Bat Species* (Less than Significant with Mitigation)

Special-status mammals with the potential to occur in the Revised Draft VMP area include western red bat, pallid bat, western mastiff bat, and San Francisco dusky-footed woodrat. Several non-special-status but CEQA-relevant bat species (hereafter referred to as "CEQA-relevant bats") have potential to occur in the Revised Draft VMP area, including myotis bats (*Myotis* spp.) and big brown bat (*Ephesicus fiscus*). Western red bats, western mastiff bats, and CEQA-relevant bats may roost in trees in the Revised Draft VMP area. San Francisco dusky-footed woodrat stick houses (also referred to as "nests") were observed in many locations within the Revised Draft VMP area and were most often encountered in oak woodlands and riparian areas.

Mechanical and Hand Labor Treatments

Mechanical and hand labor treatments could impact special-status bats or large colonial roosts of CEQA-relevant bat species through the removal of trees that provide roosting habitat or direct mortality of bats. This includes removal of dead and dying trees within 30-100 feet of roads. Removal of an active special-status roost or large colonial roost of CEQA-relevant bats would be a significant impact. The bat maternity season (March 15–July 31) is an especially sensitive period, as young may be unable to fly (i.e., non-volant) during this period. Implementation of **Mitigation Measure BIO-11 (Protection of Bat Colonies)** would reduce the potential for impacts on special-status bats through evaluation of trees by a qualified biologist to determine the location of high-quality bat habitat, avoidance of maternity roosts while occupied by non-volant bats, and (where roosts are unavoidable) exclusion of bats from occupied non-breeding roosts during less sensitive periods.

Mechanical and hand labor treatments could result in accidental crushing of woodrat stick houses, or direct mortality from crushing by mechanical equipment. Implementation of **Mitigation Measure BIO-12 (Protection of Dusky-footed Woodrats)** would minimize these impacts by avoiding woodrat stick houses, maintaining an intact escape corridor where feasible, and hand-dismantling of houses by a qualified biologist if avoidance is not feasible. Mitigation Measure BIO-1 requires a training program for all staff, contractors, and volunteers who would perform vegetation management work. The training would describe biological resources, including special-status mammals and CEQA-relevant bat species, and how to avoid harming them. With implementation of Mitigation Measures BIO-1, BIO-11, and BIO-12, impacts of mechanical and hand labor on special-status mammals and CEQA-relevant bat species would be less than significant.

Grazing

Grazing would have no impact on bats, as grazing at ground level would not impact bat habitat. If grazing occurs in areas where woodrat stick houses are located, grazing animals could climb on stick houses. This impact would be less than significant, as stick houses would likely not be destroyed by grazing animals. Impacts of grazing on special-status mammals and CEQA-relevant bat species would be less than significant and no mitigation is required.

Herbicides

Herbicide use could result in impacts on bats if they ingest or come into direct contact with herbicides. Consumption by mammals of vegetation exposed to glyphosate may result in impacts to growth and reproduction (USEPA 2019). Imazapyr is categorized as practically nontoxic to small mammals (USEPA 2005). Triclopyr acid was found to be practically nontoxic to mammals (USEPA 1998). Other ingredients present in herbicides such as surfactants may have impacts on wildlife. Herbicide is expected to be applied on vegetation at or within 10 feet of ground level. Implementation of Mitigation Measure HAZ-4 limits application frequency; minimizes potential for drift; and prohibits application within 200 feet of residences, schools, and public use areas. Implementation of Mitigation Measure HAZ-5 would reduce the potential to impact bats by requiring the use of the lowest recommended application rates of herbicides and surfactants that achieve project objectives, and Mitigation Measure HYD/WQ-1 would restrict work to daylight hours (except in case of an emergency) when bats are not active. Given the relative abundance of bat foraging habitat in untreated portions of the Revised Draft VMP area and surrounding vicinity, and with implementation of Mitigation Measures HAZ-4, HAZ-5, and HYD/WQ-1, impacts on bats from herbicide use would be less than significant.

Herbicide use could impact woodrats if they were to eat vegetation treated with herbicide. As described above, woodrat stick houses were often observed in riparian areas adjacent to creeks. Implementation of Mitigation Measure HAZ-4 limits application frequency; minimizes potential for drift; and prohibits application within 200 feet of residences, schools, and public use areas. Implementation of Mitigation Measure HAZ-5 would reduce the potential for impacts to woodrats by prohibiting herbicide use within 60 feet of streams. Given the relative abundance of woodrat foraging habitat in untreated portions of the Revised Draft VMP area and surrounding vicinity, and with implementation of Mitigation Measures HAZ-4 and HAZ-5, impacts on woodrats from herbicide use would be less than significant.

Mitigation Measures

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

See text in Impact BIO-1A above.

Mitigation Measure BIO-11: Protection of Bat Colonies (VMP BMP BIO-8)

To minimize impacts on special-status bats (e.g., pallid bat, western mastiff bat, and western red bat) and large colonies of CEQA-relevant bats, the City and its contractors shall implement the following practices during tree trimming and removal activities:

1. If high-quality habitat for roosting bats (i.e., large trees with cavities of sufficient size to support roosting bats, as determined by a qualified bat biologist) is present, a qualified bat biologist shall conduct a survey for evidence of bat use within 2 weeks before the commencement of work activities. If bat-use evidence is observed, or if high-quality roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), the biologist shall conduct an evening survey and/or nocturnal acoustic survey (as necessary) to determine if a bat colony is present and to identify the specific location of the bat colony.

2. If no active maternity colony or non-breeding bat roost is located, work can continue as planned.

3. If an active maternity colony or non-breeding bat roost is located, work shall be redesigned/rescheduled to avoid disturbance of the roosts, if feasible.

4. If an active maternity colony is located and work cannot be redesigned to avoid removal or disturbance of the occupied tree or structure, disturbance shall take place outside the maternity roost season (March 15–July 31), and a disturbance-free buffer zone (determined by a qualified bat biologist based on the roost situation and species' sensitivity) shall be observed during this period.

5. If an active non-breeding bat roost is located and work cannot be redesigned to avoid removal or disturbance of the occupied tree or structure, the individuals shall be safely evicted between August 1 and October 15 or from February 15 to March 14. Bats may be evicted through exclusion after notifying CDFW. Trees with roosts that need to be removed shall first be disturbed at dusk, just before removal that same evening, to allow bats to escape during the darker hours.

Mitigation Measure BIO-12: Protection of Dusky-footed Woodrats (VMP BMP BIO-9)

1. If woodland, forest, or scrub habitat is present in a treatment area, a qualified biologist shall conduct a focused survey for woodrat stick houses within the treatment area, access routes, and staging areas within seven days of the commencement of treatment activities.

2. If a woodrat stick house is identified in a work area, the City shall attempt to preserve the nest and maintain an intact dispersal corridor between the stick house and undisturbed habitat. Retained woodrat stick houses shall be marked with high visibility construction fencing or flagging to avoid accidental encroachment on the stick house.

3. If the woodrat stick house cannot be avoided, a qualified biologist shall deconstruct the stick house by hand in a phased approach and relocate the stick house materials to the nearest undisturbed suitable habitat. In the phased dismantling process, each house will be partially dismantled on the first day, and the remainder will be dismantled the next day, to encourage dispersal of any woodrats present. If the biologist observes that young are present, dismantling shall cease. Dismantling shall resume when the biologist determines that the young have left or are old enough to vacate under their own volition.

Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality*, of this Recirculated DEIR.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality*, of this Recirculated DEIR.

Mitigation Measure HYD/WQ-1: Work Windows (VMP BMP GEN-1)

See text in Section 3.9, *Hydrology and Water Quality*, of this Recirculated DEIR.

Conclusion

Table 3.4-5 summarizes potential direct impacts on special-status wildlife species and identifies the mitigation measures to reduce impacts to less-than-significant levels, where appropriate, for each species that could occur in the Revised Draft VMP area. Revised Draft VMP treatments have the potential to impact special-status mammals and CEQA-relevant bats through the removal of trees that provide roosting habitat for these species, direct mortality of bats, accidental crushing of woodrat stick houses, direct mortality of woodrats, or woodrat ingestion of herbicides. Implementation of Mitigation Measure BIO-1 would reduce the potential for impacts on bats and special-status mammals through a training program for staff. Implementation of Mitigation Measure BIO-11 would reduce the potential for impacts on special-status bats through evaluation and identification of trees with high-quality bat habitat by a qualified biologist, avoidance of maternity roosts through redesigning/rescheduling work or no-disturbance buffers, and exclusion of bats from occupied non-breeding roosts during less sensitive (i.e., when non-volant bats are absent) periods would minimize impacts on bats present. Implementation of Mitigation Measure BIO-12 would minimize impacts on woodrats by conducting surveys for stick houses, avoiding stick houses and maintaining an intact escape corridor, where feasible, and phased hand-dismantling of stick houses by a qualified biologist if avoidance is not feasible. Implementation of Mitigation Measure HAZ-4 limits application frequency; minimizes potential for drift; and prohibits application within 200 feet of residences, schools, and public use areas. Implementation of Mitigation Measure HAZ-5 would reduce the potential for herbicide impacts by requiring the lowest recommended application rates of herbicides and surfactants that achieve project objectives during application, and prohibiting herbicide use within 60 feet of streams. Implementation of Mitigation Measure HYD/WQ-1 would reduce impacts on bats by restricting work to daylight hours (except in case of an emergency), when bats are not active. The implementation of these mitigation measures would prevent potential impacts to special-status mammals and CEQA-relevant bats during Revised Draft VMP treatment, which would reduce the potential impact to a less-than-significant level. Therefore, impacts on special-status mammals and CEQA-relevant bats would be **less than significant with mitigation.**

Impact BIO-2D: *Potential Adverse Effects on Special-Status Invertebrates* (Less than Significant with Mitigation)

Special-status invertebrates with the potential to occur in the Revised Draft VMP area include monarch butterfly and Crotch bumble bee. Impact BIO-2D has been added to the Recirculated DEIR to address potential impacts to two special-status invertebrate species that became candidates for listing following publication of the prior 2020 DEIR. Monarch butterfly is a candidate species under the ESA and Crotch bumblebee is a candidate species under CESA. No monarch butterfly overwintering sites have been documented within the Revised Draft VMP area (CNDDB 2023a, Xerces Society 2016). Tree species typically used by monarch butterflies as

overwintering sites, including eucalyptus, Monterey pine, and Monterey cypress, are present within the Revised Draft VMP area. However, overwintering sites in California are typically located within 1.5 miles of the Pacific Ocean or San Francisco Bay (Xerces Society 2016). As the Revised Draft VMP area is greater than 2 miles from San Francisco Bay and the Pacific Ocean, it is unlikely that monarch overwintering sites would occur in the Revised Draft VMP area. However, individual migrating monarch butterflies may be present in the Revised Draft VMP area. Monarch butterfly is closely associated with milkweeds (*Asclepias* spp.), which are the host plants for this species. The Revised Draft VMP area is within the current known range of the Crotch bumble bee (CDFW 2023c) and suitable nesting habitat for this species is present.

All Treatments

All treatments would result in the temporary removal of floral resources used by monarch butterfly (nectar) and Crotch bumble bee (nectar and pollen). Due to the abundance of floral resources with the Revised Draft VMP area, as well as the fact that Revised Draft VMP projects would be spread across the landscape during the Revised Draft VMP's 10-year timeframe, impacts related to floral resources would be dispersed both temporally and spatially. Temporary removal of floral resources would not result in significant impacts to habitat for monarch butterfly or Crotch bumble bee.

All treatments could result in the removal of milkweeds, which would be a significant impact if the plants contained eggs, larvae, or pupae of monarch butterflies. Implementation of Mitigation Measure BIO-1 and **Mitigation Measure BIO-13: Avoid Monarch Butterfly Host Plants and Overwintering Sites** would reduce the potential for impacts to a less-than-significant level. Mitigation Measure BIO-1 requires a training program for all staff, contractors, and volunteers who would perform vegetation management work. The training would describe biological resources, including special-status invertebrates and their habitat, and how to avoid harming them. Mitigation Measure BIO-13 would reduce the potential for impacts on monarch butterflies through pre-treatment surveys for monarch host plants (milkweeds) and avoidance of occupied milkweeds.

Mechanical and Hand Labor Treatments

Although monarch overwintering is not expected, disturbance of occupied monarch overwintering habitat, such as through pruning or tree removal during the overwintering period, could, if occupied overwintering monarch butterfly habitat is present, result in a significant impact to this species through death of individuals and habitat loss. Implementation of Mitigation Measure BIO-13 would reduce the potential for impacts on monarch overwintering habitat through pre-construction surveys for overwintering monarch butterflies in suitable habitat, avoidance of overwintering sites, and evaluation of treatment activities within the overwintering site by a qualified biologist.

Use of mechanical equipment that results in ground disturbance (such as diskers or masticators) in annual grasslands and coastal scrub could result in accidental destruction or crushing of Crotch bumble bee nests, resulting in the death of Crotch bumble bees. This would be a significant impact. Implementation of **Mitigation Measure BIO-14 (Avoid Crotch Bumble Bee Nests)** would reduce the potential for impacts on Crotch bumble bees through pre-construction surveys and implementation of non-disturbance buffers if special-status bumble bee nests are detected. In addition, implementation of Mitigation Measure GEO-1 would minimize the area of

soil disturbance when Revised Draft VMP activities are conducted, reducing the potential for impacts to Crotch bumble bee nests.

With implementation of Mitigation Measures BIO-13, BIO-14, and GEO-1, impacts of mechanical and hand labor on special-status invertebrate species would be less than significant.

Grazing

Under baseline conditions, goat grazing occurs on approximately 900 acres of the Revised Draft VMP area annually. With implementation of the Revised Draft VMP, goat grazing is anticipated to increase to a maximum of 1,100 acres annually. Most areas proposed for grazing under the Revised Draft VMP are already being grazed under baseline conditions. As described above in "All Treatments," grazing would temporarily remove floral resources used by monarch butterfly and Crotch bumble bee. The increase of approximately 200 acres of grazing annually is not anticipated to result in significant impacts to floral resources for these species.

As described previously in "All Treatments" above, grazing would be a significant impact if milkweeds containing eggs, larvae, or pupae of monarch butterflies were removed. Implementation of Mitigation Measure BIO-13 would reduce the potential for impacts to milkweed and different life stages of monarch butterfly to a less-than-significant level through pre-treatment surveys for milkweeds and avoidance of occupied milkweeds.

Herbicides

No insecticides would be applied under the Revised Draft VMP. No herbicides known to potentially be directly toxic to bumble bees (such as paraquat, 2,4-D, or dicamba) (Xerces Society et al. 2018) would be used under the Revised Draft VMP. The direct effects of most herbicides to monarch butterflies are unknown and likely to be highly variable (USFWS 2020). Herbicide use can reduce floral resources. Herbicide use would be limited to 35 acres per year. Given the relative abundance of floral resources in untreated portions of the Revised Draft VMP area and surrounding vicinity, impacts on floral resources used by special-status invertebrates from herbicide use would be less than significant.

Although herbicides would not be directly applied to milkweeds, herbicide impacts to milkweeds could occur from inadvertent direct application to milkweeds through off-target herbicide contact via drift or residual herbicide in soil. Off-target effects to milkweeds could result in significant impact to monarch butterfly if affected plants contained eggs, larvae, or pupae of this species. Implementation of Mitigation Measure BIO-1 would minimize potential herbicide impacts by requiring training of staff, contractors, and volunteers about special-status species, including monarch butterflies and their host plants (milkweeds). This training would reduce the potential for accidentally applying herbicide to milkweed. Implementation of Mitigation Measure HAZ-5 would reduce the potential for herbicide impacts to milkweed by using the lowest recommended application rates of herbicides and surfactants, and avoiding application of herbicides within 48 hours of predicted rainfall (which would minimize the potential for herbicide to run off into adjacent areas). Implementation of Mitigation Measure HAZ-5 also requires herbicides to be applied by or under the supervision of a licensed applicator. Mitigation Measure HAZ-4 would avoid use of herbicides under wind conditions that would exacerbate herbicide drift by prohibiting the use of spray herbicide application when wind velocities are

greater than 7 miles per hour. These mitigation measures would minimize the potential for inadvertent herbicide drift onto milkweed. As herbicide would not be applied in areas with milkweeds, residual soil effects of herbicides would have no impact on milkweeds. Implementation of Mitigation Measure BIO-13 would reduce the potential for herbicide impacts on monarch butterflies through pre-treatment surveys for milkweeds and avoidance of occupied milkweeds. With implementation of these mitigation measures, herbicide impacts on special-status invertebrate populations would be less than significant.

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

See text in Impact BIO-1 above.

Mitigation Measure BIO-13: Avoid Monarch Butterfly Host Plants and Overwintering Sites

- A qualified biologist or biological monitor working under a qualified biologist shall conduct pre-construction surveys for milkweed (*Asclepias* spp.). Detected milkweeds shall be inspected for evidence of monarch butterfly eggs, larvae, or pupae.
- Milkweeds found containing eggs, larvae, or pupae of monarch butterflies shall be avoided and protected with an appropriately-sized buffer as determined by a qualified biologist (at least 10 feet). The biologist shall consider plant species characteristics and the nature of the proposed treatment when establishing the buffer.
- No herbicides shall be applied within 60 feet of milkweed occupied by any life stage of monarch butterfly.
- Vegetation treatment may proceed if a qualified biologist determines that the milkweeds (1) are not occupied by monarchs, and (2) may benefit from treatment (such as if the host plants have already set seed and post-treatment conditions would favor them over non-native weed species).
- Prior to Revised Draft VMP activities in tree groves comprised primarily or entirely of pine, cypress, or eucalyptus, a qualified biologist or biological monitor working under a qualified biologist shall survey the grove for aggregations of monarch butterflies during the overwintering season (November 1 – March 1).
- If no monarch overwintering aggregations are observed, Revised Draft VMP activities may proceed if they occur prior to November 1. If Program activities are delayed beyond November 1, then the grove shall be re-surveyed.
- If a monarch overwintering aggregation of any size is detected, then no Revised Draft VMP activities may take place inside the tree canopy within 200 feet of the aggregation. Activities outside of the canopy line but within 200 feet (e.g., treatment of low-growing vegetation outside of the tree grove) may proceed if a qualified biologist or monitor determines that the activity does not pose a threat to the monarch aggregation.
  - (i) Once the aggregation disperses (typically by March), treatment of vegetation within 200 feet of trees where monarch aggregations were

observed may proceed if, as determined by a qualified biologist or monitor, it would not result in significant adverse impacts to monarch overwintering habitat.

(ii) Standing dead trees generally do not contribute to monarch overwintering habitat (Xerces Society 2017) and may be removed within the grove, outside of the overwintering period, as determined appropriate by a qualified biologist or monitor.

Mitigation Measure BIO-14: Avoid Crotch Bumble Bee Nests

- Prior to ground-disturbing activities in grassland or coastal scrub habitat, a qualified biologist shall conduct a pre-construction survey for nesting Crotch bumble bees. Surveys shall focus on burrows and, when feasible, shall be conducted during the period of highest detection probability (April through August) for this species.
- If no state-listed bumble bee nests are detected during the survey, Revised Draft VMP activities may proceed.
- If state-listed bumble bee nests are detected, the qualified biologist shall establish a non-disturbance buffer around the nest (at least 10 feet) and no ground-disturbing activities shall occur within the buffer until the qualified biologist determines that the nest is no longer active.

Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality*, of this Recirculated DEIR.

Revised Draft VMP treatments have the potential to adversely affect monarch butterflies through disturbance of occupied monarch overwintering habitat and removal of milkweeds containing eggs, larvae, or pupae of monarch butterflies. Revised Draft VMP treatments have the potential to adversely affect Crotch bumble bee through destruction or crushing of nests. Implementation of Mitigation Measures BIO-1, BIO-13, BIO-14, HAZ-4, and HAZ-5 would reduce the potential for significant impacts by requiring staff training, conducting pre-activity monarch butterfly overwintering habitat and milkweed surveys, avoidance of monarch overwintering sites and occupied milkweed, pre-construction surveys for Crotch bumble bee nests and establishing no-disturbance buffers where listed bumble bee nests are found, and minimizing potential for herbicide to be inadvertently applied to milkweeds. Implementation of these mitigation measures would prevent potential impacts to special-status invertebrate species during Revised Draft VMP treatment, which reduces the potential impact to a less-than-significant level. Therefore, impacts would be **less than significant with mitigation.**

Table 3.4-5. Summary of Direct Impacts on Special-Status Wildlife Species from Revised Draft VMP Implementation

Special-Status Species	Impact Summary				Mitigation for Potentially Significant Impacts
	Mechanical Treatments	Hand Labor Treatment	Grazing	Herbicides	
Amphibians					
California red-legged frog *Rana draytonii*	Direct mortality	Direct mortality	Direct mortality Sedimentation of CRLF habitat	Herbicide use near streams could result in adverse effects	BIO-1, BIO-5, BIO-6, BIO-7, BIO-8, BIO-9, GEO-1, GEO-2, HAZ-4, HYD/WQ-1
Reptiles					
Alameda whipsnake *Masticophis lateralis euryxanthus*	Direct mortality	Direct mortality	Direct mortality	Herbicide use could result in adverse effects	BIO-1, BIO-5, BIO-6, BIO-7, HAZ-4, HYD/WQ-1
western pond turtle *Emys marmorata*	Direct mortality	Direct mortality	Direct mortality	Herbicide use near streams could result in adverse effects	BIO-1, BIO-5, BIO-6, BIO-8, GEO-1, GEO-2, HAZ-4, HYD/WQ-1
Birds*					
White-tailed Kite *Elanus leucurus*	Nest harm, noise, direct removal	Nest harm, noise, direct removal	Grazing would not generate excessive noise that could disrupt nesting or directly impact trees used by special-status bird species or nesting birds.	Nest harm	BIO-1, BIO-6, BIO-10
Golden Eagle (foraging only in Revised Draft VMP area) *Aquila chrysaetos*	Less than significant	Less than significant	Less than significant	Less than significant	N/A

Special-Status Species	Impact Summary				Mitigation for Potentially Significant Impacts
	Mechanical Treatments	Hand Labor Treatment	Grazing	Herbicides	
Yellow Warbler *Setophaga petechia*	Nest harm, noise, direct removal	Nest harm, noise, direct removal	Grazing would not generate excessive noise that could disrupt nesting or directly impact trees used by special-status bird species or nesting birds.	Nest harm	BIO-1, BIO-10, BIO-5, BIO-6, HAZ-5
Mammals					
pallid bat *Antrozous pallidus*	Noise, direct removal	Noise, direct removal	No impact	Impacts to growth and reproduction	BIO-1, BIO-11, HAZ-5, HYD/WQ-1
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	Direct removal	Direct removal	Grazing animals could walk on woodrat stick houses, but impacts would be less than significant.	Impacts to growth and reproduction	BIO-1, BIO-12, HAZ-5
western mastiff bat *Eumops perotis californicus*	Noise, direct removal	Noise, direct removal	No impact	Impacts to growth and reproduction	BIO-1, BIO-11, HAZ-5, HYD/WQ-1
western red bat *Lasiurus blossevillii*	Noise, direct removal	Noise, direct removal	No impact	Impacts to growth and reproduction	BIO-1, BIO-11, HAZ-5, HYD/WQ-1
Invertebrates					
Crotch bumble bee *Bombus crotchii*	Crushing of nests Removal of floral resources (less than significant)	Removal of floral resources (less than significant)	Removal of floral resources (less than significant)	Removal of floral resources (less than significant)	BIO-1, BIO-14

Special-Status Species	Impact Summary				Mitigation for Potentially Significant Impacts
	Mechanical Treatments	Hand Labor Treatment	Grazing	Herbicides	
Monarch butterfly *Danaus plexippus*	Occupied milkweed removal Removal of floral resources (less than significant)	Occupied milkweed removal Removal of floral resources (less than significant)	Occupied milkweed removal Removal of floral resources (less than significant)	Occupied milkweed removal Removal of floral resources (less than significant)	BIO-1, BIO-13, HAZ-4, HAZ-5

* Bird nests protected under the Migratory Bird Treaty Act and the California Fish and Game Code would have impacts similar to those for special-status bird nests and would be similarly protected by proposed mitigation measures.

Impact BIO-3: Potential Adverse Effects on Riparian Habitat or Other Sensitive Natural Communities Identified in Local or Regional Plans, Policies, Regulations or by CDFW, USFWS, or NMFS (*Less than Significant with Mitigation*)

Impact BIO-3A: *Impacts on Riparian Habitat or Other Sensitive Natural Communities (*Less than Significant with Mitigation*)*

Note that impacts to wetlands are addressed separately in Impact BIO-4.

Several Revised Draft VMP treatment projects are located on parcels defined as "creekside properties" under the City of Oakland's Creek Protection Ordinance (Figure 3.4-2). Table 3.4-4 in Impact BIO-2A shows priority projects located within creekside properties and/or within 100 feet of creek centerlines. The majority (58.6 acres out of a total of 92 acres) of the Revised Draft VMP treatment project acreage within 100 feet of streams consist of grazing treatments (Revised Draft VMP treatment project numbers SHP-4, JMP-4, KNO-5, and SHF-3). Removal of dead and dying trees within 30-100 feet of roads could also occur on creekside properties. To implement Revised Draft VMP treatment projects on creekside properties (including grazing), OFD would be required to obtain a Creek Protection Permit. **Table 3.4-6** shows sensitive natural communities present within priority projects.

Table 3.4-6. Sensitive Natural Communities within Priority Project Areas

Revised Draft VMP Treatment Project Number	Priority	Sensitive Natural Community	Acres
Dimond Canyon Park			
DIM-1	1	red alder forest	0.02
		redwood forest	0.18
Joaquin Miller Park			
JMP-1	1	redwood forest	9.52
		Valley/Foothill Riparian	0.22
JMP-2	1	redwood forest	4.05
JMP-3	2	redwood forest	0.01
JMP-4	3	redwood forest	5.62
Leona Heights Park			
LHT-1	1	redwood forest	3.74
LHT-2	1	redwood forest	0.39
LHT-3	2	redwood forest	0.29
Knowland Park and Arboretum			
KNO-1	1	needle grass – melic grass grassland	0.02
KNO-5	3	bush monkeyflower scrub	0.51
		California bay forest	1.03
		Freshwater Emergent Wetland	0.17

Revised Draft VMP Treatment Project Number	Priority	Sensitive Natural Community	Acres
		brittle leaf – woolly leaf manzanita chaparral	7.92
		needle grass – melic grass grassland	12.51
		redwood forest	0.18
Sheffield Village Open Space			
SHF-1	1	Needle grass – melic grass grassland	0.04
SHF-2	2	California bay forest	0.12
SHF-3	3	bush monkeyflower scrub	0.25
		California bay forest	0.62
		Needle grass – melic grass grassland	0.81
Urban and Residential Parcels			
URB-1	1	California bay forest	0.21
		redwood forest	0.23

All Treatments

The Revised Draft VMP does not propose vegetation type conversion as an end goal or strategy; rather, thinning vegetation and providing, creating, and maintaining adequate spacing among retained vegetation is the primary management strategy to reduce the potential for ignitions and the likelihood of extreme fire behavior. Additionally, any work within riparian habitats would require notification of CDFW under Section 1602 of the F&G Code, which is likely to result in additional conditions. For all treatments, implementation of Mitigation Measure GEO-1 would minimize impacts to sensitive natural communities by minimizing the footprint of soil disturbance. Implementation of Mitigation Measure BIO-1 would reduce the potential for impacts on sensitive natural communities through a training program for staff. Implementation of Mitigation Measure HYD/WQ-1 would limit vegetation treatment to periods without significant rainfall, herbicide use to the dry season, and work in waterbodies, which would limit impacts to riparian habitat.

Mechanical and Hand Labor Treatments

Mechanical and hand labor treatments could alter species composition over time. Although vegetation type conversion is not the goal of the Revised Draft VMP, vegetation treatment may cause shifts in the relative abundance of plant species within each vegetation type. Priority projects within the Revised Draft VMP that propose hand and/or mechanical labor treatments would overlap the following sensitive natural communities: redwood forest, California bay forest, red alder forest, riparian areas, and needle grass – melic grass grassland. See Table 3.4-6 and Figure 3.4-3 for more details on the size and location of these communities.

Within forested vegetation types, the general goal of Revised Draft VMP treatment activities is a shaded fuel break. The treatment standards for each of these sensitive natural communities are as follows:

- For redwood forest, the treatment standards focus on creating vertical separation between the top of surface fuels and the lowest tree branch by thinning young redwood crown sprouts and sapling growth, maintaining a closed redwood canopy to shade understory fuels, and removing highly flammable plant species. These treatment techniques are not anticipated to result in significant impacts to redwood communities within the Revised Draft VMP area.
- For California bay forest, the treatment standards for oak woodland described in the Revised Draft VMP would apply. These standards focus on creating vertical separation between the top of surface fuels and the lowest tree branch, maintaining a closed canopy, removal of understory fuels, and removing highly flammable plant species. California bay is included on the list of highly flammable plant species in Appendix D of the Revised Draft VMP (provided in **Appendix A**, *Draft Vegetation Management Plan*, of this Recirculated DEIR). However, in areas where this tree is dominant (such as California bay forest), it would remain the dominant tree species following Revised Draft VMP treatment. Understory composition may change following treatment; however, these forested sensitive natural communities would remain sensitive natural communities following treatment because the dominant or characteristic species would remain.
- Red alder forest and other riparian areas within the Revised Draft VMP area pose a relatively low fire risk, and treatment activities would be minimized in these areas. Treatment standards within riparian areas focus on removal/treatment of downed tree and leaf litter material outside of the stream channel, treatment of ladder fuels on the edges of riparian habitat where this habitat abuts other habitat types, and removal of highly flammable plant species. The approach of minimizing treatment in these areas would limit impacts to these habitats. Additionally, the requirement for notification of CDFW under Section 1602 of the F&G Code for treatments within riparian areas, and the requirement of a Creek Protection Permit for work within creekside properties, are expected to result in additional impact reduction practices. Implementation of **Mitigation Measure BIO-15~~13~~ (Develop and Implement a Plan to Replace Riparian Habitat)** would mitigate loss of habitat by replacing any native riparian trees removed from within riparian habitat in the Revised Draft VMP area.
- Needle grass – melic grass grassland is present on 0.06 acre of the areas proposed for mechanical and/or hand labor treatments. Treatment of these areas by mechanical or hand labor techniques such as mowing or weed whacking is not anticipated to result in significant impacts to community, due to the small area of treatment. Additionally, the dominant native grass in this community is purple needlegrass, a perennial grass that is anticipated to persist following mechanical and/or hand labor treatments.

With implementation of Mitigation Measure BIO-15~~13~~, which requires the development and implementation of a plan to replace riparian resources, impacts on sensitive natural communities from mechanical and hand labor would be less than significant.

Grazing

Under baseline conditions, goat grazing occurs on approximately 900 acres of the Revised Draft VMP area annually. With implementation of the Revised Draft VMP, goat grazing is anticipated to increase to 1,100 acres annually. Most areas proposed for grazing under the Revised Draft

VMP are already being grazed under baseline conditions. Sensitive natural communities within areas proposed for grazing treatment include riparian areas, California bay forest, bush monkeyflower scrub, brittle leaf – woolly leaf manzanita chaparral, and needle grass – melic grass grassland. Overgrazing of these sensitive natural communities could results in significant impacts. The Revised Draft VMP recommends development of site-specific grazing management plans for each grazing treatment area. These grazing management plans would consider site-specific conditions; specify management objectives and standards; and identify animal stocking rates and use levels (typically measured in pounds per acre of residual dry matter), grazing season, monitoring requirements, and performance criteria. Development of such plans would reduce potential impacts on sensitive natural communities. Implementation of Mitigation Measure BIO-5 would also reduce impacts by generally excluding livestock from riparian areas, excluding livestock from mixed chaparral (brittle leaf – woolly leaf manzanita chaparral) habitat, monitoring livestock to prevent overgrazing, and not grazing grasslands to lower than 4 inches. As described in the Revised Draft VMP, the City is encouraged to coordinate with local park stewardship groups to minimize potential grazing impacts to restoration projects conducted within the Revised Draft VMP area. With implementation of site-specific grazing management plans and Mitigation Measure BIO-1513, impacts on sensitive natural communities from grazing would be less than significant.

Herbicides

Herbicide use is not proposed on the dominant species found within sensitive natural communities. Herbicide use is proposed on eucalyptus, acacia, French broom, Scotch broom, pampas grass, and jubata grass. If used near sensitive natural communities, herbicide could have off-target impacts through drift of spray-applied herbicide into the sensitive natural community. Implementation of Mitigation Measure HAZ-5, which prohibits the use of herbicide within 60 feet of streams, would reduce the potential for herbicide impacts on riparian vegetation. Implementation of Mitigation Measure HAZ-4**,** which avoids herbicide treatment during wind conditions that would exacerbate herbicide drift, and Mitigation Measure HAZ-5, which requires herbicides to be applied by a licensed applicator, would minimize the potential for drift onto non-target plants and sensitive natural communities. With implementation of Mitigation Measures HAZ-4 and HAZ-5, impacts on sensitive natural communities from herbicides would be less than significant.

Mitigation Measures

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

See text in Impact BIO-1A above.

Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)

See text in Impact BIO-1A above.

Mitigation Measure BIO-1513: Avoid Riparian Habitat and Develop and Implement a Plan to Replace Affected Riparian Habitat.

The City's preferred approach is to avoid causing any impacts to riparian areas, if feasible. Before implementation of treatment activities, the City, under the direction of a qualified biologist, shall flag or fence riparian areas to be avoided with brightly visible

construction flagging and/or fencing. For unavoidable impacts to riparian habitat, the City shall develop and implement a plan to replace riparian habitat affected by VMP activities.

For replacement of riparian habitat, native riparian trees 4-6 inches dbh removed for the Revised Draft VMP shall be replaced at a 2:1 ratio; native riparian trees larger than 6 inches dbh shall be replaced at a 3:1 ratio. These replacement trees shall be planted within riparian zones in the Revised Draft VMP area. Planted trees shall be monitored annually for 5 years to assess the effectiveness of replacement efforts, and results shall be reported to CDFW. The performance standard for success of the mitigation shall be 65 percent survival of planted trees after 5 years.

Alternatively, the City may preserve existing riparian habitat of equal or better value to the affected riparian habitat through a conservation easement at a sufficient ratio to offset the loss of riparian habitat function.

Mitigation Measure GEO-1: Minimize Area of Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity*, of this Recirculated DEIR.

Mitigation Measure HYD/WQ-1: Work Windows (VMP BMP GEN-1)

See text in Section 3.9, *Hydrology and Water Quality*, of this Recirculated DEIR.

Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, "Hazards and Hazardous Materials." Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Conclusion

Vegetation type conversion is not proposed under the Revised Draft VMP, and sensitive natural communities would remain following Revised Draft VMP treatment. Removal of trees within riparian habitat would impact this community. Overgrazing and herbicide drift could also impact sensitive natural communities. Implementation of Mitigation Measure BIO-5, BIO-~~13~~15, GEO-1, HAZ-4, and HAZ-5 would avoid and minimize impacts on sensitive natural communities. Thus, impacts would be **less than significant with mitigation.**

Impact BIO-3B: *Impacts Caused by Non-native and Invasive Species and Pathogens (*Less than Significant with Mitigation*)*

Revised Draft VMP treatment activities have potential to introduce or encourage the spread of non-native or invasive plant species and pathogens through the removal of existing vegetation, soil disturbance, transferring of plant and pathogen material, and vehicle and equipment operation in areas of such plants and pathogens. The introduction or spread of non-native or

invasive plants and pathogens could impact sensitive natural communities, causing adverse modifications to vegetation communities that represent habitat for special-status plant and animal species.

The Revised Draft VMP area is located within the Pitch Canker Zone of Infestation (CAL FIRE 1998) and SOD Zone of Infestation (CAL FIRE 2005) and the "Regulated Area" for sudden oak death (SOD) as designated by the California Department of Food and Agriculture (CDFA). Eucalyptus longhorn borer beetles have also been documented in the Revised Draft VMP area. Pitch canker is an introduced disease of pines caused by the fungus *Fusarium circinatum* (CAL FIRE 2013). Monterey pine is currently the most prevalent host for pitch canker (Gordon et al. 2012). Pitch canker impacts include crown dieback and mortality of infected trees of all sizes (CAL FIRE 2013). Pitch canker can spread through airborne spores, insects, pruning tools, and movement of logs from infected trees (CAL FIRE 2013).

Phytophthora species are microscopic oomycetes (water molds), and many *Phytophthora* species are known to be plant pathogens (Phytosphere Research 2018). SOD is a disease of oak trees caused by *Phytophthora ramorum* that also infects more than 100 other plant species (Alexander and Swain 2010). It is estimated to have killed more than one million oaks and tanoaks (*Notholithocarpus densiflorus*) between 2000 and 2010 (Alexander and Swain 2010). California bay trees are prevalent hosts of this pathogen, and they play a role in its spread to nearby oaks (Alexander and Swain 2010). SOD has been detected within the following VMP areas: Garber Park, Shepherd Canyon, Dimond Canyon Park, Joaquin Miller Park, Leona Heights Park, Knowland Park, and Sheffield Village (UC Berkeley 2016). SOD has also been detected in trees within or immediately adjacent to the priority roadside treatment area along Skyline Boulevard (UC Berkeley 2016). *Phytophthora cinnamomi* is another plant pathogen known to occur in the Revised Draft VMP area, which has killed pallid manzanitas in the Revised Draft VMP area (USFWS 2015). *Phytophthora* can be present in a variety of sites and materials, including commercial nursery stock, landscaped and agricultural areas, and natural areas. *Phytophthora* can be spread via soil, plant material and debris, and water from infested areas (Phytosphere Reasearch 2018).

A variety of plant species listed as invasive by the California Invasive Plant Council (Cal-IPC ~~2020~~2023) and/or listed as noxious weeds by CDFA (CDFA 2020) are present within the Revised Draft VMP area. Implementation of the Revised Draft VMP would include vegetation treatment on some rapidly spreading/highly flammable species that are also listed as invasive, such as French broom, Scotch broom, pampas grass, and jubata grass. Removal of these species would minimize their spread within the Revised Draft VMP area, which would be a beneficial impact. Implementation of the Revised Draft VMP would cause some degree of ground disturbance in treatment areas, which could lead to the spread of invasive plant species. Revised Draft VMP implementation would also involve crews and equipment moving among multiple sites, which could spread seeds or other propagules of invasive plant species to new areas.

Mechanical Treatments

Mechanical treatments would result in soil disturbance, increasing the potential for invasive species to establish in disturbed areas. Additionally, equipment used for mechanical treatment could carry pathogens or invasive species seeds from sites outside of the Revised Draft VMP area or from infested sites within the Revised Draft VMP area to uninfested sites. The spread of plant pathogens or invasive species into new, uninfested areas would be a significant impact.

Implementation of Mitigation Measure BIO-1 would reduce this impact by requiring staff training. Implementation of Mitigation Measure BIO-3 would reduce the risk of invasive plants establishing in disturbed areas by requiring seeding of exposed soil with native plant species. Implementation of **Mitigation Measure BIO-16~~14~~ (Prevent the Spread of Invasive Plants and Plant Pathogens)** would minimize the potential for spread of invasive plants and plant pathogens by requiring cleaning of equipment before arrival at a treatment site, sanitizing of equipment used in areas infested with pitch canker disease and/or SOD, and not transporting diseased wood outside of Alameda or Contra Costa Counties. Implementation of Mitigation Measure HAZ-1 would minimize the potential for spread of pathogens and invasive species by requiring equipment to be cleaned before being transferred and used in a different watershed. With implementation of these mitigation measures, impacts related to non-native and invasive species and pathogens from mechanical treatments would be less than significant.

Hand Labor Treatments

Hand labor treatments are not anticipated to result in substantial soil disturbance. Hand tools could carry pathogens or invasive species seeds from sites outside of the Revised Draft VMP area or from infested sites within the Revised Draft VMP area to uninfested sites. The spread of plant pathogens or invasive species into new, uninfested areas would be a significant impact. As described above, implementation of Mitigation Measure BIO-~~14~~16 would reduce the potential for spread of invasive plants and plant pathogens. With implementation of Mitigation Measure BIO-~~14~~16, impacts related to non-native and invasive species and pathogens from hand labor would be less than significant.

Grazing

Grazing treatments, when properly applied, can reduce invasive species within grasslands, which would be a beneficial impact (Huntsinger et al. 2007). Livestock used for vegetation treatment could transport invasive plants from outside the Revised Draft VMP area. However, grazing has been used as a vegetation management practice for many years in the Revised Draft VMP area and Revised Draft VMP grazing treatments generally overlap with existing grazing areas. In addition, the degree of increase in grazed area above baseline conditions would be less than significant. Therefore, impacts related to non-native and invasive species and pathogens from grazing would benefit grassland habitat and would be less than significant and no mitigation is required.

Herbicides

Most species targeted for herbicide application are considered invasive, such as French broom, Scotch broom, pampas grass, and jubata grass. Herbicide use is also proposed on blue gum eucalyptus (which has a Cal-IPC rating of “Limited”) and acacia species. Acacia species present in the Revised Draft VMP area include silver wattle (*Acacia dealbata*, Cal-IPC “Moderate”) and blackwood acacia (*Acacia melanoxylon*, Cal-IPC “Limited”). Treatment of invasive species with herbicide would reduce their abundance in the Revised Draft VMP area, which would be a beneficial impact. However, crews applying herbicide could carry pathogens or invasive species seeds from sites outside of the Revised Draft VMP area or from infested sites within the Revised Draft VMP area to uninfested sites. As described above, implementation of Mitigation Measure BIO-~~14~~16 would reduce the potential for spread of invasive plants and plant pathogens. With implementation of Mitigation Measure BIO-~~14~~16, impacts related to non-native and invasive

species and pathogens from herbicide would benefit habitats in the Revised Draft VMP area and would be less than significant.

Mitigation Measures

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-3: Seeding with Native Species (VMP BMP BIO-10)

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-16~~14~~: Prevent the Spread of Invasive Plants and Plant Pathogens

To minimize the spread of plant pathogens, the City and its contractors shall require that all equipment (including personal gear such as boots) shall be cleaned of soil, seeds, and plant material prior to arriving on a treatment site. All soil and organic material (e.g., roots, sap) shall be removed from the surfaces of equipment and clothing. If necessary, a detergent solution and brush shall be used to scrub surface contaminants at a utility sink.

Tools and machinery used to prune, cut, or chip trees infected with pitch canker disease shall be cleaned and sterilized before being used on uninfected trees or in uninfested areas. Tools and machinery used to prune, cut, or chip trees or shrubs in areas of known SOD infestation (currently Garber Park, Shepherd Canyon, Dimond Canyon Park, Joaquin Miller Park, Leona Heights Park, Knowland Park, Sheffield Village, and roadside areas of Skyline Boulevard) shall be cleaned and sterilized before being used in a new treatment area. Tools and machinery will be cleaned and sterilized prior to being used in proximity to known pallid manzanita populations. Ethyl or isopropyl alcohol (70-90%), 10% solution of bleach (1 part household bleach in 9 parts water), or a quaternary ammonium disinfectant (such as Lysol®) may be used. Proper use of ethyl or isopropyl alcohol involves spraying to thoroughly wet the surface and allowing to air dry before use. For freshly diluted bleach solution, exposure for a minimum of 1 minute is required. As bleach solutions degrade quickly, bleach solutions dispensed by spray bottles must be made fresh daily. Due to corrosivity, bleach solutions are not advised for steel or other materials that could be damaged by corrosion. Proper use of quaternary ammonium disinfectant involves use according to manufacturer recommendations.

Limbs and small pieces of wood from diseased trees may be chipped and the mulch deposited on site. Any material, including logs, that is removed from the site should be tightly covered with a tarp during transit and taken to the nearest landfill or designated disposal facility for prompt burial, chipping and composting, or burning. Diseased wood shall not be transported beyond Alameda or Contra Costa County.

Mitigation Measure HAZ-1: Vehicle and Equipment Maintenance (VMP BMP GEN-8)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Conclusion

Implementation of the Revised Draft VMP would result in increased potential for the spread and establishment of invasive species and pathogens from soil disturbance, equipment use, and grazing. However, implementation of Mitigation Measures BIO-1, BIO-3, BIO-1614, and HAZ-1 would reduce the potential for the introduction and spread of invasive plants and pathogens. Thus, the level of impact would be less **than significant with mitigation.**

Impact BIO-4: Potential Adverse Effects on Federally Protected or State-Protected Wetlands (*Less than Significant with Mitigation*)

Emergent wetlands are present within Joaquin Miller Park, Knowland Park, and Garber Park (Figure 3.4-1). Riverine habitat in the Revised Draft VMP area includes perennial, intermittent, and ephemeral streams (Figure 3.4-2), and small wetlands may be present along portions of these riverine habitats. As described in Impact BIO-3A, some Revised Draft VMP treatment projects and roadside treatment areas, including areas of dead and dying tree removal within 30-100 feet of roads, are located within 100 feet of creeks. Revised Draft VMP treatments are not anticipated to occur in wetland areas due to the low fire risk in these habitats. Most Revised Draft VMP treatments would occur in upland areas and would not result in direct disturbance to wetlands or other federally protected or state-protected waters.

Mechanical Treatments

Mechanical techniques have the potential to loosen and disturb soils. Without adequate protection measures in place, such activities could lead to indirect impacts on nearby wetlands or waters due to erosion, sedimentation, and siltation. Leaks and spills associated with the operation and maintenance of motorized equipment present another risk to wetlands and waters. It is possible that heavy equipment may need to cross stream channels to access treatment areas, which could cause temporary or permanent impacts to these features. Impacts that result in the loss of functions and values of affected wetlands or water features would be significant.

Implementation of the following mitigation measures would reduce the Revised Draft VMP's potential for impacts to federally protected or state-protected wetlands or waters. Implementation of Mitigation Measures BIO-1 and BIO-6 would reduce impacts on wetlands and waters by requiring staff training and proper trash storage and disposal. Implementation of **Mitigation Measure BIO-1715 (Avoid Impacts on Federally Protected Wetlands and Waters, as Feasible)** and **Mitigation Measure BIO-1816 (Provide Compensatory Mitigation for Unavoidable Impacts on Waters of the United States and the State)** would minimize impacts to wetlands and waters by avoiding impacts to these features and providing compensatory mitigation for unavoidable impacts, respectively. Implementation of Mitigation Measure GEO-1 would limit ground disturbance to the minimum footprint necessary to meet Revised Draft VMP objectives, leave stumps intact, and minimize heavy equipment use on steep slopes. Implementation of Mitigation Measure GEO-2 would require the use of erosion and sediment controls. Implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-5, HAZ-6, and HAZ-8 would ensure proper handling and use of herbicides and other hazardous materials, along with appropriate vehicle maintenance to prevent spills and leaks. Implementation of Mitigation Measure HYD/WQ-1 would limit vegetation treatment to periods without significant rainfall, limit herbicide use to the dry season, and limit work in waterbodies. Additionally, any Revised

Draft VMP treatment activity that would involve work within riparian habitat would require notification of CDFW under Section 1602 of the F&G Code, which is expected to result in additional impact reduction practices. With implementation of these mitigation measures, impacts on federally protected and state-protected wetlands and waters from mechanical treatments would be less than significant.

Hand Labor Treatments

In comparison to other treatments, hand labor treatments would likely have a low potential for increasing sedimentation or siltation of wetlands or waters. However, if hand labor treatments occurred in wetlands or waters, temporary impacts to these features could occur during vegetation removal. Impacts that result in the loss of functions and values of the wetland or water feature would be significant. Implementation of Mitigation Measures BIO-17~~15~~ and BIO-18~~16~~ would minimize impacts to federally protected and state-protected wetlands and waters by avoiding impacts to these features and providing compensatory mitigation for unavoidable impacts, respectively. Implementation of Mitigation Measure HYD/WQ-1 would limit vegetation treatment to periods without significant rainfall, herbicide use to the dry season, and work in waterbodies. With implementation of these mitigation measures, impacts on federally protected and state-protected wetlands and waters from hand labor would be less than significant.

Grazing

Grazing activities have the potential to denude vegetation, compact soils, and create livestock trails and areas of bare soil, which could lead to the formation of gullies and erosional features that result in sedimentation or siltation of wetlands or waters. Grazing animals could also cause erosion of streams with steep banks. Finally, grazing animals could congregate near water sources and degrade these features through the accumulation of manure and urine. Impacts that result in the loss of functions and values of the wetland or water feature would be significant. Implementation of Mitigation Measure BIO-5 would reduce the Revised Draft VMP's potential for impacts to wetlands or waters from grazing by requiring monitoring of livestock to ensure over-grazing does not occur, generally excluding livestock from riparian areas, completely excluding livestock from streams with steep banks, and requiring contractors to provide alternative water sources to avoid livestock reliance on natural water sources. With implementation of Mitigation Measure BIO-5, impacts on federally protected and state-protected wetlands and waters from grazing would be less than significant.

Herbicides

Herbicide use is not proposed in wetlands, but it is proposed on eucalyptus, acacia, French broom, Scotch broom, pampas grass, and jubata grass. If used near wetlands or waters, herbicide could have non-targeted impacts through drift of spray-applied herbicide on wetlands or waters. Additionally, herbicides could be transported into wetlands or waters through runoff if applied immediately before rain events. Impacts that result in the loss of functions and values of the wetland or water feature would be significant. Implementation of Mitigation Measure HAZ-4, which avoids herbicide application during high-wind conditions to minimize the potential for drift into wetlands and waters, and Mitigation Measure HAZ-5, which prohibits the use of herbicide within 60 feet of streams, would collectively reduce the potential for herbicide impacts on wetlands and streams. Implementation of Mitigation Measure HAZ-5 also requires herbicides to

be applied by a licensed applicator and limits the use of herbicides and surfactants to only those that have been approved for by USEPA. Implementation of Mitigation Measure HYD/WQ-1 would limit vegetation treatment to periods without significant rainfall, herbicide use to the dry season, and work in waterbodies. With implementation of these mitigation measures, impacts on federally protected and state-protected wetlands and waters from herbicide would be less than significant.

Mitigation Measures

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-6: Trash Removal (revised from VMP BMP BIO-7)

See text in Impact BIO-2A above.

Mitigation Measure BIO-17~~15~~: Avoid Impacts on Federally Protected and State-Protected Wetlands and Waters, as Feasible.

To the extent feasible, Revised Draft VMP activities shall avoid federally protected and state-protected wetlands and waters. If Revised Draft VMP treatments are planned to occur within or immediately adjacent to wetlands or waters, the City and its contractors shall restore surface topography and drainage to pre-implementation conditions. Where appropriate, revegetation shall be implemented with site-adapted native species.

Mitigation Measure BIO-18~~16~~: Provide Compensatory Mitigation for Unavoidable Impacts on Waters of the United States and the State.

Work within areas defined as waters of the U.S. that includes placement of fill will require a Clean Water Act (CWA) Section 404 permit and Section 401 Water Quality Certification. All work proposed in jurisdictional waters of the U.S. must be authorized under these permits, and the work must comply with the general and regional conditions of the permits. In areas where permanent loss of jurisdictional waters or wetlands would result, the City shall ensure that mitigation is implemented such that no net loss would occur for permanent impacts, consistent with the terms of the CWA Section 404 permit, the Final Rule on Compensatory Mitigation for Losses of Aquatic Resources (73 Code of Federal Regulations [CFR] 19594), and the Regional Compensatory Mitigation and Monitoring Guidelines for the South Pacific Division (U.S. Army Corps of Engineers [USACE] 2015, or current version). Compensatory mitigation may include purchase of credits from an approved mitigation bank or in-lieu fee program, or creation, reestablishment, or enhancement of wetlands in the Revised Draft VMP area or at an off-site location. At a minimum, mitigation shall be provided at a ratio that ensures no net loss of the functions and values associated with the affected resources.

Mitigation Measure GEO-1: Minimize Soil Disturbance (VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculated DEIR.

Mitigation Measure GEO-2: Erosion and Sediment Control Measures (VMP BMP GEN-3)

See text in Section 3.6 of the prior 2020 DEIR, *Geology, Soils, and Seismicity*. Full text also provided in Impact BIO-2A above.

Mitigation Measure HAZ-1: Vehicle and Equipment Maintenance (VMP BMP GEN-8)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-2: Vehicle and Equipment Fueling (VMP BMP GEN-9)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided below.

Mitigation Measure HAZ-3: On-Site Hazardous Materials Management (VMP BMP GEN-5)

The City and its contractors shall implement the following measures:

- No fueling shall be done in stream channels (top-of-bank to top-of-bank) or immediate floodplain.
- All off-site fueling sites (i.e., on access roads above the top-of-bank) shall be equipped with secondary containment and avoid a direct connection to soil, surface water, or the storm drainage system.
- For stationary equipment that must be fueled on-site, secondary containment, such as a drain pan or drop cloth, shall be used to prevent accidental spills of fuels from reaching soil, surface water, or the storm drain system.

Mitigation Measure HAZ-3: On-Site Hazardous Materials Management (VMP BMP GEN-5)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided below.

The City and its contractors shall implement the following measures:

- An inventory of all hazardous materials used (and/or expected to be used) at the work site and the end products that are produced (and/or expected to be produced) after their use shall be maintained by the worksite manager.
- As appropriate, containers shall be properly labeled with a “Hazardous Waste” label and hazardous waste shall be recycled or disposed of properly off-site at an appropriate hazardous waste facility.
- Contact of chemicals with precipitation shall be minimized by storing chemicals in watertight containers or in a storage shed (completely enclosed), with appropriate secondary containment to prevent any spillage or leakage.

- Petroleum products, chemicals, cement, fuels, lubricants, non-storm-drainage water, and water contaminated with the aforementioned materials shall not contact soil and shall not be allowed to enter surface waters or the storm drainage system.

- All toxic materials, including waste disposal containers, shall be covered when not in use and located as far as possible from any direct connection to the storm drainage system or surface water.

- All trash that is brought to a project site during maintenance activities (e.g., plastic water bottles, lunch bags or other trash) shall be removed from the site daily.

Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-6: Spill Prevention and Response (VMP BMP GEN-7)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided below.

- City personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm-drainage water into channels by following these measures:

    1. New City field personnel shall be trained appropriately in spill prevention, hazardous material control, and cleanup of accidental spills.

    2. Equipment and materials for cleanup of spills shall be available on site at all times, and spills and leaks shall be cleaned up immediately and disposed of at a hazardous waste facility.

    3. City field personnel shall ensure that hazardous materials are handled properly, and natural resources are protected by all reasonable means.

    4. Spill prevention kits shall always be in close proximity when City personnel are using hazardous materials (e.g., at crew trucks and other reasonable locations). All City field personnel shall be advised of these locations.

    5. City personnel shall routinely inspect the work site, vehicles, and equipment to verify that spill prevention and response measures are

implemented and maintained properly. All leaks shall be repaired promptly. Drip pans shall be used to catch leaks until repairs are made.

- For small spills on impervious surfaces, absorbent materials shall be used to remove the spill, rather than hosing it down with water. For small spills on pervious surfaces such as soil, the spill area shall be excavated and properly disposed of rather than being buried. Absorbent materials shall be collected and disposed of properly and promptly.

- All significant spills of hazardous materials, including oil, shall be reported immediately. To report a spill: (1) Dial 911 or your local emergency response number; and (2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Mitigation Measure HAZ-8: Existing Hazardous Materials (VMP BMP GEN-6)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided below.

The City and its contractors shall implement the following measures:

- If previously unknown hazardous contaminants, including oil, batteries, or paint cans, are encountered during vegetation management work, City personnel will carefully remove and dispose of hazardous materials at an appropriate hazardous waste disposal facility. In the event that hazardous contaminates are discovered that are beyond the means of the City's disposal capabilities, then the City will contact Alameda County Public Health Department to determine what measures need to be implemented to address the hazardous materials and ensure that the work site is safe for people and the environment.

- City personnel will wear proper protective gear when handling hazardous materials. All contaminated materials will be stored in appropriate hazardous waste containers for transport and disposal at a permitted hazardous waste facility.

Mitigation Measure HYD/WQ-1: Work Windows (VMP BMP GEN-1)

See text in Section 3.9, *Hydrology and Water Quality*, of this Recirculated DEIR.

Conclusion

Implementation of the Revised Draft VMP could result in impacts to federally protected or state-protected wetlands or waters through sedimentation and siltation, equipment crossing of wetlands or waters, accumulation of manure and urine from grazing animals, and herbicide transport into wetlands or waters through aerial drift or runoff. Implementation of Mitigation Measures BIO-1, BIO-5, BIO-6, BIO-17~~15~~, BIO-18~~16~~, GEO-1, GEO-2, HAZ-1, HAZ-2, HAZ-3, HAZ-4, HAZ-5, HAZ-6, HAZ-8, and HYD/WQ-1 would avoid and minimize potential impacts during and following Revised Draft VMP activities. Therefore, impacts on federally protected and state-protected wetlands and waters would be **less than significant with mitigation.**

Impact BIO-5: Potential Interference with Wildlife Movement, Established Wildlife Corridors, or the Use of Native Wildlife Nursery Sites (*Less than Significant with Mitigation*)

Impacts to non-special-status birds are discussed in Impact BIO-2B, and impacts to special-status bats and CEQA-relevant bats are discussed in Impact BIO-2C, above.

Impact BIO-5A: *Wildlife Movement (*Less than Significant*)*

The Revised Draft VMP area is located within the WUI, where recreational trails and nearby residential development represent most of the surrounding land uses. Portions of the Revised Draft VMP area, particularly large parks (such as Joaquin Miller Park and Knowland Park) and parks along streams (such as Dimond Canyon Park and Leona Heights Park) and associated riparian habitat provide important movement corridors for wildlife. Implementation of Revised Draft VMP treatments may cause wildlife to avoid these areas during treatment activities. However, Revised Draft VMP treatment activities would be relatively short in duration and would not result in permanent access restrictions or barriers to movement for wildlife. Wildlife would be able to move around Revised Draft VMP treatment projects during implementation. Finally, implementation of the Revised Draft VMP would not result in conversion of habitat types. For these reasons and in consideration of the abundant natural vegetation communities outside of areas undergoing active treatment at a given time, impacts on wildlife movement would be less than significant. Although impacts to wildlife movement would be less than significant, implementation of wildlife-friendly fencing during grazing treatments as required in Mitigation Measure BIO-5 would further reduce the impact of fencing on wildlife movement.

Conclusion

Wildlife movement corridors are present within the Revised Draft VMP area, but implementation of the Revised Draft VMP would not result in permanent barriers to movement and conversion of habitat types would not occur. Therefore, impacts on wildlife movement would be **less than significant** and no mitigation is required; however, implementation of Mitigation Measure BIO-5 would provide additional protection for ~~natural vegetation communities from~~ wildlife movement**.**

Impact BIO-5B: *Potential Adverse Effects on Non-special-status Fish (*Less than Significant with Mitigation*)*

Streams in the Revised Draft VMP area provide important habitat for fish, including breeding habitat. Resident rainbow trout are present in the Revised Draft VMP area in perennial streams in the Sausal Creek watershed, including Sausal, Palo Seco, and Shepherd Creeks (Laurel Marcus and Associates et al. 2010). Other non-special-status fish potentially present in streams within the Revised Draft VMP area include riffle sculpin (present in Sausal Creek) (Leidy et al. 2020).

All Treatments

Revised Draft VMP activities would generally occur in upland areas, which would reduce the potential for impacts to fish. Revised Draft VMP activities are generally anticipated to occur farther than 100 feet from streams, in accordance with the City's Creek Protection Ordinance. However, some Revised Draft VMP treatments would occur within 100 feet of streams, as described in Table 3.4-4 in Impact BIO-2A. For Revised Draft VMP activities in creekside parcels,

a Creek Protection Permit would be required. Removal of riparian vegetation could reduce shading of streams and increase water temperatures, reducing habitat quality for fish. Implementation of Mitigation Measure BIO-1 would reduce impacts on fish by requiring staff training. As described in Impact BIO-3A, implementation of Mitigation Measure BIO-15~~13~~, which requires the development and implementation of a plan to replace riparian resources, would reduce the potential for impacts to riparian vegetation. With implementation of these mitigation measures, impacts on fish from Revised Draft VMP activities would be less than significant.

Mechanical Treatments

As described in Impact BIO-4 and Section 3.9, *Hydrology and Water Quality*, Revised Draft VMP treatments have the potential to loosen and disturb soils. Without adequate protection measures in place, such activities could lead to impacts on fish due to erosion, sedimentation, and siltation. Leaks and spills associated with the operation and maintenance of motorized equipment would present another impact to fish habitat. It is possible that heavy equipment may need to cross stream channels to access treatment areas, which could cause temporary or permanent impacts to fish habitat. Impacts that result in death of native fish at a level that jeopardizes the ability of the local population to recover would be significant. For the purposes of this analysis, this significance level is defined as five individual native fish per lake, reservoir, stream, or waterbody per day, based on CDFW bag (e.g., "take") limits in western Alameda County.

Implementation of Mitigation Measures BIO-17~~15~~ and BIO-18~~16~~ would minimize impacts to wetlands and waters by avoiding these features and providing compensatory mitigation for unavoidable impacts. Implementation of Mitigation Measure GEO-1 would limit ground disturbance to the minimum soil footprint necessary to meet objectives, require leaving stumps intact, and minimize heavy equipment use on steep slopes. Implementation of Mitigation Measure GEO-2 would require the use of erosion and sediment controls. Implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-5, HAZ-6, and HAZ-8 would ensure proper handling and use of herbicides and other hazardous materials, and maintaining vehicles to prevent spills and leaks. Implementation of Mitigation Measure HYD/WQ-1 would limit vegetation treatment to periods without significant rainfall, limit herbicide use to the dry season, and limit work in waterbodies. With implementation of these mitigation measures, impacts on non-special-status fish from mechanical treatments would be less than significant.

Hand Labor Treatments

Hand labor treatments are not anticipated to result in significant impacts on fish, because these activities would not be conducted in aquatic habitat.

Grazing

VMP grazing treatments are not anticipated to result in direct injury or mortality of fish. If grazing were to occur within streams or riparian habitats, temporary impacts to fish habitat could occur. Grazing could increase sedimentation into streams, temporarily reducing habitat quality for fish. Over several years, grazing could cumulatively result in stream bank failure, erosion, and successive sedimentation, all of which could permanently alter suitable fish habitat. Implementation of Mitigation Measure BIO-5 would reduce these impacts by generally

excluding livestock from riparian areas, completely excluding livestock from streams with steep banks, requiring grazing lessees or contractors to provide alternative (i.e., other than natural) water sources for livestock, and monitoring to prevent over-grazing. With implementation of this mitigation measure, impacts on non-special-status fish from grazing would be less than significant.

Herbicides

If used near streams, herbicides may enter these habitats through drift of spray-applied herbicide wetlands or waters. Additionally, herbicides could be transported into streams or other waterbodies through runoff if applied immediately before rain events. If herbicides were to enter streams or other aquatic habitat containing fish, fish could be killed or harmed. This would be a significant impact. Implementation of Mitigation Measure HAZ-4, which requires measures to avoid or minimize adverse effects on non-target organisms during herbicide application, and Mitigation Measure HAZ-5, which requires herbicides to be applied by a licensed applicator, would collectively avoid herbicide use during windy conditions and other site-specific conditions that would exacerbate herbicide drift and minimize the potential for drift into fish habitat. Implementation of Mitigation Measure HAZ-5, which also prohibits the use of herbicide within 60 feet of streams, would reduce the potential for herbicide impacts on fish. With implementation of these mitigation measures, impacts on non-special-status fish from herbicides would be less than significant.

Mitigation Measures

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-15~~13~~: Avoid Riparian Habitat and Develop and Implement a Plan to Replace Affected Riparian Habitat

See text in Impact BIO-3A above.

Mitigation Measure BIO-17~~15~~: Avoid Impacts on Federally Protected Wetlands and Waters, as Feasible.

See text in Impact BIO-4 above.

Mitigation Measure BIO-18~~16~~: Provide Compensatory Mitigation for Unavoidable Impacts on Waters of the United States and the State

See text in Impact BIO-4 above.

Mitigation Measure GEO-1: Minimize Soil Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculated DEIR.

Mitigation Measure GEO-2: Erosion and Sediment Control Measures (VMP BMP GEN-3)

See text in Section 3.6 of the prior 2020 DEIR, *Geology, Soils, and Seismicity*. Full text also provided in Impact BIO-2A above.

Mitigation Measure HAZ-1: Vehicle and Equipment Maintenance (VMP BMP GEN-8)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-2: Vehicle and Equipment Fueling (VMP BMP GEN-9)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Impact BIO-4 above.

Mitigation Measure HAZ-3: On-Site Hazardous Materials Management (VMP BMP GEN-5)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Impact BIO-4 above.

Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-6: Spill Prevention and Response (VMP BMP GEN-7)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Impact BIO-4 above.

Mitigation Measure HAZ-8: Existing Hazardous Materials (VMP BMP GEN-6)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Impact BIO-4 above.

Mitigation Measure HYD/WQ-1: Work Windows (VMP BMP GEN-1)

See text in Section 3.9, *Hydrology and Water Quality*, of this Recirculated DEIR.

Conclusion

Implementation of the Revised Draft VMP could result in impacts to fish through sedimentation and siltation, equipment crossing of wetlands or waters, accumulation of manure and urine from grazing animals, and herbicide transport into wetlands or waters through aerial drift or runoff. Implementation of Mitigation Measures BIO-1, BIO-5, BIO-~~13, BIO-~~15, BIO-~~16~~17, BIO-18, GEO-1, GEO-2, HAZ-1, HAZ-2, HAZ-3, HAZ-4, HAZ-5, HAZ-6, HAZ-8, and HYD/WQ-1 would avoid

and minimize potential impacts on non-special-status fish species by generally avoiding grazing in riparian habitat and restricting grazing from streams to prevent erosion and sedimentation, requiring the development of a plan to replace riparian resources, avoiding impacts to wetlands and waters and providing compensatory mitigation for unavoidable impacts, limiting ground disturbance, requiring use of erosion and sediment controls, ensuring proper handling and use of herbicides and other hazardous materials, along with appropriate vehicle maintenance to prevent spills and leaks, limiting vegetation treatment to periods without significant rainfall, limiting herbicide use to the dry season, and limiting work in waterbodies~~.~~. Therefore, impacts on non-special-status fish species would be **less than significant with mitigation.**

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources (*Less than Significant with Mitigation*)

Local policies and ordinances protecting biological resources include the City of Oakland Protected Trees Ordinance, Hazardous Trees Ordinance, Creek Protection Ordinance, the City of Oakland General Plan, and Resolution 79133.

Resolution 79133 was adopted in 2005 and directed City staff to evaluate the selective use of glyphosate and triclopyr to manage vegetation for wildfire hazard reduction purposes.

All Treatments

The City would obtain a tree removal permit where necessary to remove protected trees. As described in Section 3.4.2, protected trees are defined as California or coast live oak trees measuring 4 inches dbh (single or aggregate of multiple trunks belonging to the same tree) or larger, and any other tree with a single trunk or aggregate of multiple trunks (except eucalyptus and Monterey pine) measuring 9 inches dbh or larger on any property. Protected trees also include Monterey pine trees where they occur on City property where more than five Monterey pine trees per acre are proposed to be removed. No tree removal permit is required for corrective actions performed under the Hazardous Tree Ordinance.

Eucalyptus trees are not considered protected trees under the Protected Trees Ordinance and are not discussed further. In the Revised Draft VMP (provided in Appendix A of this Recirculated DEIR), treatments in all forested vegetation types prioritize the retention of healthy trees. In the closed-cone pine-cypress habitat type, Monterey pine and Monterey cypress trees are dominant. Proposed Revised Draft VMP treatments in this habitat type include thinning mature pine or cypress stands to reach an average 30-foot horizontal spacing between trunks. This treatment approach would result in a post-treatment stand density of approximately 48 trees per acre. Treatments prioritize retention of healthy trees and removal of all single-stem pines and cypress with trunk diameters measuring less than 8 inches as well as removal of trees that pose an unreasonable fire and/or life safety risk (determined by a Certified Arborist, Licensed Forester, or Fire Safety Expert) (see Appendix A this Recirculated DEIR for more details). Prioritized retention of healthy trees and removal of smaller Monterey pine and cypress trees would reduce the impacts on these protected trees.

In acacia-dominated stands, proposed Revised Draft VMP treatments would thin these stands to reach an average 35-foot horizontal spacing between trunks. This treatment approach would result in a post-treatment stand density of approximately 36 trees per acre. As described in the Revised Draft VMP, treatments in eucalyptus, closed-cone pine-cypress, Urban (Acacia), and

Urban (Mixed Tree Stand) tree-dominated communities would prioritize retention of City-designated protected lower fire risk trees existing in these stands and incorporate them into the tree spacing standards identified above, which would also minimize impacts to protected trees.

In oak woodland and redwood habitat types, proposed tree removal activities would focus on the removal of individual eucalyptus, pine, or acacia trees from within these habitats. In redwood habitats, young redwood crown sprouts and sapling growth would be thinned, but three sprouts (trunks) would be retained per stump. Thinning of saplings and crown sprouts instead of mature trees would minimize impacts on protected size classes of redwoods.

Annual acreage of tree thinning is anticipated to be no more than approximately 3325 acres per year across the 10-year Revised Draft VMP timeline. Implementation of Mitigation Measure BIO-1513 would replace trees removed in riparian areas. Therefore, impacts related to conflict with the Protected Trees or Hazardous Trees Ordinances would be less than significant with mitigation.

Vegetation management activities on any creekside property (described in more detail in Impact BIO-3A) would require a Creek Protection Permit. The City would comply with the Creek Protection Ordinance by obtaining a permit for all Revised Draft VMP activities that are planned within creekside properties and complying with all applicable permit conditions. Therefore, impacts related to conflict with the Creek Protection Ordinance would be less than significant. Additionally, implementation of Mitigation Measure BIO-1513 would further reduce impacts by replacing trees removed in riparian areas.

The Revised Draft VMP would comply with the City's General Plan policies as described below. Compliance with General Plan Policy OS-1.1: Wildland Parks would be achieved by managing vegetation in City parks within the Revised Draft VMP area to reduce wildfire hazard while protecting natural resources within these parks. Compliance with General Plan Policy CO-6.1: Creek Management would be achieved by complying with the Creek Protection Ordinance. The Revised Draft VMP would comply with Objective CO-7: Plant Resources by not resulting in vegetation type conversion, removing vegetation based on fire hazard characteristics, and maintaining the wooded character of areas that are forested under baseline conditions. As described in Impact BIO-4, impacts to wetlands could occur under the Revised Draft VMP. Implementation of the mitigation measures described in Impact BIO-4 and listed below would avoid or minimize impacts to wetlands, in compliance with Objective CO-8: Wetlands. Implementation of Mitigation Measure GEO-2 would require the use of erosion and sediment controls. Implementation of Mitigation Measures, HAZ-1, HAZ-2, HAZ-3, HAZ-5, HAZ-6, and HAZ-8 would ensure proper handling and use of herbicides and other hazardous materials, and maintaining vehicles to prevent spills and leaks. Implementation of Mitigation Measures BIO-1715 and BIO-1816 would minimize impacts to wetlands and waters by avoiding impacts to these features and providing compensatory mitigation for unavoidable impacts.

Impact BIO-1 describes the potential for impacts to rare, endangered, or threatened species. Implementation of the mitigation measures described in Impact BIO-1 would minimize the potential for impacts, complying with Objective CO-9: Rare, Endangered, or Threatened Species. Implementation of Mitigation Measures BIO-1 through BIO-5, GEO-1, HAZ-4, and HAZ-5 would reduce potential impacts through staff training, pre-implementation surveys for ~~listed~~special-status plants, implementation of avoidance buffers, compensatory mitigation if impacts are

~~above thresholds~~unavoidable, avoidance of Presidio clarkia sensitive time periods, seeding with native plant species, exclusion of grazing animals from special-status plant populations, and minimizing potential for herbicide to inadvertently be applied to special-status plants.

Implementation of the following measures would also be protective of non-special-status wildlife, in accordance with Objective CO-11: Wildlife. Implementation of Mitigation Measures HYD/WQ-1, HAZ-4, HAZ-5, GEO-1, GEO-2, BIO-5 through BIO-9 would prevent herbicide use in riparian habitat and contact with aquatic habitat, generally avoid grazing in riparian habitat and restrict grazing from streams to prevent erosion and sedimentation, prevent increased predation pressure on both special-status and non-special-status species through proper trash storage and removal, minimize the footprint of disturbance, implement erosion and sediment controls to prevent impacts to aquatic habitat, restrict herbicide use near suitable California red-legged frog and western pond turtle aquatic habitat, require pre-activity surveys and implement necessary avoidance measures to prevent impacts on California red-legged frog and western pond turtle, and require pre-activity surveys and implement avoidance measures to prevent impacts on Alameda whipsnake. Implementation of Mitigation Measure BIO-10 would reduce the potential for significant impacts on special-status and non-special-status birds by conducting pre-activity nesting bird surveys and establishing species-appropriate avoidance buffers where active bird nests are found. Implementation of Mitigation Measure BIO-11 would reduce the potential for impacts on special-status bats through evaluation and identification of trees with high-quality bat habitat by a qualified biologist, avoidance of maternity roosts through resigning/rescheduling work or no-disturbance buffers, and exclusion of bats from occupied non-breeding roosts during periods shall minimize impacts on bats present. Implementation of Mitigation Measure BIO-12 would minimize these impacts on woodrats by avoiding houses and maintaining an intact escape corridor, where feasible; and hand-dismantling of houses by a qualified biologist if avoidance is not feasible. Implementation of Mitigation Measure HYD/WQ-1 would reduce impacts on bats by restricting work to daylight hours (except in case of an emergency), when bats are not active. Implementation of Mitigation Measure BIO-13 would reduce the potential for impacts on special-status invertebrates by requiring pre-treatment surveys for monarch butterfly host plants (milkweeds) and overwintering sites and avoidance of occupied milkweed and overwintering sites. Implementation of Mitigation Measure BIO-14 would reduce the potential for impacts on special-status invertebrates through pre-construction surveys and creation of non-disturbance buffers if listed bumble bee nests are detected.

As is the stated intent of the Revised Draft VMP, the City would manage vegetation so that the risk of catastrophic wildfire is minimized, in accordance with Objective CO-10: Vegetation Management.

The North Oakland Hills Area Specific Plan (City of Oakland 1986) includes vegetation management prescriptions for new development within the portion of the Revised Draft VMP area covered by the specific plan. Implementation of the Revised Draft VMP would not be considered development of Revised Draft VMP parcels. However, Revised Draft VMP treatments are generally consistent with vegetation management prescriptions in the specific plan.

With implementation of the identified mitigation measures, impacts related to conflicts with local policies or ordinances protecting biological resources would be less than significant.

Herbicides

Consistent with Resolution 79133, this EIR constitutes an evaluation of limited herbicide use on City-owned properties designated as a high wildfire hazard for the purposes of managing vegetation for wildfire risk reduction. Implementation of herbicide treatments under the Revised Draft VMP would not conflict with Resolution 79133; therefore, the impact of herbicides would be less than significant and no mitigation is required.

Mitigation Measures

Mitigation Measure BIO-1: Provide Biologist Review and Worker Training

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-2A: Avoid Special-Status Plant Species (revised from VMP BMP BIO-3)

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-2B: Provide Compensatory Mitigation for Special-Status Plant Species

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-3: Seeding with Native Species (VMP BMP BIO-10)

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-4: Avoid Presidio Clarkia Sensitive Time Periods

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)

See text in Impact BIO-1~~A~~ above.

Mitigation Measure BIO-6: Trash Removal (revised from VMP BMP BIO-7)

See text in Impact BIO-2A above.

Mitigation Measure BIO-7: Protection of Alameda Whipsnake (VMP BMP BIO-5)

See text in Impact BIO-2A above.

Mitigation Measure BIO-8: Protection of California Red-legged Frogs and Western Pond Turtles (revised from VMP BMP BIO-4)

See text in Impact BIO-2A above.

Mitigation Measure BIO-9: Protection of California Red-legged Frogs from Herbicide Use (VMP BMP BIO-2)

See text in Impact BIO-2A above.

Mitigation Measure BIO-10: Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures (revised from VMP BMP BIO-1)

See text in Impact BIO-2B above.

Mitigation Measure BIO-11: Protection of Bat Colonies (VMP BMP BIO-8)

See text in Impact BIO-2C above.

Mitigation Measure BIO-12: Protection of Dusky-footed Woodrats (VMP BMP BIO-9)

See text in Impact BIO-2C above.

Mitigation Measure BIO-13: Avoid Monarch Butterfly Host Plants and Overwintering Sites

See text in Impact BIO-2D above.

Mitigation Measure BIO-14: Avoid Crotch Bumble Bee Nests

See text in Impact BIO-2D above.

Mitigation Measure BIO-15: Avoid Riparian Habitat and Develop and Implement a Plan to Replace Affected Riparian Habitat.

See text in Impact BIO-3A above.

Mitigation Measure BIO-~~15~~17: Avoid Impacts on Federally Protected Wetlands and Waters, as Feasible.

See text in Impact BIO-4 above.

Mitigation Measure BIO-~~16~~18: Provide Compensatory Mitigation for Unavoidable Impacts on Waters of the United States and the State.

See text in Impact BIO-4 above.

Mitigation Measure GEO-1: Minimize Soil Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculated DEIR.

Mitigation Measure GEO-2: Erosion and Sediment Control Measures (VMP BMP GEN-3)

See text in Section 3.6 of the prior 2020 DEIR, *Geology, Soils, and Seismicity*. Full text also provided in Impact BIO-2A above.

Mitigation Measure HAZ-1: Vehicle and Equipment Maintenance (VMP BMP GEN-8)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-2: Vehicle and Equipment Fueling (VMP BMP GEN-9)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Impact BIO-4 above.

Mitigation Measure HAZ-3: On-Site Hazardous Materials Management (VMP BMP GEN-5)

See text in Section 3.8 or the prior 2020 DEIR, *Hazards and Hazardous Materials.* Full text also provided in Impact BIO-4 above.

Mitigation Measure HAZ-4: Measures to Avoid or Minimize Adverse Effects on People, Pets, or Other Non-Target Organisms from Use of Herbicides

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-6: Spill Prevention and Response (VMP BMP GEN-7)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Impact BIO-4 above.

Mitigation Measure HAZ-8: Existing Hazardous Materials (VMP BMP GEN-6)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Impact BIO-4 above.

Mitigation Measure HYD/WQ-1: Work Windows (VMP BMP GEN-1)

See text in Section 3.9, *Hydrology and Water Quality*, of this Recirculated DEIR.

Conclusion

The City would comply with applicable tree protection, creek protection, and general plan policies to protect biological resources. Limited herbicide use as proposed in the Revised Draft VMP would be consistent with local plans and policies as well as with Resolution 79133. With the implementation of the mitigation measures identified above, impacts related to conflicts with local policies or ordinances protecting biological resources would be **less than significant with mitigation**.

Impact BIO-7: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan (*No Impact*)

The Revised Draft VMP area is located within the Pacific Gas and Electric Company (PG&E) Bay Area Operations and Maintenance ~~Habitat Conservation Plan (~~HCP~~)~~ boundary (82 FR 15063). Species covered under this HCP that could also occur in the Revised Draft VMP area are the California red-legged frog and Alameda whipsnake. The Revised Draft VMP is not a PG&E-covered

activity under the HCP and would not conflict with the HCP's conservation strategy or provisions. The Revised Draft VMP area is not covered within any other HCPs; therefore, the Revised Draft VMP would not conflict with provisions adopted by an HCP, NCCP, or other approved local, regional, or state habitat conservation plan (CDFW 2019~~b~~, USFWS 2019).

Conclusion

There would be **no impact**.

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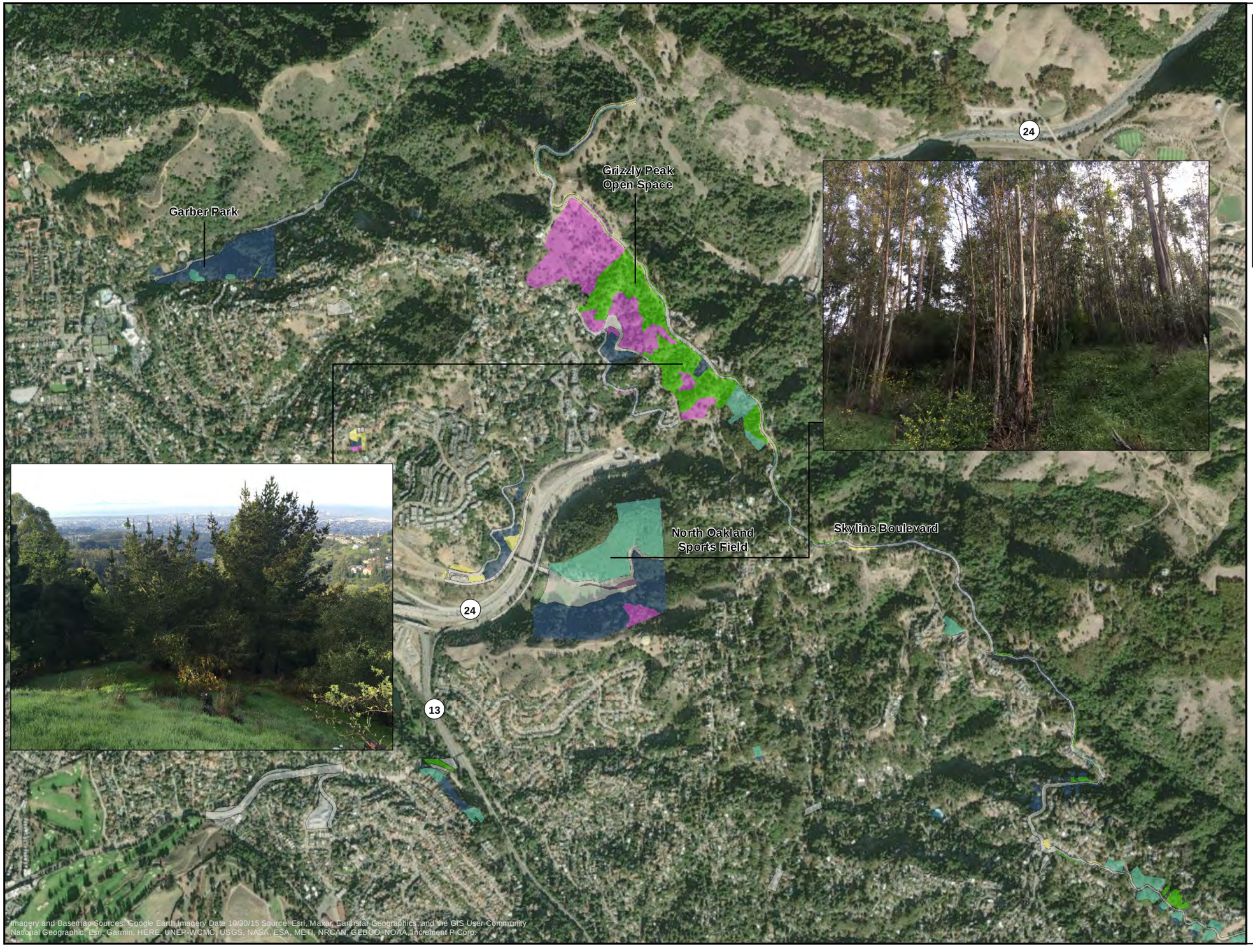

Habitat Types

- Annual Grassland
- Coast Oak Woodland
- Closed-cone Pine-Cypress
- Coastal Scrub
- Eucalyptus
- Freshwater Emergent Wetland
- Urban
- Valley/foothill Riparian

N

0 0.25 0.5

Miles

Figure 3.4-1.
Habitats in the Revised Draft VMP Area
Sheet 1 of 5

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

Imagery and Basemap Sources: Google Earth Imagery Date 10/30/15 Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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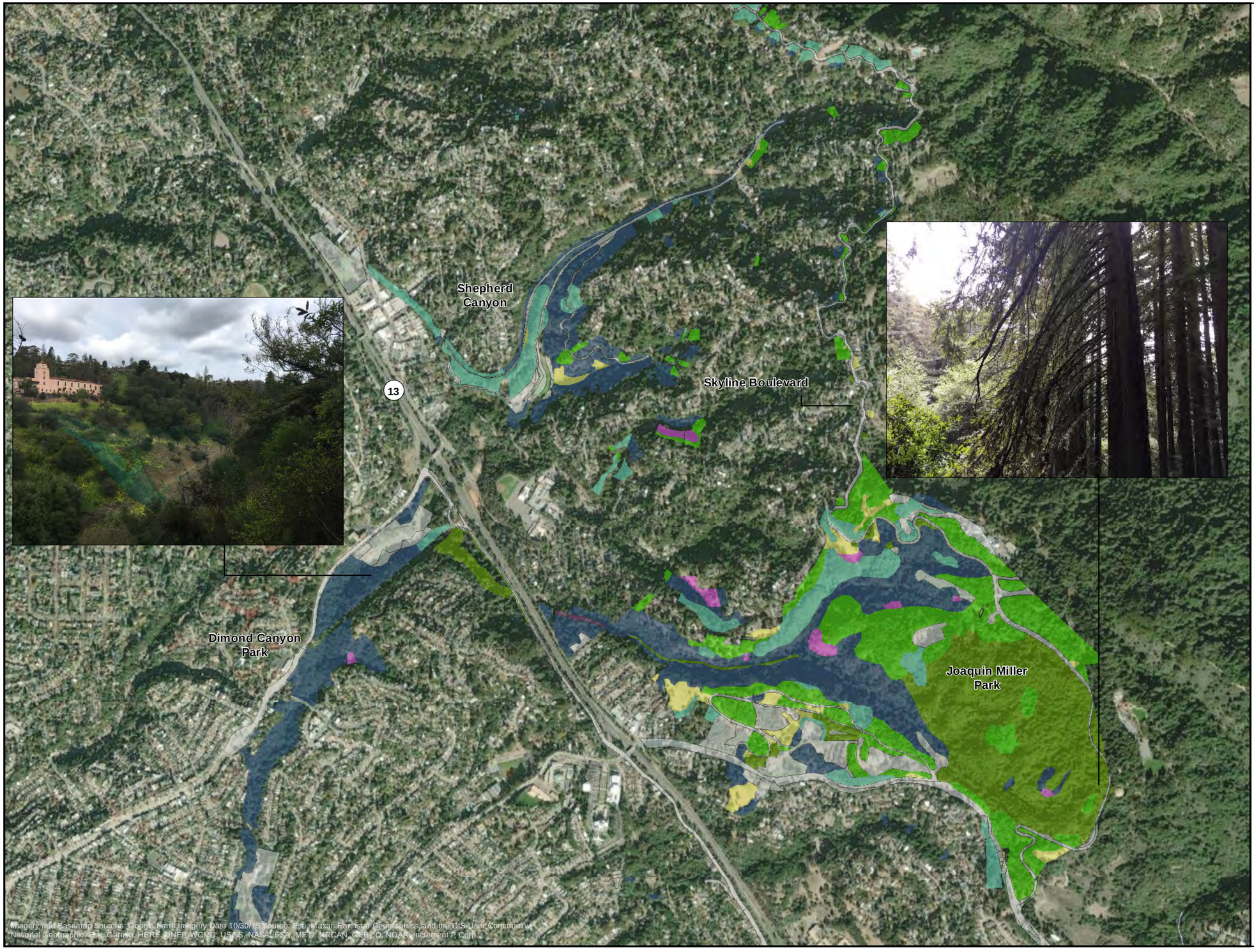

Habitat Types

- Annual Grassland
- Coast Oak Woodland
- Closed-cone Pine-Cypress
- Coastal Scrub
- Eucalyptus
- Freshwater Emergent Wetland
- Redwood
- Urban
- Valley/foothill Riparian

N

0 0.25 0.5

Miles

Figure 3.4-1.
Habitats in the Revised Draft VMP Area
Sheet 2 of 5

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

Imagery and Baseman Sources: Google Earth Imagery Date 10/30/15 Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community, National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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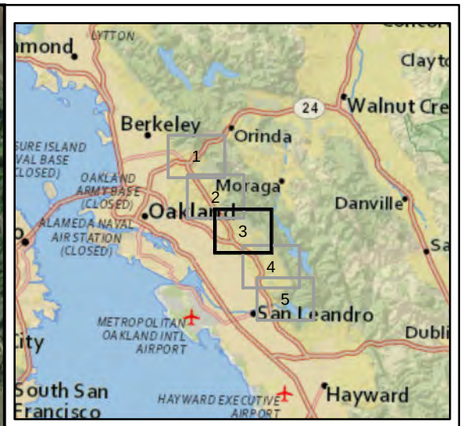

Habitat Types

- Annual Grassland
- Coast Oak Woodland
- Closed-cone Pine-Cypress
- Coastal Scrub
- Eucalyptus
- Redwood
- Urban

N

0 0.25 0.5

Miles

Figure 3.4-1.
Habitats in the Revised Draft VMP Area
Sheet 3 of 5

Revised Draft Vegetation Management Plan
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Environmental Impact Report

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T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure3-4-1_Vegetation_082523.mxd RH 8/25/2023

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Habitat Types

- Annual Grassland
- Coast Oak Woodland
- Closed-cone Pine-Cypress
- Coastal Scrub
- Eucalyptus
- Freshwater Emergent Wetland
- Mixed Chaparral
- Perennial Grassland
- Redwood
- Urban

N

0 0.25 0.5
Miles

Figure 3.4-1.
Habitats in the Revised Draft VMP Area
Sheet 4 of 5

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA Figure3-4-1_Vegetation_082523.mxd RH 8/25/2023

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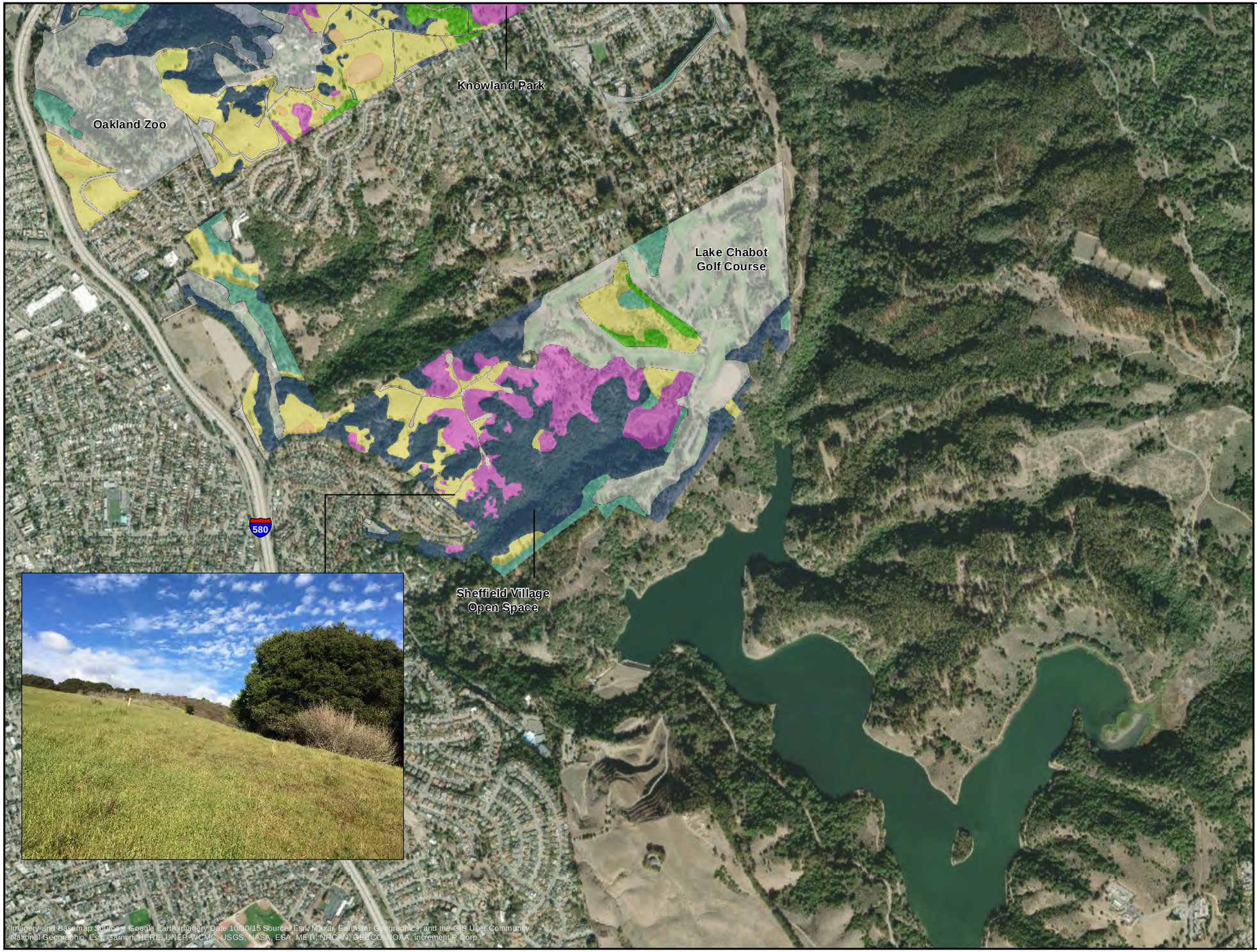

Habitat Types

- Annual Grassland
- Coast Oak Woodland
- Closed-cone Pine-Cypress
- Coastal Scrub
- Eucalyptus
- Freshwater Emergent Wetland
- Mixed Chaparral
- Perennial Grassland
- Redwood
- Urban

N

0 0.25 0.5

Miles

Figure 3.4-1.
Habitats in the Revised Draft VMP Area
Sheet 5 of 5

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure3.4-1_Vegetation_082523.mxd RH 8/25/2023

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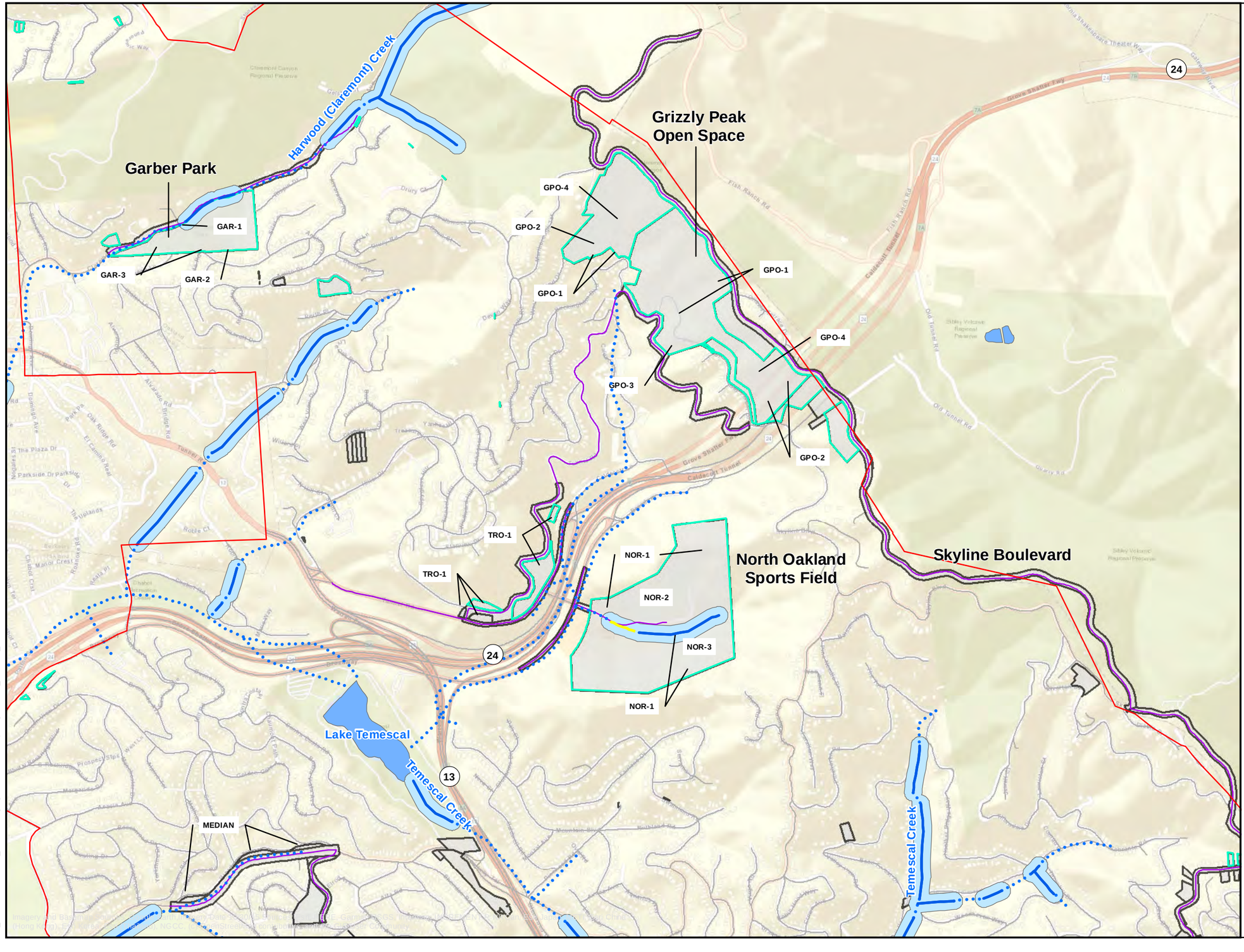

Priority 1 Roadside Treatment Areas

VMP Roadsides

VMP Parcels

VMP Creekside Parcels

Very High Fire Hazard Severity Zone

Oakland City Limits

Creek 100-foot buffer

Western Alameda County Creeks

Creek

Engineered channel

Underground culvert or storm drain

National Hydrography Database (NHD)

Lake or Pond

N

0 0.25 0.5

Miles

Figure 3-4.2.
Sheet 1 of 6
Lakes and Streams in the Revised Draft VMP Area

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure3-4-2_Streams_082323.mxd RH 8/23/2023

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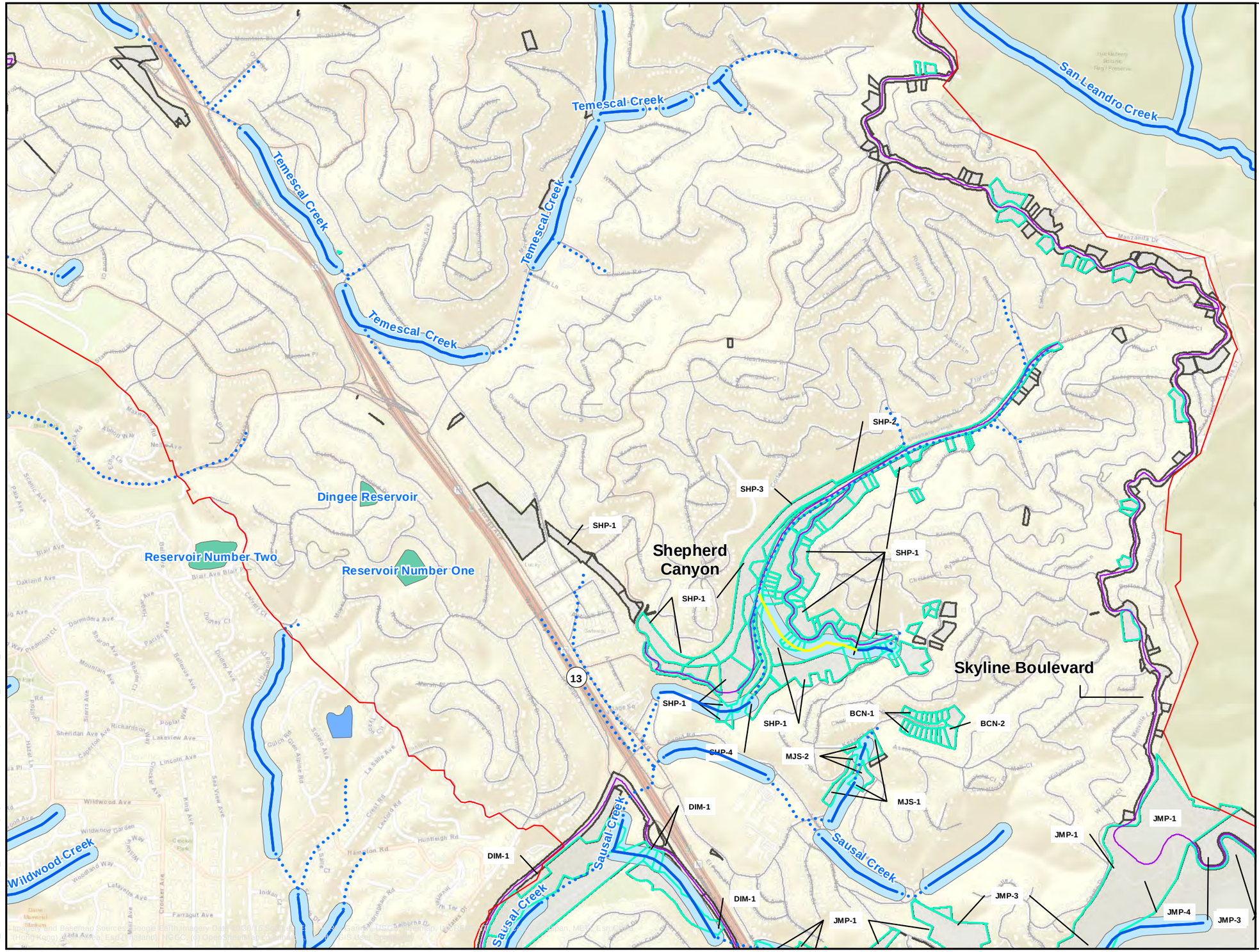

Priority 1 Roadside Treatment Areas

VMP Roadsides

VMP Parcels

VMP Creekside Parcels

Very High Fire Hazard Severity Zone

Oakland City Limits

Creek 100-foot buffer

Western Alameda County Creeks

Creek

Engineered channel

Underground culvert or storm drain

National Hydrography Database (NHD)

Lake or Pond

Reservoir

N

0 0.25 0.5

Miles

Figure 3-4.2.
Sheet 2 of 6
Lakes and Streams in the Revised Draft VMP Area

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure3-4-2_Streams_082323.mxd RH 8/23/2023

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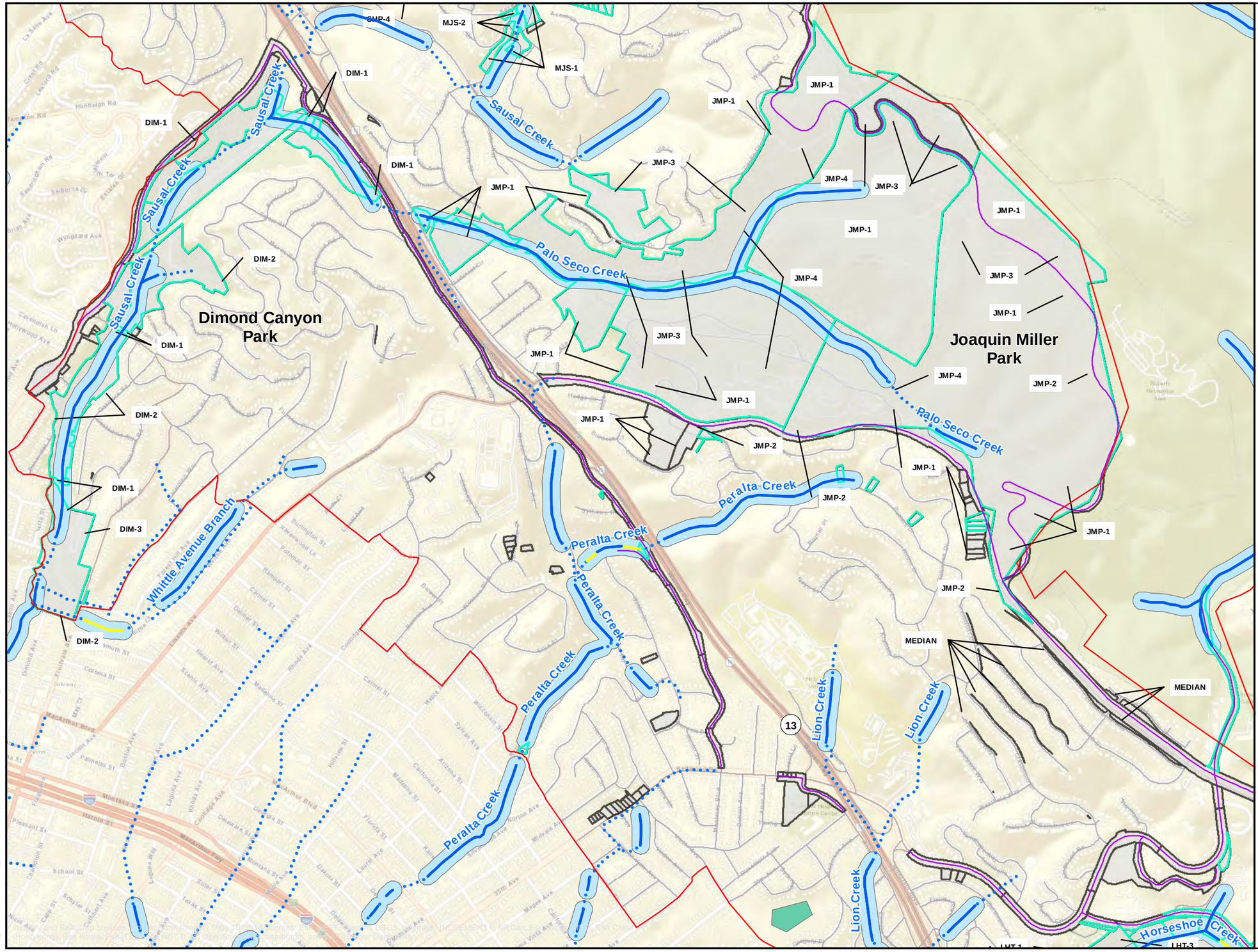

Priority 1 Roadside Treatment Areas

VMP Roadsides

VMP Parcels

VMP Creekside Parcels

Very High Fire Hazard Severity Zone

Oakland City Limits

Creek 100-foot buffer

Western Alameda County Creeks

Creek

Engineered channel

Underground culvert or storm drain

National Hydrography Database (NHD)

Lake or Pond

Reservoir

N

0 0.25 0.5

Miles

Figure 3-4.2.
Sheet 3 of 6
Lakes and Streams in the Revised Draft VMP Area

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

T:_PROJECTS\L6042_OaklandVegMgmtPlan\mxd\CEQA\Figure3-4-2_Streams_082323.mxd RH 8/23/2023

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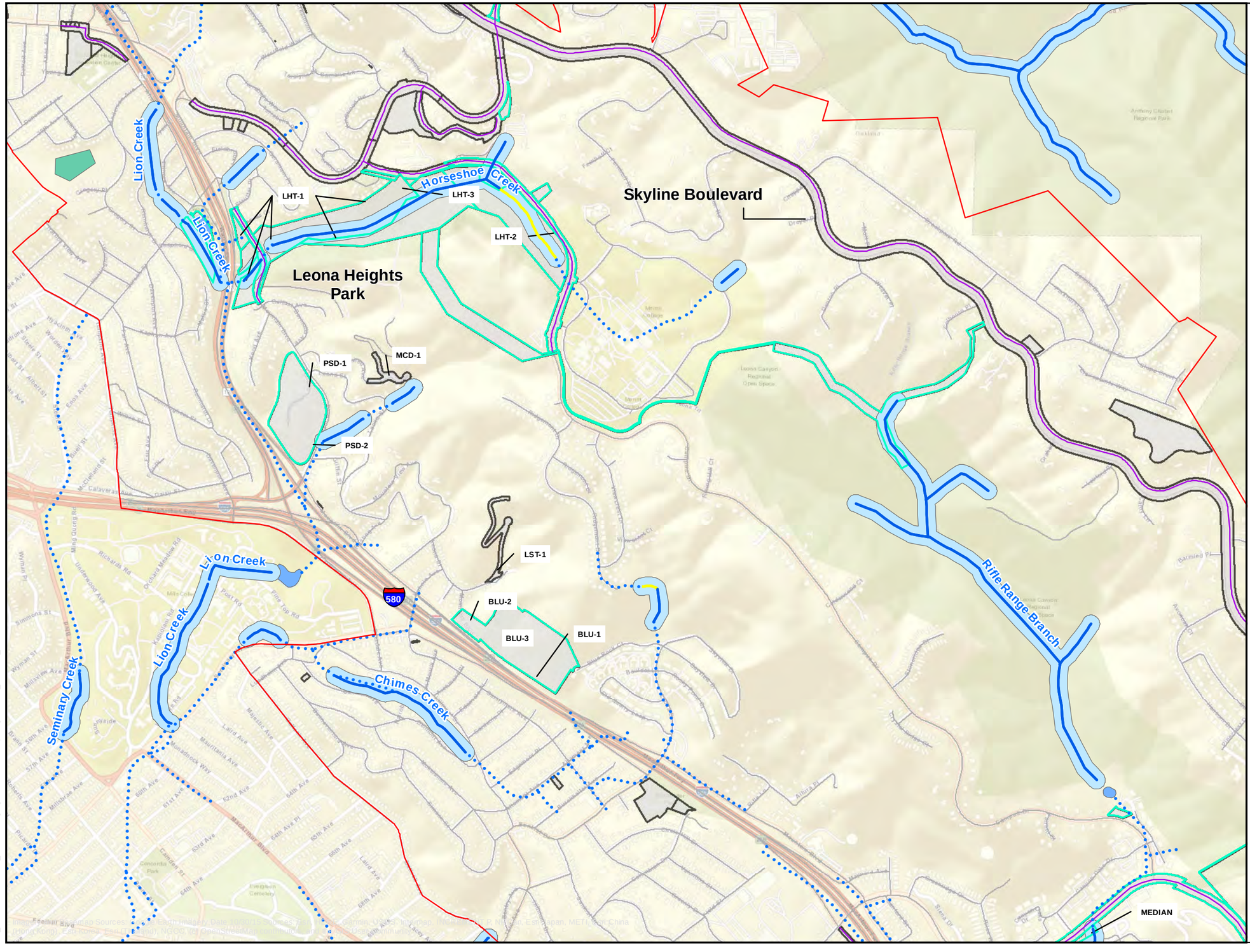

Priority 1 Roadside Treatment Areas

VMP Roadsides

VMP Parcels

VMP Creekside Parcels

Very High Fire Hazard Severity Zone

Oakland City Limits

Creek 100-foot buffer

Western Alameda County Creeks

Creek

Engineered channel

Underground culvert or storm drain

National Hydrography Database (NHD)

Lake or Pond

Reservoir

N

0 0.25 0.5

Miles

Figure 3-4.2.
Sheet 4 of 6
Lakes and Streams in the Revised Draft VMP Area

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure3-4-2_Streams_082323.mxd RH 8/23/2023

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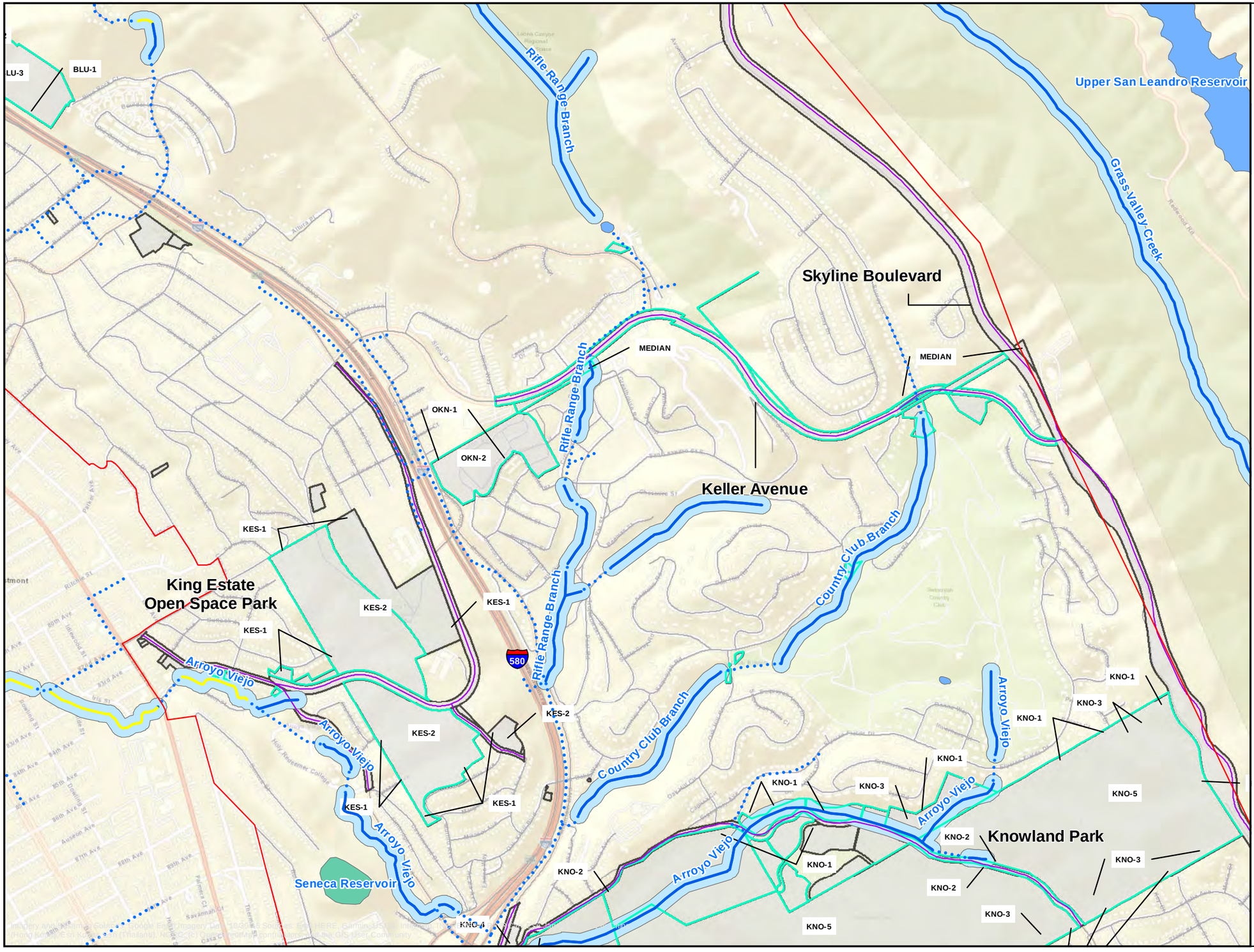

Priority 1 Roadside Treatment Areas

VMP Roadsides

VMP Parcels

VMP Creekside Parcels

Very High Fire Hazard Severity Zone

Oakland City Limits

Creek 100-foot buffer

Western Alameda County Creeks

Creek

Engineered channel

Underground culvert or storm drain

National Hydrography Database (NHD)

Lake or Pond

Reservoir

N

0 0.25 0.5

Miles

Figure 3-4.2.
Sheet 5 of 6
Lakes and Streams in the Revised Draft VMP Area

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure3-4-2_Streams_082323.mxd RH 8/23/2023

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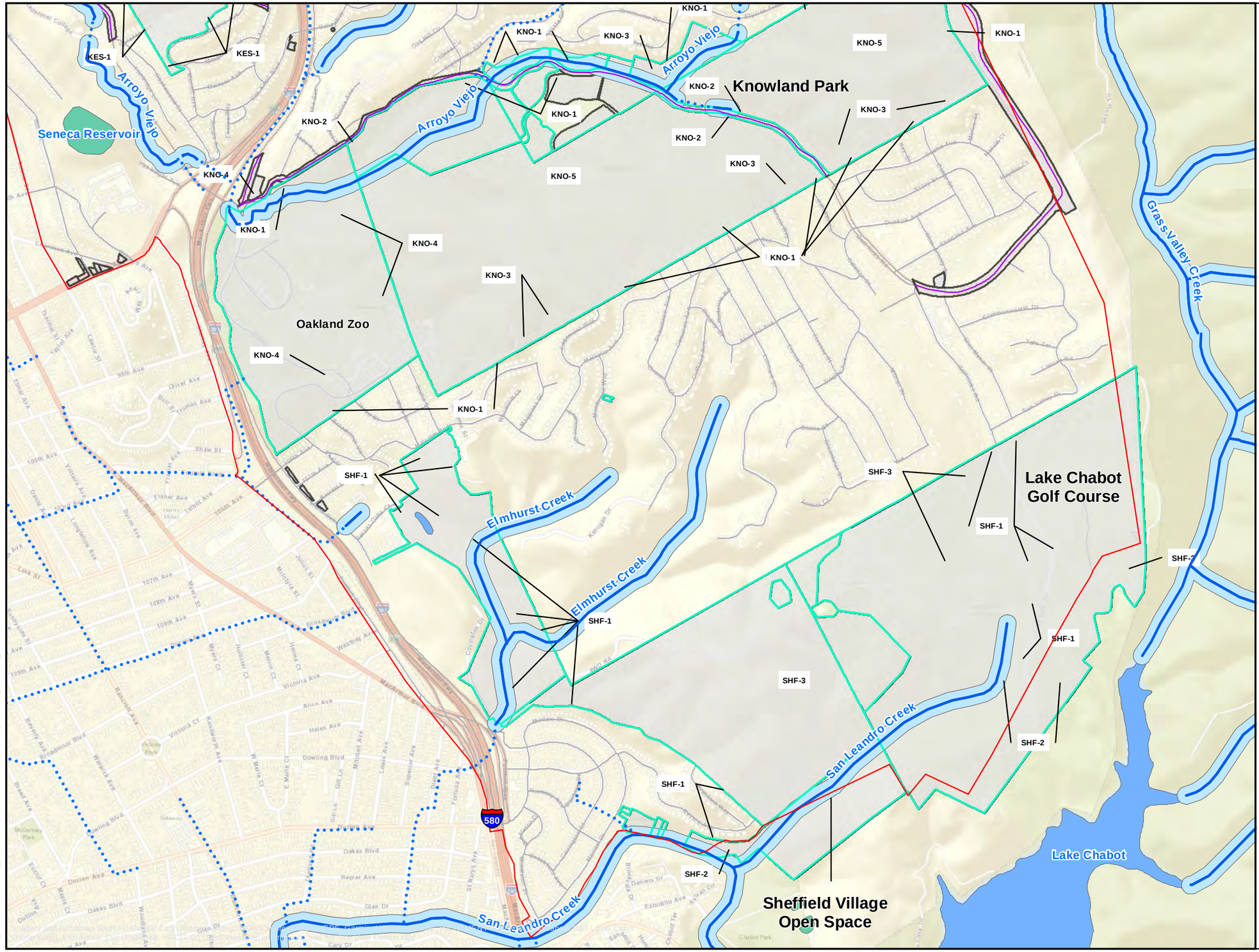

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Figure 3-4.2.
Sheet 6 of 6
Lakes and Streams in the Revised Draft VMP Area

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

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Garber Park

Harwood (Claremont) Creek

Grizzly Peak Open Space

North Oakland Sports Field

Skyline Boulevard

VMP Roadsides

VMP Parcels

Very High Fire Hazard Severity Zone

Oakland City Limits

Sensitive Natural Communities

Freshwater Emergent Wetland

Valley/foothill Riparian

N

0 0.25 0.5

Miles

Figure 3.4-3.
Sensitive Natural Communities in the Revised Draft VMP Area
Sheet 1 of 6

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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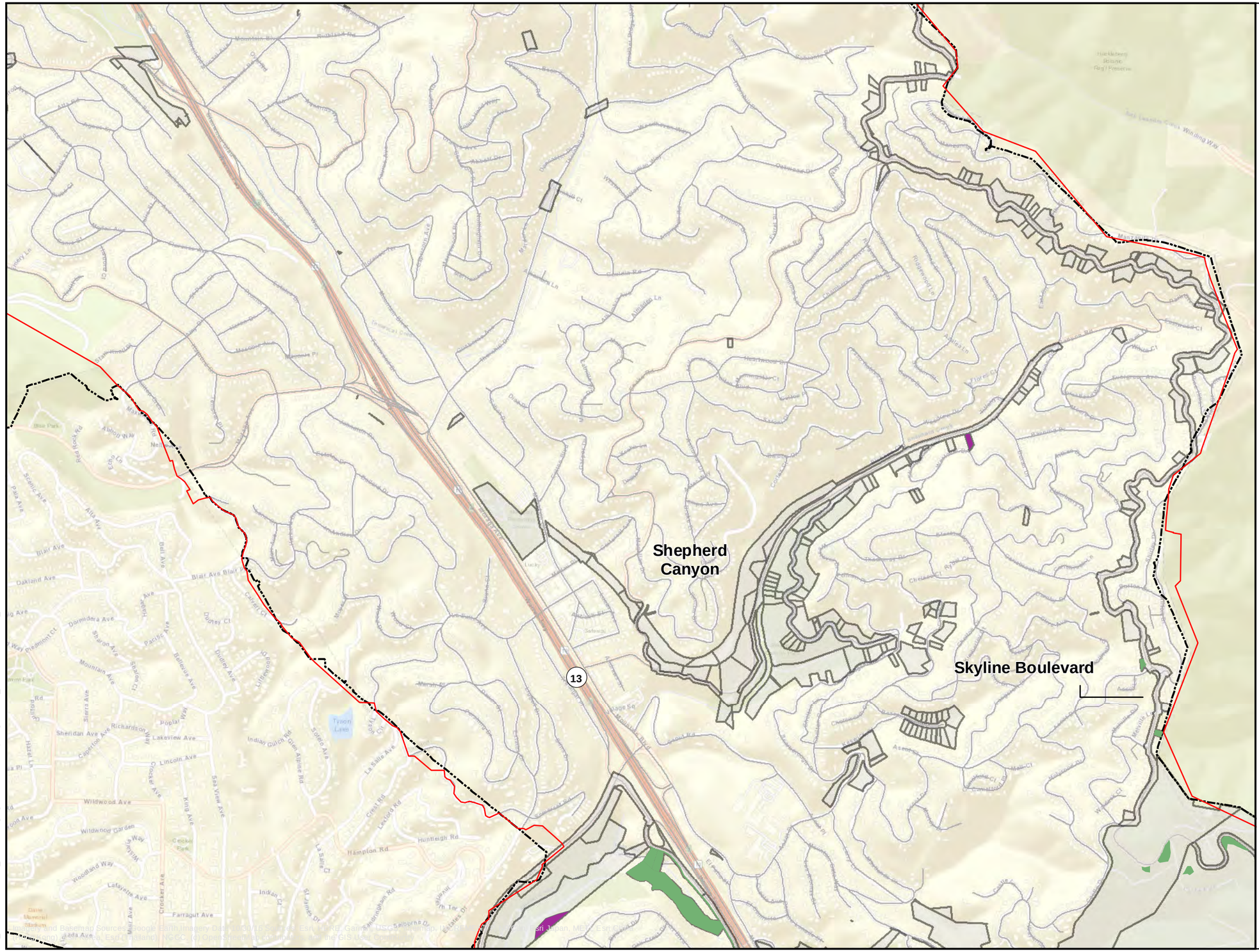

Figure 3.4-3.
Sensitive Natural Communities in the Revised Draft VMP Area
Sheet 2 of 6

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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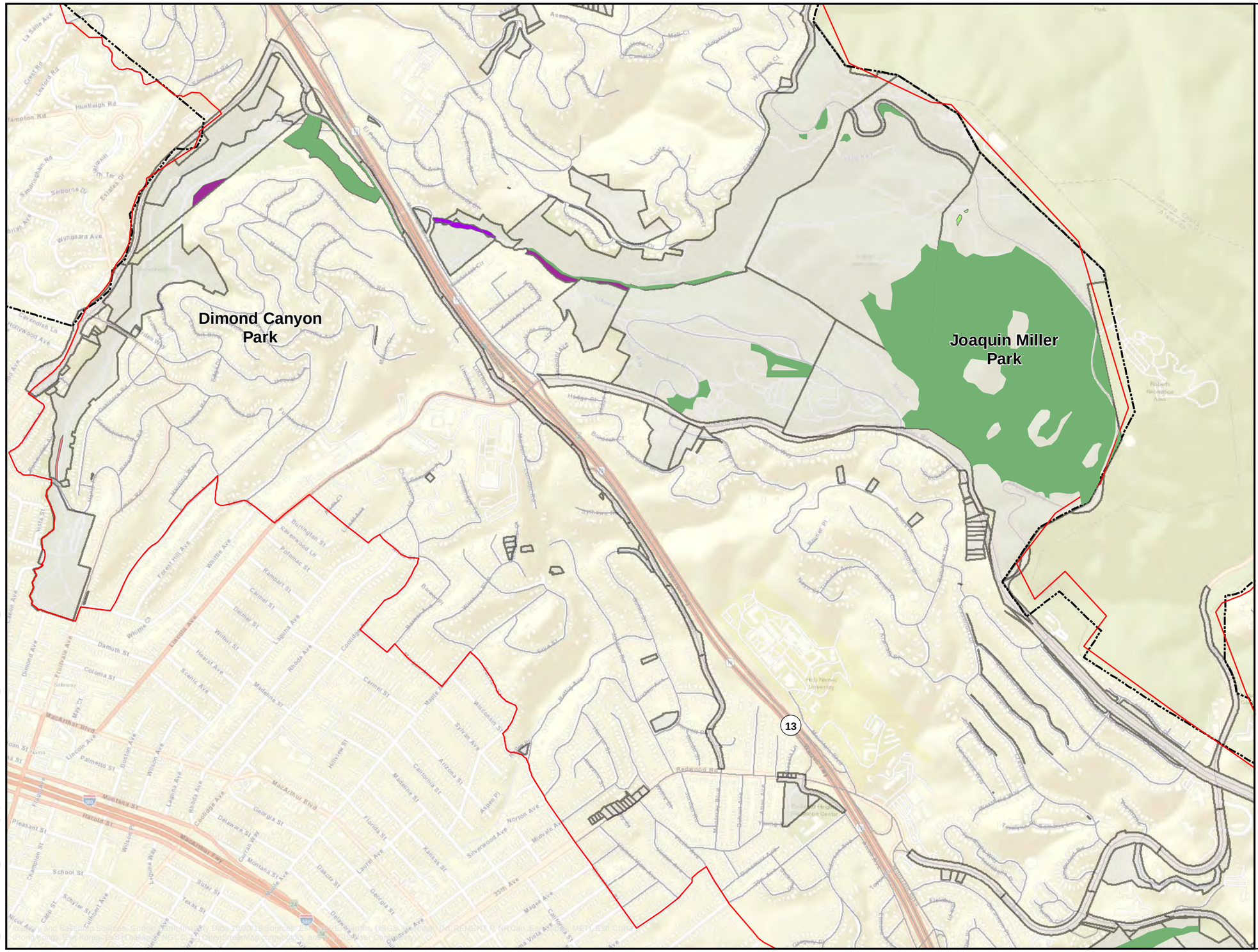

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Figure 3.4-3.
Sensitive Natural Communities in the Revised Draft VMP Area
Sheet 3 of 6

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

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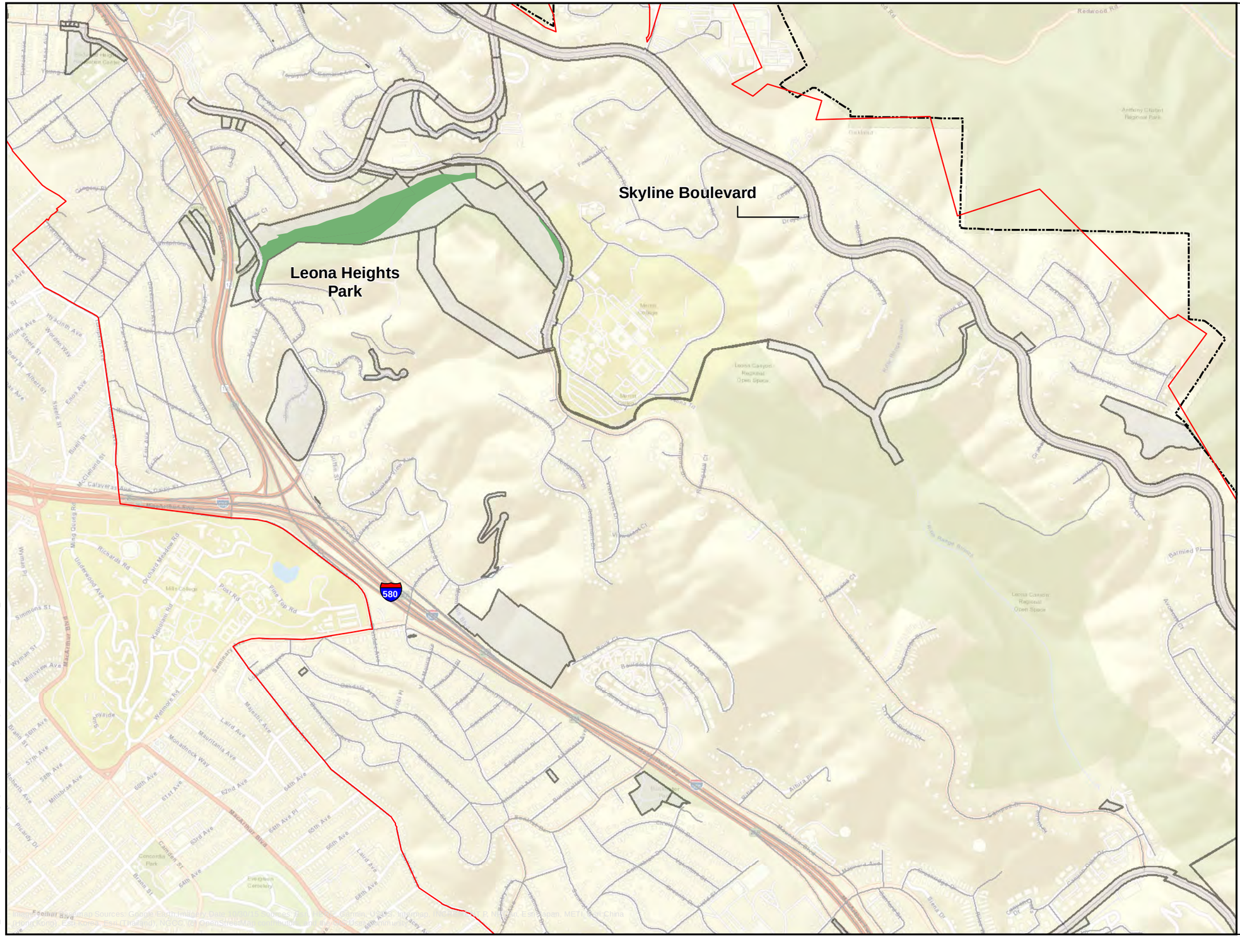

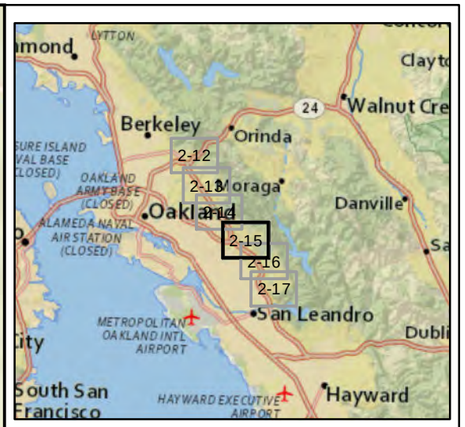

VMP Roadsides

VMP Parcels

Very High Fire Hazard Severity Zone

Oakland City Limits

Sensitive Natural Communities

Redwood Forest

N

0 0.25 0.5

Miles

Figure 3.4-3.
Sensitive Natural Communities in the Revised Draft VMP Area
Sheet 4 of 6

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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VMP Roadsides

VMP Parcels

Very High Fire Hazard Severity Zone

Oakland City Limits

Sensitive Natural Communities

California Bay Forest

Brittle Leaf - Wooly Leaf Manzanita Chaparral

Needle grass - Melic Grass Grassland

Bush Monkeyflower Scrub

N

0 0.25 0.5

Miles

Figure 3.4-3.
Sensitive Natural Communities in the Revised Draft VMP Area
Sheet 5 of 6

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

T:_PROJECTS\L6042_OaklandVegMgmtPlan\mxd\CEQA\Figure3-4-3_SensitiveNatComms_082523.mxd RH 8/25/2023

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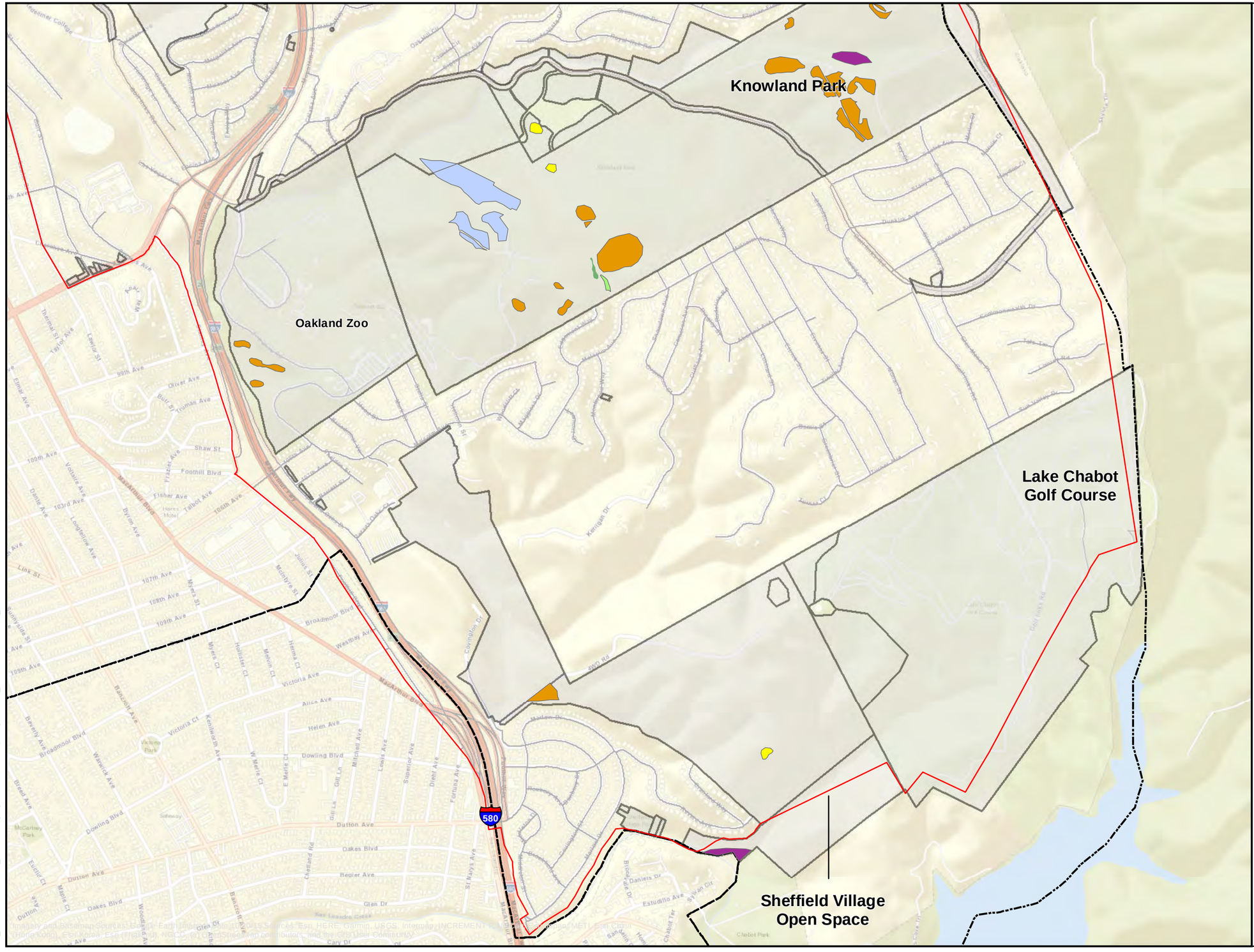

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Figure 3.4-3.
Sensitive Natural Communities in the Revised Draft VMP Area
Sheet 6 of 6

Revised Draft Vegetation Management Plan
Recirculated Draft
Environmental Impact Report

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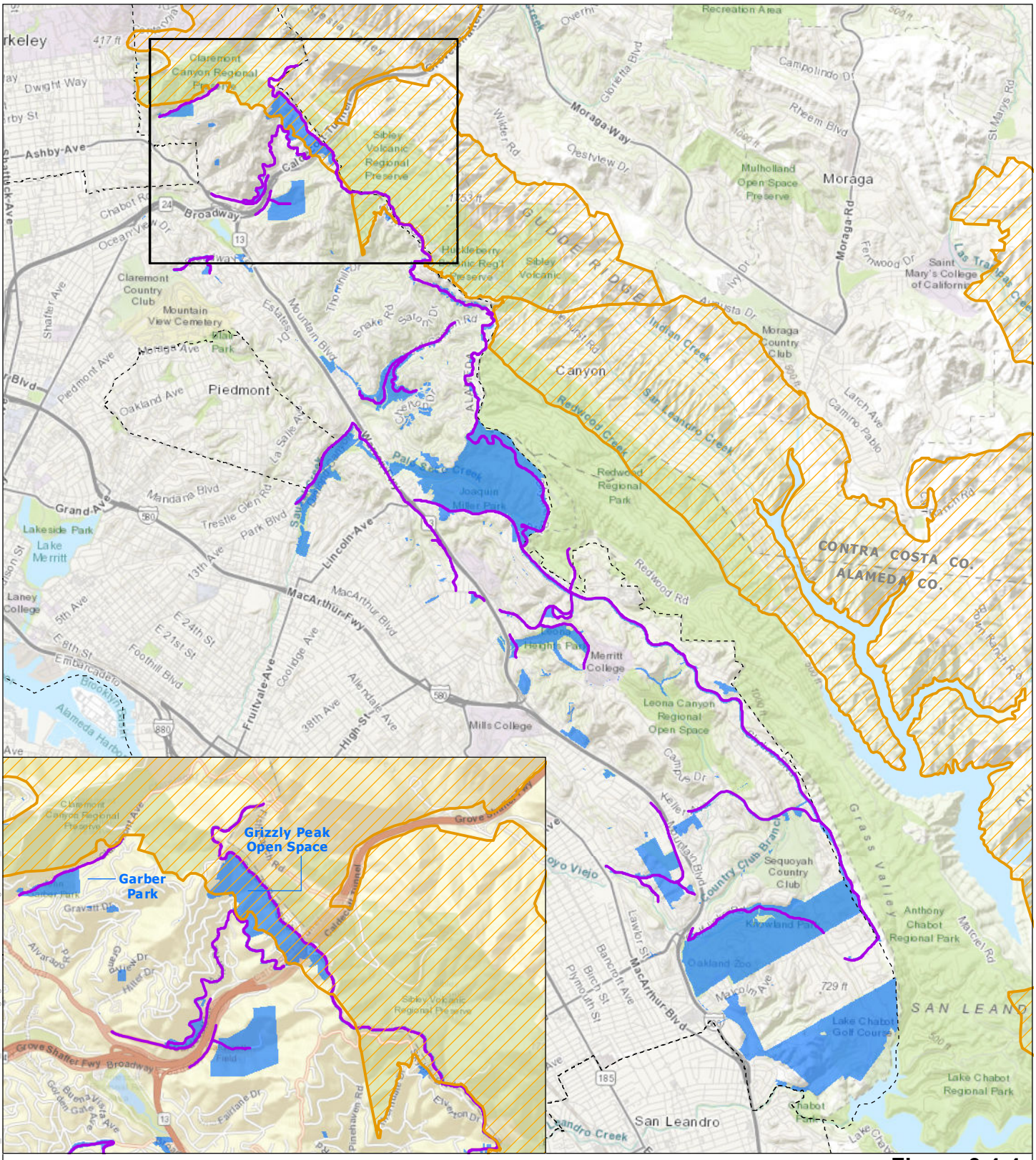

Figure 3.4-4.
Critical Habitat
In the Revised Draft VMP Area

N

0 0.5 1
Miles

Plan Area Parcels
City Limits
Priority Roadsides

Alameda whipsnake critical habitat

Sources: City of Oakland, USFWS

MONTROSE ENVIRONMENTAL

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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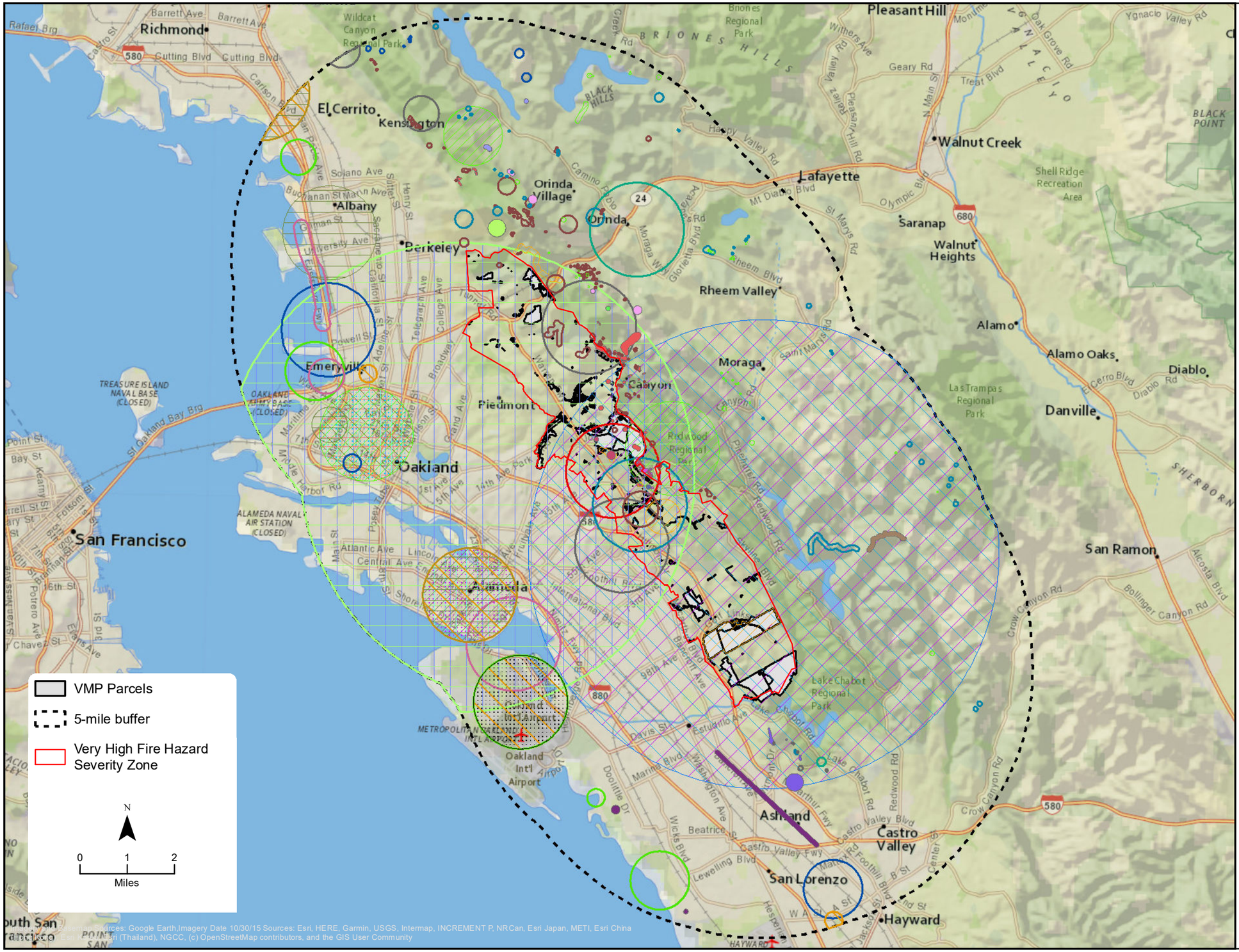

T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure 3-4-5_CNDDB_Plants_080423.mxd RH 8/23/2023

Special-Status Plant Species

Source: CNDDB July 2023 update

- California seablite
- Choris' popcornflower
- Congdon's tarplant
- Diablo helianthella
- Franciscan thistle
- Jepson's coyote-thistle
- Kellogg's horkelia
- Loma Prieta hoita
- Marin knotweed
- Mt. Diablo fairy-lantern
- Oregon meconella
- Point Reyes salty bird's-beak
- Presidio clarkia
- San Francisco Bay spineflower
- San Francisco popcornflower
- San Joaquin spearscale
- Santa Clara red ribbons
- Santa Cruz tarplant
- Tiburon buckwheat
- adobe sanicle
- alkali milk-vetch
- bent-flowered fiddleneck
- big-scale balsamroot
- dark-eyed gilia
- fragrant fritillary
- long-styled sand-spurrey
- minute pocket moss
- most beautiful jewelflower
- northern slender pondweed
- oval-leaved viburnum
- pallid manzanita
- robust spineflower
- saline clover
- western leatherwood
- woodland woollythreads

Figure 3.4-5.
CNDDB-mapped Plants in the VMP Area

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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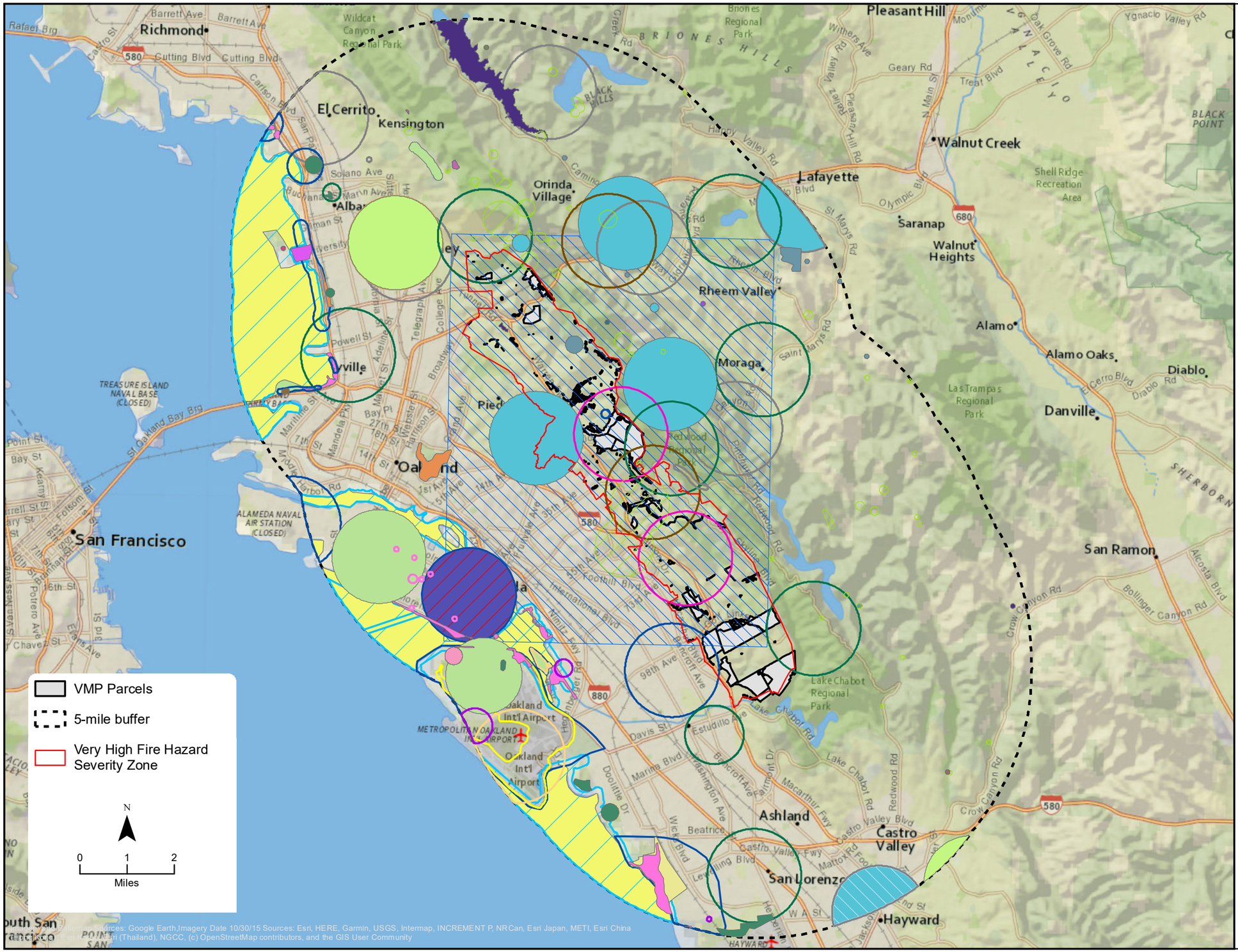

Special-Status Animal Species

Source: CNDDB July 2023 update

- Alameda Island mole
- Alameda song sparrow
- Alameda whipsnake
- American badger
- American peregrine falcon
- Bay checkerspot butterfly
- California Ridgway's rail
- California black rail
- California least tern
- California red-legged frog
- California tiger salamander - central California DPS
- Crotch bumble bee
- Sacramento perch
- San Francisco dusky-footed woodrat
- Townsend's big-eared bat
- bald eagle
- big free-tailed bat
- burrowing owl
- foothill yellow-legged frog - central coast DPS
- golden eagle
- green sturgeon - southern DPS
- longfin smelt
- monarch - California overwintering population
- northern harrier
- pallid bat
- salt-marsh harvest mouse
- salt-marsh wandering shrew
- saltmarsh common yellowthroat
- tidewater goby
- western bumble bee
- western mastiff bat
- western pond turtle
- western snowy plover
- white-tailed kite
- yellow rail
- yellow warbler

Figure 3.4-6.
CNDDB-mapped Special-status Animals in the VMP Area

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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3.5 CULTURAL RESOURCES

This section has not been revised; see prior 2020 DEIR.

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3.6 GEOLOGY, SOILS, AND SEISMICITY

This section discusses existing conditions and evaluates the Revised Draft VMP's effects related to geology, soils, seismicity, and paleontological resources. It also describes applicable federal, state, and local regulations related to geology, soils, seismicity, and paleontological resources.

3.6.1 ENVIRONMENTAL SETTING

Regional Geology

The Revised Draft VMP area is located within the Northern California Coast Ranges, a part of the California's Coast Ranges Geomorphic Province, a highly seismically active area with northwest-trending ranges with low mountains and valleys (CDOC 2002). The geologic structure in the area is directly related to tectonic processes between the Calaveras and Hayward Fault Zone. The Hayward Fault Zone stretches from San Jose northwest along the foothills of the East Bay Hills to San Pablo Bay (CGS 2010). Lateral and compressional forces along the fault have resulted in folding, and faulting and uplift of the East Bay Hills (Contra Costa County Community Development Department 2004). The Revised Draft VMP area is situated along the Hayward Fault Zone within the East Bay Hills, characterized as moderate to very steep-sloped ranges and interior valleys, which generally consists of exposed Franciscan complex bedrock, which becomes heavily fractured and metamorphized along the Hayward Fault (CGS 1991). The Franciscan complex consists of a mixture of rocks including chert, greenstone, sandstone, shale, and various metamorphic rocks. Rock materials of the East Bay Hills consists mostly of tilted Tertiary-aged Miocene marine sedimentary rocks and non-marine sedimentary rocks of shale and sandstone of the Great Valley Sequence (CGS 1991). A narrow band of ultramafic rocks can be found along the Hayward fault alignment.

The geology of the Revised Draft VMP area is shown in **Figure 3.6-1** and further described below.

Soils

Soils underlying the East Bay Hills can generally be grouped into two areas. The western foothills are primarily upland soils (Maymen, Millsholm, and Xerorthents). These upland soils are distributed throughout the hillslopes of the northern portion of the Revised Draft VMP area and have slopes of 30 to 75 percent. Millsholm loam is a shallow soil, less than 12 inches and has a high erosion rate with 50 to 70 percent slopes. Xerorthents consists of soil materials with high rapid runoff rates and erosion potential. These upland soils are typically well drained with high to very high runoff potential and low plasticity (Natural Resources Conservation Service [NRCS] 2020). Texture of these soils generally consists of loam, clay loam, or clay, approximately 20 to 40 inches thick before encountering bedrock.

Along the eastern side of the East Bay Hills, in the southern portion of the Revised Draft VMP area near Lake Chabot, soils that commonly occur include Los Osos clay loam, Millsholm loam, and Los Gatos loam. These soils are moderate to very steep sloping, overlying hard sedimentary

rock formations. These soils are excessively drained. Los Gatos loam generally occurs as loam to gravelly loam 24 to 39 inches thick above bedrock (NRCS 2020). This unit is well drained with very high runoff. Los Gatos loam is highly susceptible to erosion by wind and moderately susceptible to erosion by water.

Seismicity

Alquist-Priolo Fault Zones and Faults

The San Francisco Bay area is known to be highly seismically active, including northwest-trending ranges. The Hayward Fault Zone is located along the center of the Revised Draft VMP area with other faults in the county associated with this fault zone. This fault is estimated to have a 31 percent probability of producing an earthquake of magnitude 6.7 or greater within the next 30 years (Field 2014).

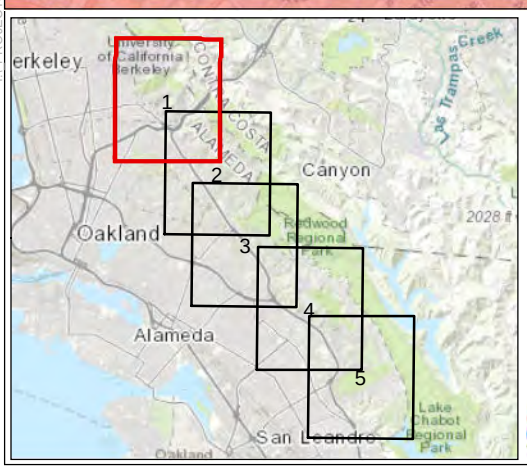
Other faults in proximity to the Revised Draft VMP area include Chabot Fault (0 mile), Moraga Fault (1.9 mile east), Miller Creek Fault (1.7 mile east), and Wildcat Fault (0.75 mile north).

Wildcat fault

Moraga fault

Chabot fault

Hayward fault zone, northern Hayward section (Hayward fault)



Proposed Project

Program Area

Geologica Landform and Age

- marine and nonmarine (continental) sedimentary rocks, Pleistocene
- marine sedimentary and metasedimentary rocks, Cretaceous
- marine sedimentary and metasedimentary rocks, Cretaceous-Jurassic
- marine sedimentary rocks, Miocene
- nonmarine (continental) sedimentary rocks, Pliocene-Pleistocene
- plutonic rocks, Mesozoic
- volcanic rocks, Tertiary

Faults

QuaternaryFaults

N

0 1,000 2,000

Feet

Horizon WATER and ENVIRONMENT

Source: ESRI 2020, USGS CGS 2007

Figure 3.6.1
Geology of the Revised Draft VMP Area
Sheet 1 of 5

Revised Draft Vegetation Management Plan
Recirculated Environmental Impact Report

T:_PROJECTS\16042_Oakland\VegMgmtPlan\mxd\CEQA\Figure3.6-1_Landslides.mxd 9/15/2023 PG

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Moraga fault

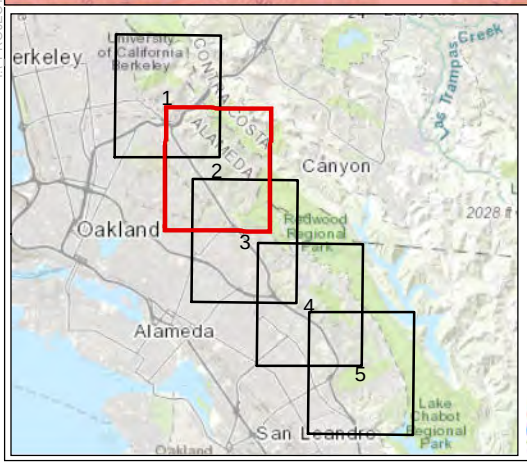
Hayward fault zone, northern Hayward section (Hayward fault)

Chabot fault

Hayward fault zone, northern Hayward section

Piedmont

Eastport



Proposed Project

Program Area

Geologica Landform and Age

- marine and nonmarine (continental) sedimentary rocks, Pleistocene
- marine and nonmarine (continental) sedimentary rocks, Pleistocene-Holocene
- marine sedimentary and metasedimentary rocks, Cretaceous
- marine sedimentary and metasedimentary rocks, Cretaceous-Jurassic
- marine sedimentary rocks, Miocene
- nonmarine (continental) sedimentary rocks, Pliocene-Pleistocene
- plutonic rocks, Mesozoic
- volcanic rocks, Tertiary

Faults

QuaternaryFaults

N

0 1,000 2,000

Feet

Source: ESRI 2020, USGS CGS 2007

Figure 3.6.1
Geology of the Revised Draft VMP Area
Sheet 2 of 5

Revised Draft Vegetation Management Plan
Recirculated Environmental Impact Report

T:_PROJECTS\116042_Oakland\Veg Mgmt Plan\mxd\CEQA\Figure3-6-1_Landslides.mxd 9/15/2023 PG

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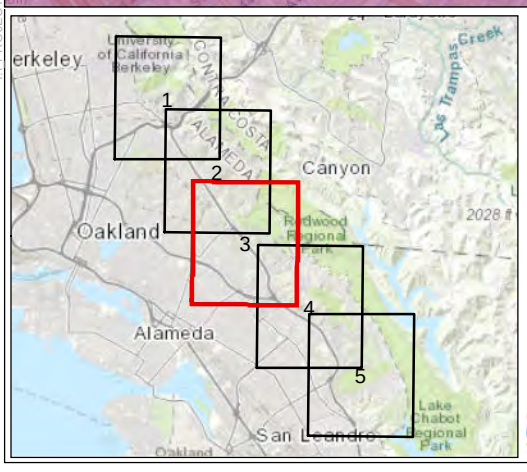
Chabot fault

Hayward fault zone, northern Hayward section (Hayward fault)

Hayward fault zone, northern Hayward section



Proposed Project

Program Area

N

0 1,000 2,000

Feet

Geologica Landform and Age

- marine and nonmarine (continental) sedimentary rocks, Pleistocene
- marine and nonmarine (continental) sedimentary rocks, Pleistocene-Holocene
- marine sedimentary and metasedimentary rocks, Cretaceous
- marine sedimentary and metasedimentary rocks, Cretaceous-Jurassic
- marine sedimentary rocks, Miocene
- nonmarine (continental) sedimentary rocks, Pliocene-Pleistocene
- plutonic rocks, Mesozoic
- volcanic rocks, Tertiary

Faults

QuaternaryFaults

Source: ESRI 2020, USGS CGS 2007

Figure 3.6.1
Geology of the Revised Draft VMP Area
Sheet 3 of 5

Revised Draft Vegetation Management Plan
Recirculated Environmental Impact Report

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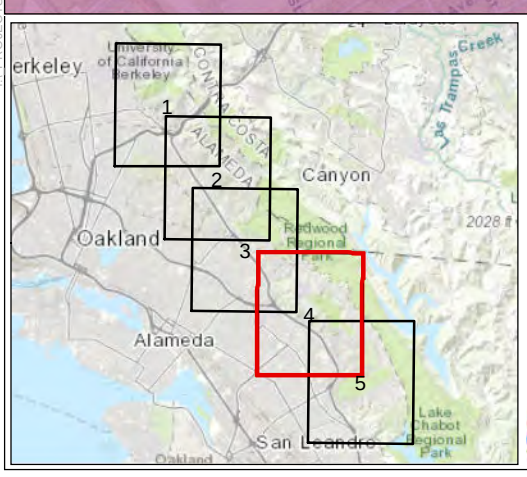
Chabot fault

Hayward fault zone, northern Hayward section



Proposed Project

Program Area

N

0 1,000 2,000

Feet

Geologica Landform and Age

- marine and nonmarine (continental) sedimentary rocks, Pleistocene
- marine and nonmarine (continental) sedimentary rocks, Pleistocene-Holocene
- marine sedimentary and metasedimentary rocks, Cretaceous
- marine sedimentary and metasedimentary rocks, Cretaceous-Jurassic
- marine sedimentary rocks, Miocene
- nonmarine (continental) sedimentary rocks, Pliocene-Pleistocene
- plutonic rocks, Mesozoic
- volcanic rocks, Tertiary

Faults

QuaternaryFaults

Source: ESRI 2020, USGS CGS 2007

Figure 3.6.1
Geology of the Revised Draft VMP Area
Sheet 4 of 5

T:_PROJECTS\16042_OaklandVegMgmtPlan\mxd\CEQA\Figure3.6-1_Landslides.mxd 9/15/2023 PG

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Chabot fault

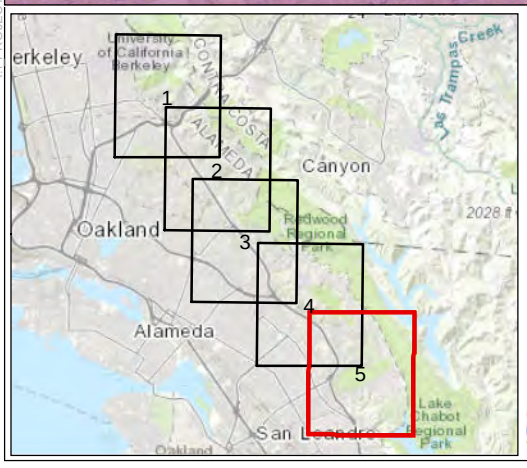
Hayward fault zone, northern Hayward section

Hayward fault zone, southern Hayward section (Ashland fault)

Upper San Leandro Reservoir

Lake Chabot

San Leandro



Proposed Project

Program Area

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Faults

QuaternaryFaults

N

0 1,000 2,000

Feet

Horizon WATER and ENVIRONMENT

Source: ESRI 2020, USGS CGS 2007

Figure 3.6.1
Geology of the Revised Draft VMP Area
Sheet 5 of 5

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Ground Shaking

The severity of ground shaking experienced at a specific location depends on a variety of factors, such as the magnitude and duration of the seismic event, fault type associated with the event, distance from the epicenter, and physical properties of the underlying geology and soils. The San Francisco Bay area lies in a very seismically active region with relatively frequent and significant ground shaking events. Since ground shaking is a considerable hazard throughout the San Francisco Bay area, ground shaking can cause landslides resulting in liquefaction in the Revised Draft VMP area and surrounding areas. **Table 3.6-1** shows the probability for large earthquakes to occur in the region. Like other locations in the vicinity of major, active faults such as the Hayward Fault, the potential for very strong ground shaking at the Revised Draft VMP area is high.

Table 3.6-1. Earthquake Probability for the San Francisco Region

Magnitude (≥M)	Average Reoccurrence Interval (Years)	Likelihood of Event within 30 years
6.0	8.9	98%
6.7	29	72%
7.0	48	51%
7.5	124	20%
8.0	825	4%

Source: Field 2014

Landslides

Rock slope failure or landslides may occur in steeply sloped areas during substantial seismic events. Saturated soils and precipitation events increase the likelihood of a landslide being triggered.

The CGS compiled and created statewide landslide susceptibility maps through interpolation of historic landslide information, local geology, rock strength, and hillslope angle (methodology by Wilson and Keefer 1985 and implemented by Ponti et al. 2008) to create classes of landslide susceptibility (where 0 is low and 10 is high) (CDOC 2020). Landslide susceptibility is shown in **Figure 3.6-2**, including the relative likelihood of deep landsliding based on rock strength and steepness of slopes in the region. In general, steep slopes and weak rocks are more likely to generate landslides, while landslide susceptibility is low on very low slopes, even in weak materials. Classes VIII, IX, and X are very high landslide susceptibility and include moderate to very steep slopes in weak rock and very steep slopes in hard rock. Areas of interest within the Revised Draft VMP area are described below.

In general, steeper portions of the East Bay Hills have a moderate (V to VIII) to high (IX to X) susceptibility of landslides (CDOC 2020). These hillslopes are more susceptible to landslides, particularly during or soon after very wet winters when the ground is saturated for extended periods. Ground saturation increases the soil pore water content, which reduces the shear strength of the slope, which can increase the risk for landsliding. When saturated soils occur near roadways, landslides may be exacerbated by road vibration and can occur as road slip-outs.

Liquefaction

Soil liquefaction is a phenomenon that occurs when saturated sandy or silty soils lose strength during cyclic loading, such as caused by earthquakes. During the loss of strength, the soil acquires mobility sufficient to permit both horizontal and vertical movements, essentially behaving like a liquid. 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.

Liquefaction hazard mapping in the region indicates that the majority of upland areas in the Revised Draft VMP are rated very low for liquefaction hazard, with the exception of small areas such as Golf Links Road north of the Oakland Zoo (moderately low), Peralta Oaks Court (moderately low), and the area from Lyman Road (moderately low to moderate) east toward Park Boulevard (moderate) (USGS 2006).

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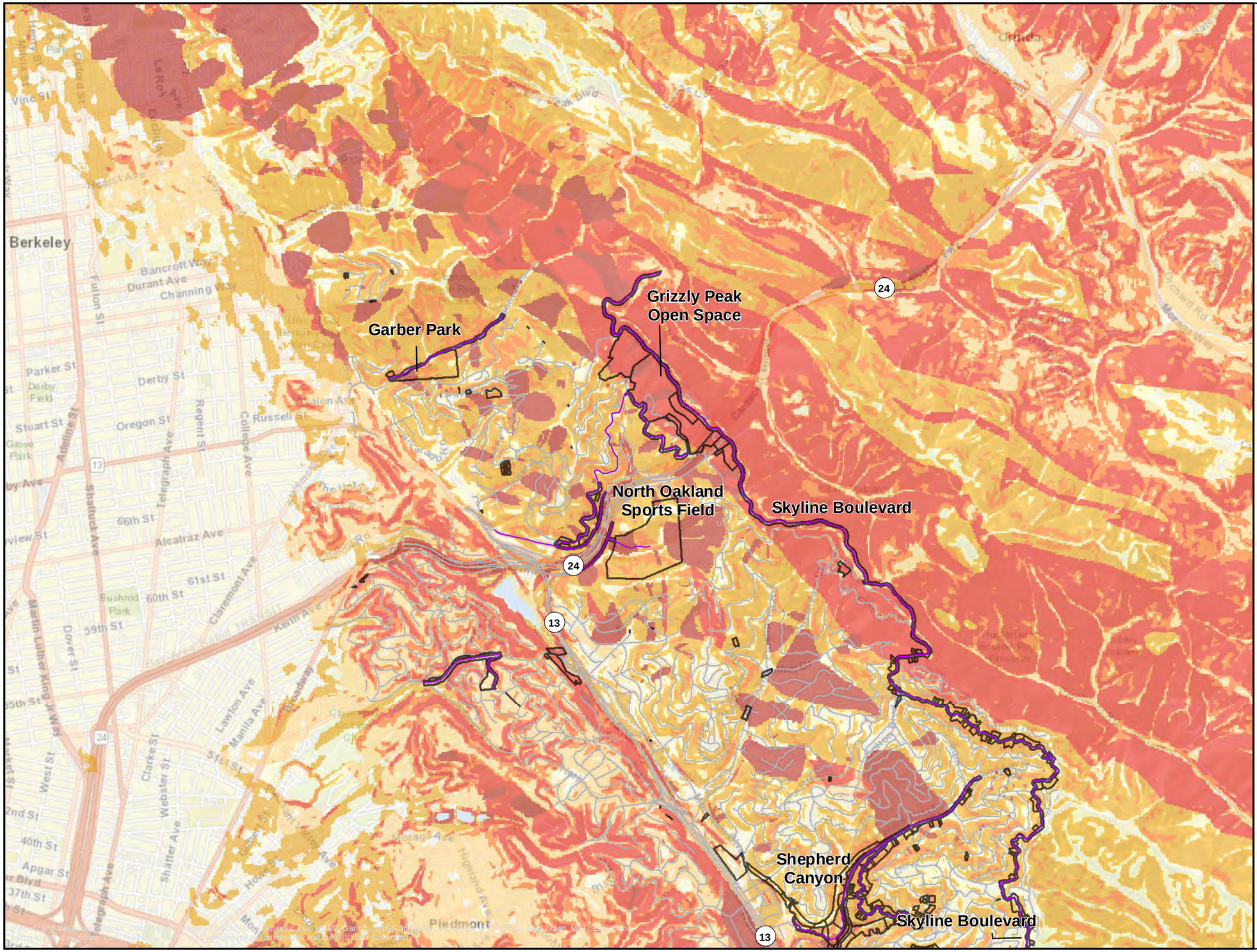

Priority 1 Roadside Treatment Areas

VMP Roadsides

VMP Parcels

Oakland City Limits

Landslide Susceptibility Classes (0 - 10)*

0	VII
III	VIII
V	IX
VI	X

*0 - III (Low)
V - VIII (Moderate)
IX - X (High)

Source: CGS (2011), methodology of Wilson and Keefer (1985) as implemented by Ponti et al (2008)

N

0 0.5 1
Miles

Figure 3.6-2.
Landslide Susceptibility Areas in the VMP Area
Sheet 1 of 6

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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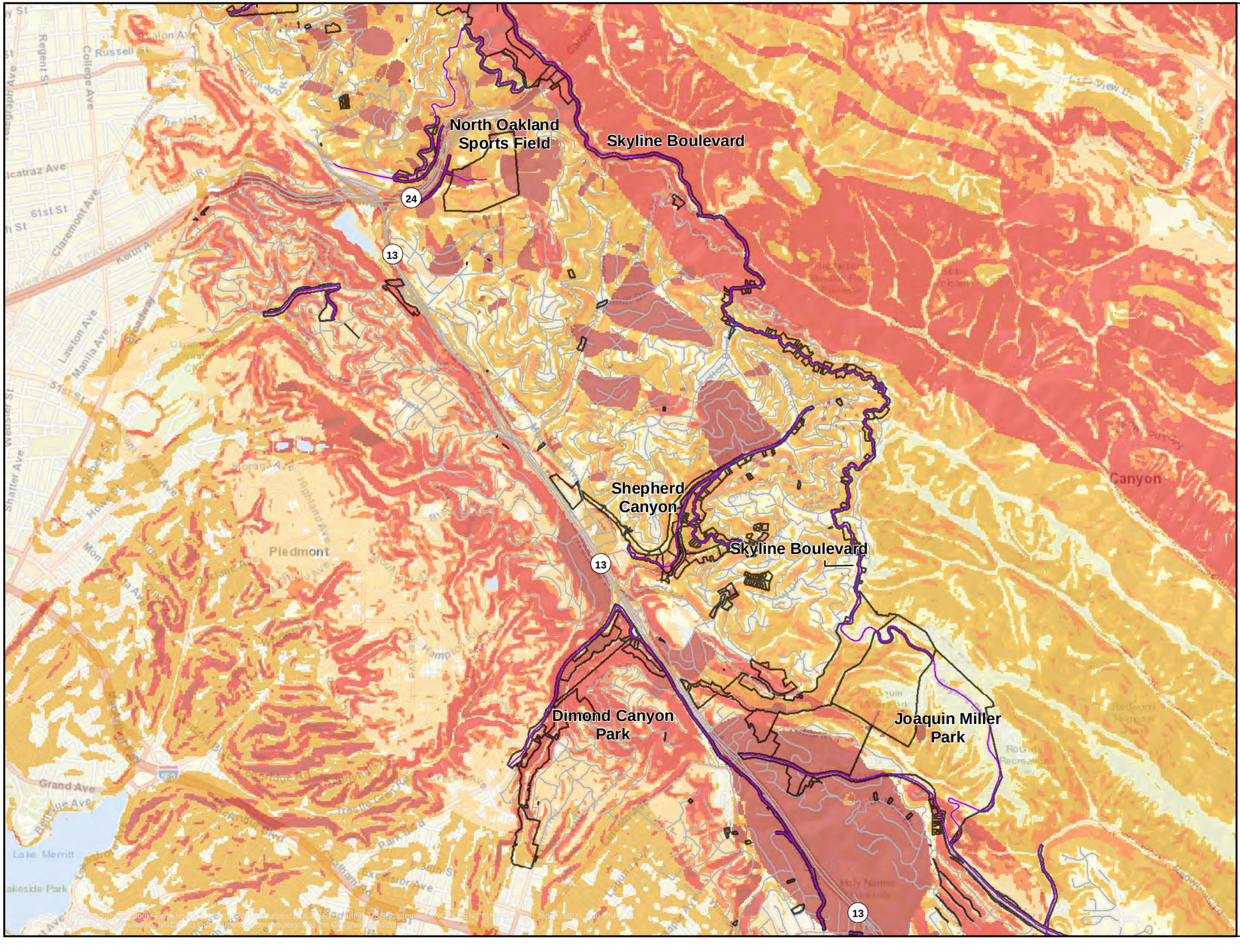

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Figure 3.6-2.
Landslide Susceptibility Areas in the VMP Area
Sheet 2 of 6

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

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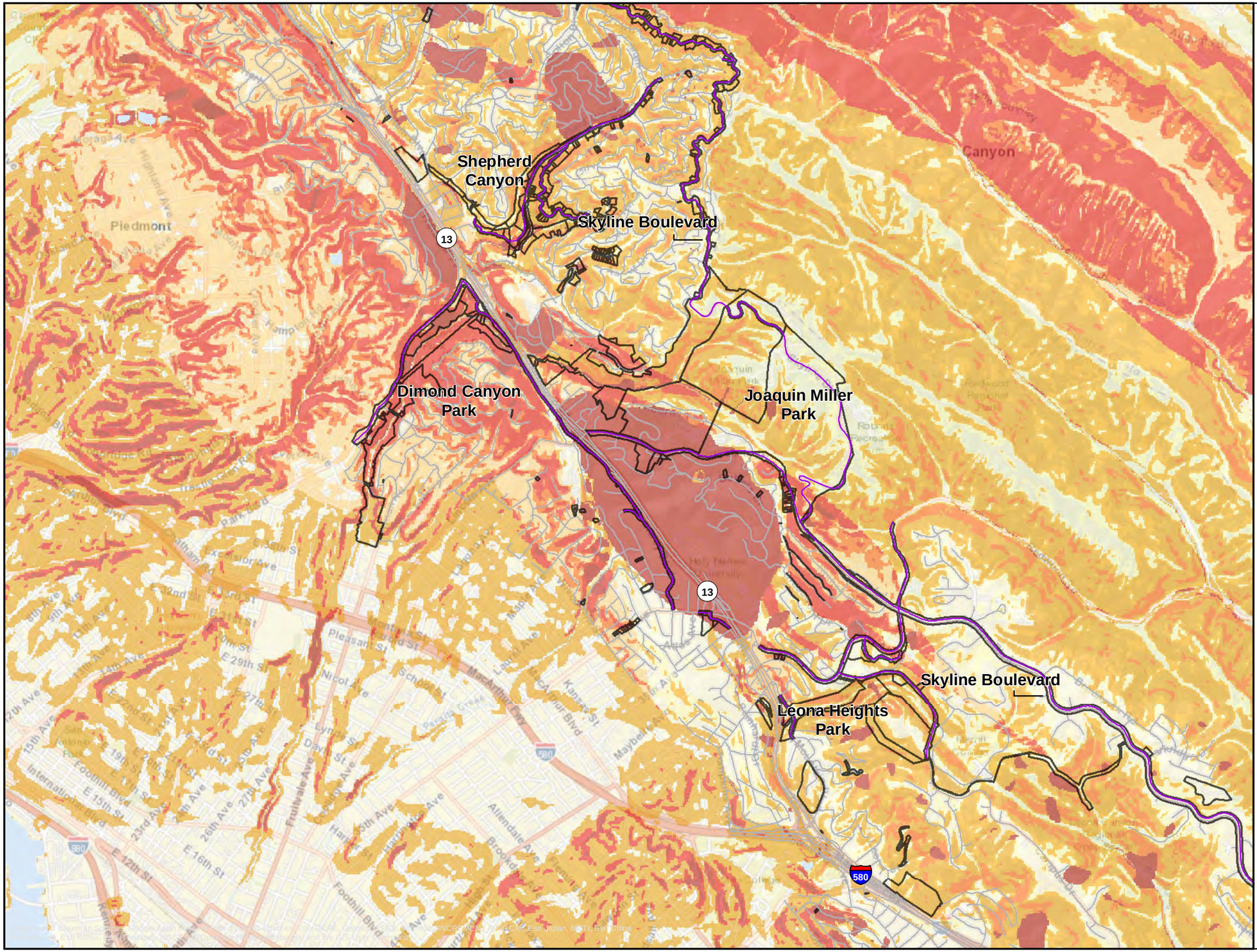

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Figure 3.6-2.
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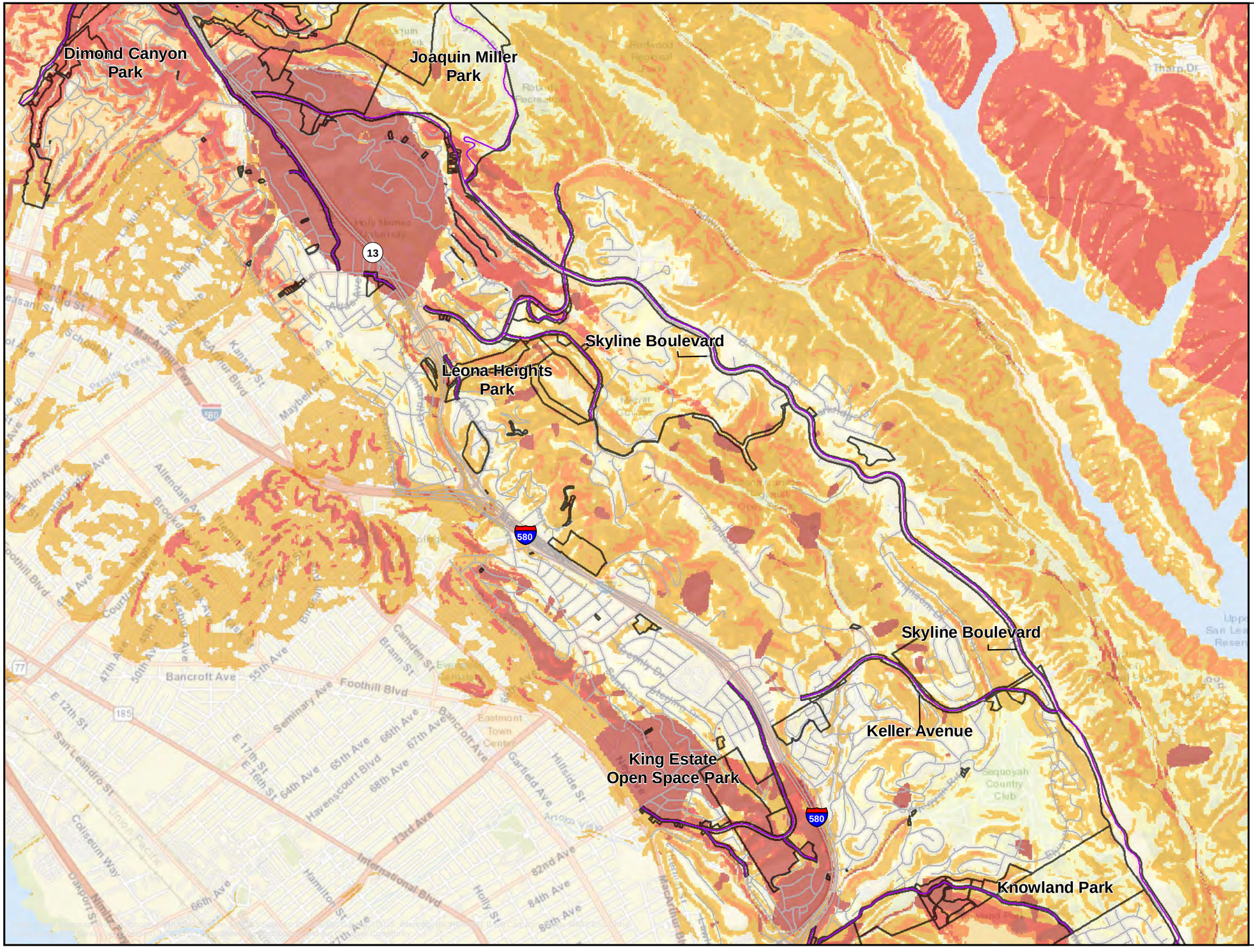

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Figure 3.6-2.
Landslide Susceptibility Areas in the VMP Area
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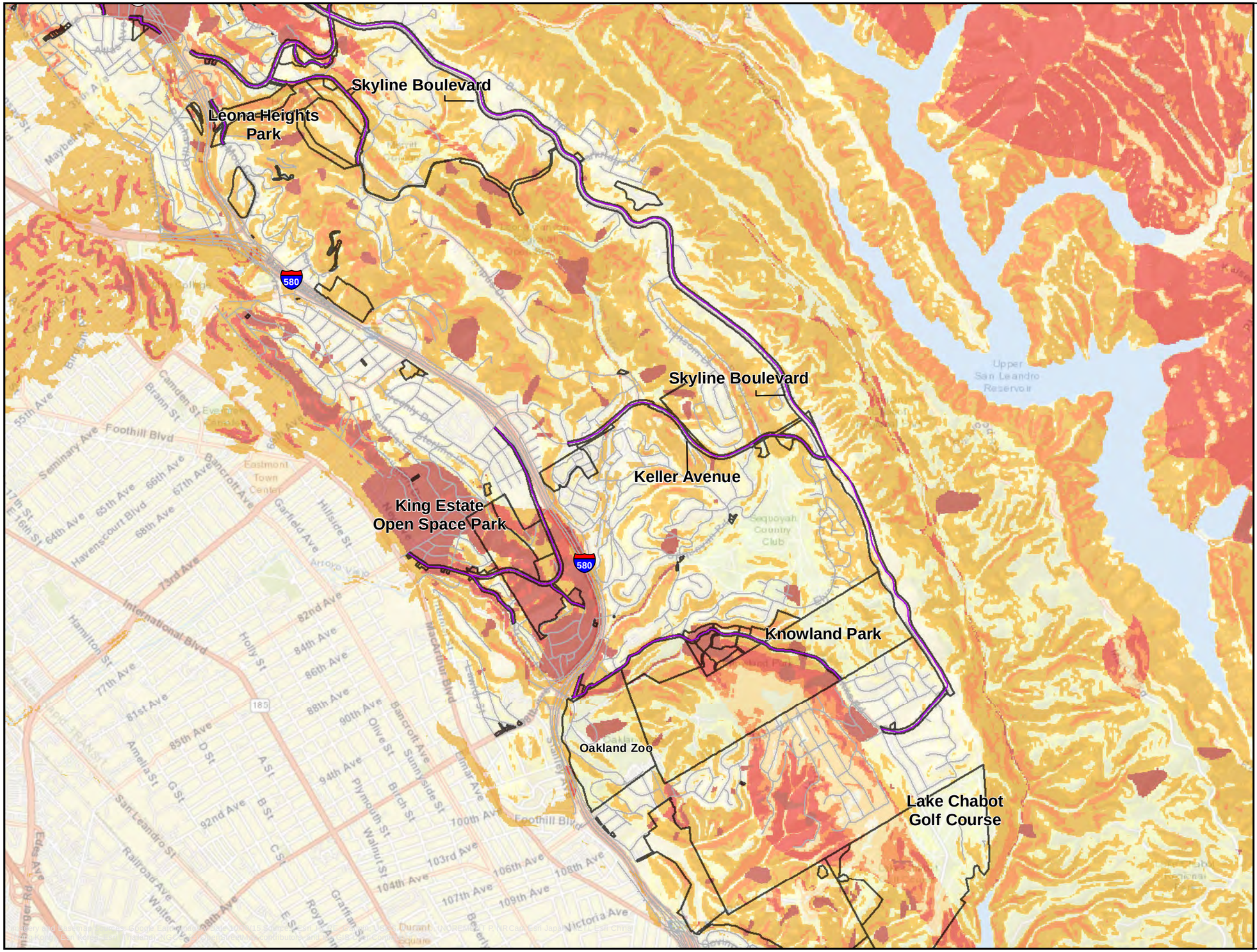

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0 0.5 1

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Figure 3.6-2.
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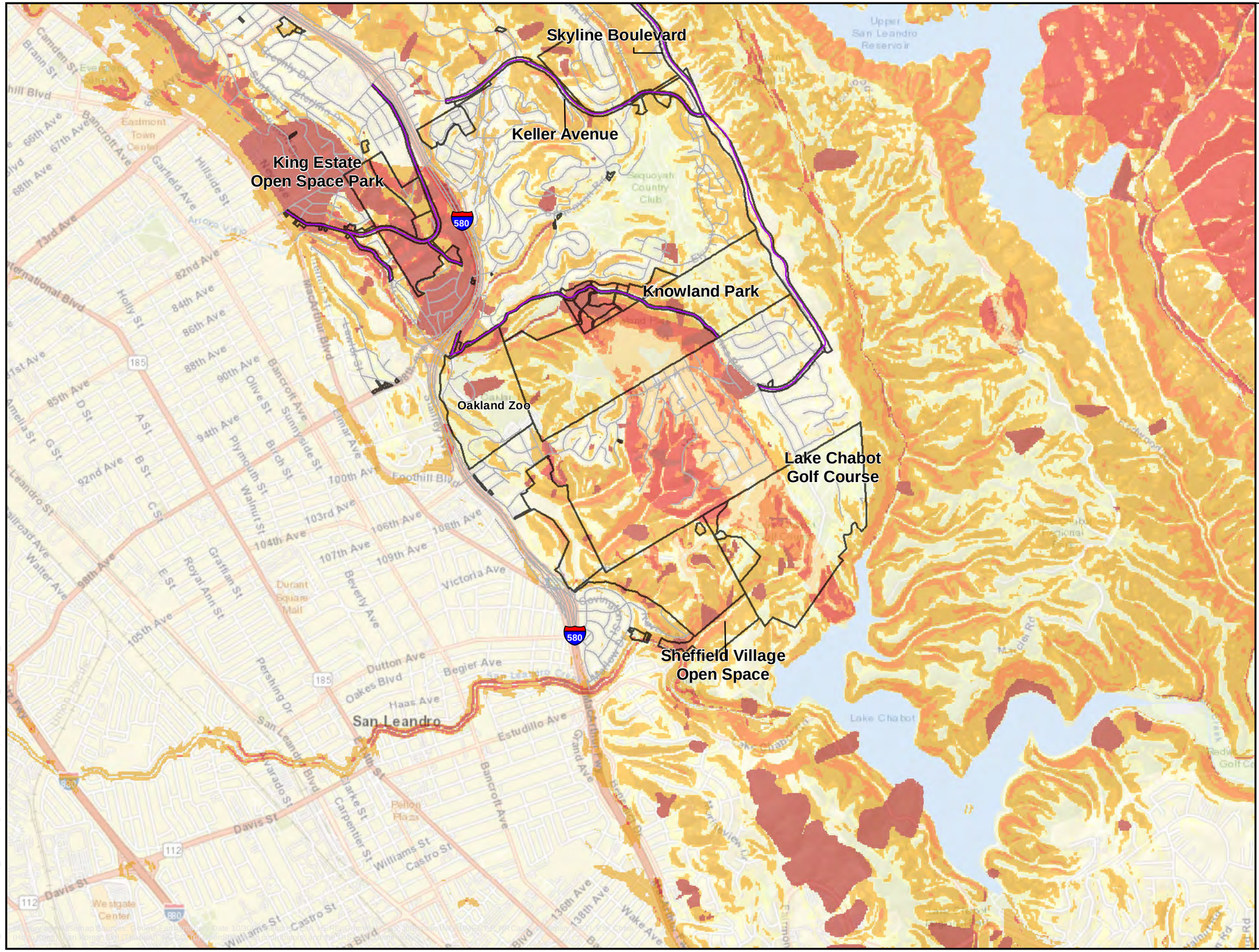

Priority 1 Roadside Treatment Areas

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VMP Parcels

Oakland City Limits

Landslide Susceptibility Classes (0 - 10)*

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Source: CGS (2011), methodology of Wilson and Keefer (1985) as implemented by Ponti et al (2008)

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Paleontological Resources

A paleontological resource is defined as fossilized remains of vertebrate and invertebrate organisms, fossil tracks, and plant fossils. In California, paleontological resources are generally observed in sedimentary and metasedimentary deposits. Based on a database query of the University of California Museum of Paleontology in search of paleontological discoveries, 533 recorded collections were found within Alameda County. Specimens included plant material, invertebrates, microfossils, and vertebrates; and were found in geologic formations listed below (University of California Museum of Paleontology [UCMP] 2020).

Geologic formations within Alameda County with recorded[1] paleontological resources include:

- Claremont
- Claremont Shale
- Grizzly Peak
- Knoxville
- Monterey
- Orinda
- San Antonio
- Sobrante
- Unnamed Eocene

Many recorded paleontological resources had unspecified locations within the County; however, the following paleontological resource locations in the vicinity of Revised Draft VMP sites were recorded: Berkeley, Caldecott Tunnel, Oakland, Lake Chabot, Claremont Canyon, Round Top (UCMP 2020).

3.6.2 REGULATORY SETTING

Federal Laws, Regulations, and Policies

National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) and creation of the National Earthquake Hazards Reduction Program (NEHRP) established a long-term earthquake risk reduction program to better understand, predict, and mitigate risks associated with seismic events. The following four federal agencies are responsible for coordinating activities under NEHRP: USGS; National Science Foundation; FEMA; and National Institute of Standards and Technology. Since its inception, NEHRP has shifted its focus from earthquake prediction to hazard reduction. The current program objectives (NEHRP 2016) are as follows:

1. Develop effective measures to reduce earthquake hazards;
2. Reduce facilities and system vulnerabilities to earthquakes;
3. Improve earthquake hazards identification and risk assessment methods; and
4. Improve the understanding of earthquakes and their effects.

[1] Some collections did not specify geologic formation (UCMP 2020).

Implementation of NEHRP objectives is accomplished primarily through original research, publications, and recommendations and guidelines for state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

State Laws, Regulations, and Policies

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (California Pub. Res. Code Section 2621 *et seq*.) was passed to reduce the risk to life and property from surface faulting in California. The Alquist-Priolo Act prohibits construction of most types of structures intended for human occupancy directly on or across the surface traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as "active," and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones. Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are "sufficiently active" and "well defined." Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Pub. Res. Code Sections 2690 et seq.) establishes statewide minimum public safety standards for mitigation of earthquake hazards. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, such as strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the State of California is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones. In addition, the Seismic Hazards Mapping Act addresses expansive soils, settlement, and slope stability. Under the Seismic Hazards Mapping Act, cities and counties may withhold the development permits for a site within a seismic hazard zone until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

California Public Resources Code

Pub. Res. Code Section 5097.5 states that "no person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor." As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

Local Laws, Regulations, and Policies

City of Oakland General Plan

Applicable policies and actions from the City of Oakland General Plan Safety Element (City of Oakland 2004) include the following:

Policy GE-1: Develop and continue to enforce and carry out regulations and programs to reduce seismic hazards and hazards from seismically triggered phenomena.

- **Action GE-1.2:** Enact regulations requiring the preparation of site-specific geologic or geotechnical reports for development proposals in areas subject to earthquake-induced liquefaction, settlement or severe ground shaking, and conditioning project approval on the incorporation of necessary mitigation measures.

Policy GE-2: Continue to enforce ordinances and implement programs that seek specifically to reduce the landslide and erosion hazards.

- **Action GE-2.1:** Continue to enforce provisions under the subdivision ordinance requiring that, under certain conditions, geotechnical reports be filed and soil-hazards investigations be made to prevent grading from creating unstable slopes, and that any necessary corrective actions be taken.
- **Action GE-2.2:** Continue to enforce the grading, erosion and sedimentation ordinance by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation.
- **Action GE-2.3:** Continue to enforce provisions under the creek protection, storm water management and discharge control ordinance designed to control erosion and sedimentation.
- **Action GE-2.5:** Enact regulations requiring new development projects to employ site-design and source-control techniques to manage peak storm-water runoff flows and impacts from increased runoff volumes.
- **Action GE-2.6:** Design fire-preventive vegetation-management techniques and practices for creek-sides and high-slope areas that do not contribute to the landslide and erosion hazard.

3.6.3 IMPACT ANALYSIS

Methodology

Impacts related to geology, soils, seismicity, and associated hazards were evaluated based on professional standards and review of soils and geologic information for the Revised Draft VMP area. This analysis focused on the Revised Draft VMP's potential to increase the risk of personal injury, risk of loss of life, and damage to property as a result of existing geologic conditions in the Revised Draft VMP area. The impact analysis assumes that the risk to, or posed by, existing City facilities from seismic hazards, expansive soils, or other geologic hazards within the Revised

Draft VMP area are part of the baseline condition and would not be an impact of the Revised Draft VMP. This analysis also considers the VMP's potential impacts on paleontological resources.

Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines and the City of Oakland CEQA Thresholds of Significance, the Revised Draft VMP would have a significant impact related to geology, soils, and seismicity if it would expose people or structures to geologic hazards, soils, and/or seismic conditions so unfavorable that they could not be overcome by special design using reasonable construction and maintenance practices. Specifically, the Revised Draft VMP would result in a significant impact related to geology, soils and seismicity if it would:

- Expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving:
  - 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 Publications 42 and 117 and Pub. Res. Code Section 2690 et seq.);
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction, lateral spreading, subsidence, collapse; or
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil, creating substantial risks to life, property, or creeks/waterways;
- 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 an on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007, as it may be revised) creating substantial direct or indirect risks to life or property;
- Be located above a well, pit, swamp, mound, tank vault, or unmarked sewer line, creating substantial risks to life or property;
- Be located above landfills for which there is no approved closure and post-closure plan, or unknown fill soils, creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Issues Not Evaluated Further

Due to the nature of the Revised Draft VMP, there would be no impacts related to the following significance criteria and, therefore, these significance criteria are not evaluated further:

- **Rupture of a known earthquake fault**. The Hayward Fault runs through the Revised Draft VMP area and is the only fault in the plan's vicinity that is recognized by the Alquist-Priolo Earthquake Fault Zoning Act. However, the Revised Draft VMP would not directly or indirectly cause substantial adverse effects involving rupture of a known earthquake fault or strong seismic ground shaking. Additionally, the Revised Draft VMP does not include construction of structures that could be affected by seismic or secondary seismic hazards.

- **Strong seismic ground shaking.**The Revised Draft VMP is located within a seismically active area. However, the Revised Draft VMP would not result in construction of structures and treatment techniques would not substantially increase exposure to seismic ground shaking.

- **Seismic-related ground failure, including liquefaction**. In general, the Revised Draft VMP area is located in upland areas and rated very low for liquefaction. As mentioned above, soils in the VMP area are well drained are therefore less susceptible to liquefaction.

- **Be located on expansive soils**.The Revised Draft VMP area is within the East Bay Hills, characterized as moderate to steep slopes with shallow loam soil types that have a low shrink or swell potential. Shrink-swell potential primarily affects structures and the Revised Draft VMP does not include construction of buildings or roadways. Therefore, the Revised Draft VMP would not result in substantial adverse effects related to expansive soils.

- **Be located above a well, pit, swamp, mound, tank vault, or unmarked sewer line** . These features primarily affect structures and the Revised Draft VMP does not include construction of buildings or roadways. Therefore, the VMP would not result in substantial adverse effects related to location above a well, pit, swamp, mound, tank vault, or unmarked sewer line.

- **Be located above landfills or unknown fill soils**. The Revised Draft VMP area is not located above any landfills or unknown fill soils. Therefore, no physical impact on landfills woul occur.

- **Soils incapable of supporting septic tanks or alternative wastewater disposal**. The Revised Draft VMP does not include construction of septic tanks or wastewater treatment systems; therefore this criterion is not applicable to the Revised Draft VMP.

Environmental Impacts

Impact GEO-1: Result in Substantial Erosion or Loss of Topsoil (*Less than Significant with Mitigation*)

Steeply sloped areas within the Revised Draft VMP area are more susceptible to erosion or loss of topsoil than less steep areas. For this Recirculated DEIR, erosion and loss of topsoil are evaluated together as surficial erosion. In contrast, landslides are larger, singular mass movements; landslide potential is described further below in Impact GEO-2. Steeper hillslopes in the Revised Draft VMP area are more sensitive to potential erosion impacts caused by Revised Draft VMP activities. Additionally, the history of past land practices can influence hydrologic conditions, resulting in erosion impacts or effects to natural drainage courses. For example, soils that have been compacted provide reduced infiltration rates for precipitation, which typically results in increased overland runoff, which in turn may lead to increased erosion. Such erosion events may be exacerbated by vegetation removal if the vegetation removal is extensive, reduces the vegetative canopy to a substantial degree, and increases the extent of bare soil that would be susceptible to raindrop erosion or rilling. Because of the interaction between rainfall, surface erosion, and water quality, these issues are also discussed in Section 3.9, *Hydrology and Water Quality*. The increased potential for erosion following Revised Draft VMP activities can contribute sediment to downstream waterways.

Revised Draft VMP activities may also affect the tree root structure in treatment areas. Damage to tree root structure can contribute to soil instability and increase the risk of surface erosion. In addition, the loss of plant cover and loss of input of organic matter could potentially degrade the soil structure. Additionally, soil compaction potentially due to mechanized equipment or grazing could increase runoff due to reduced rainfall infiltration, as described above, resulting in the potential for increased surface erosion. These potential effects are described further below by the proposed vegetation management techniques.

Grazing

Grazing has a relatively lower potential for ground disturbance compared to other Revised Draft VMP treatments; however, soil compaction, displacement, and erosion can occur from over-grazing and the development of animal trails. When areas are overgrazed, trails can develop as animals follow repeated paths of foraging and movement. Grazing trails, when they develop, can have a hydrologic effect of concentrating runoff and increasing erosion. The mechanical force from grazing animals' hooves can also compact the soil and cause soil movement in a downslope direction. As described above, soil compaction lowers the ability of the soil to infiltrate rainfall (i.e., lowered infiltration rate), which results in an increased likelihood of overland flow.

Under baseline conditions, approximately 900 acres of the Revised Draft VMP area are grazed annually. The Revised Draft VMP would increase grazing activities up to 1,100 acres per year. The Revised Draft VMP would thereby incrementally increase grazing-related erosion impacts. Implementation of **Mitigation Measure BIO-5 (Grazing)** would avoid, reduce, or minimize erosion impacts from grazing by monitoring livestock to prevent overgrazing. Up to 900 acres of Revised Draft VMP areas have been grazed annually over the last several years. During that time, grazing management has included the rotation and movement of herds to prevent

overgrazing effects. The conditions in Mitigation Measure BIO-5 would provide additional measures to avoid and minimize erosion impacts by preventing overgrazing.

Mechanical Treatments

Mechanical treatment techniques have the potential to increase soil erosion and loss of topsoil where vegetation removal or other activities remove the vegetative ground cover and expose or disturb the top layer of soil. Additionally, mechanical equipment can compact soils or cause rutting, increasing erodibility of soil. The Revised Draft VMP includes standards to guide the areal concentration of vegetation removal. These standards would help to avoid and reduce the potential for significant erosion. Implementation of **Mitigation Measure GEO-1 (Minimize Soil Disturbance)** would further minimize soil disturbance by limiting ground disturbance to the minimum footprint necessary to meet objectives, leaving stumps intact, and minimizing the use of mechanical equipment on steep slopes. Implementation of **Mitigation Measure GEO-2 (Erosion and Sediment Control Measures)** would minimize soil erosion and loss of topsoil by requiring erosion control measures in areas where soils are potentially disturbed. Implementation of **Mitigation Measure GEO-3 (Geotechnical Evaluation)** would reduce the potential for landslides through evaluation of potential for future landslide potential from Revised Draft VMP treatments by a qualified professional in situations where landslide potential is increased. This measure would also help reduce soil erosion impacts from operating equipment used during mechanical treatment activities. Implementation of **Mitigation Measure AES-2 (Staging)** would reduce the potential for erosion by requiring that equipment be staged on areas that have already been compacted or previously disturbed. Implementation of **Mitigation Measure HYD/WQ-1 (Work Windows)**, which requires that wheeled or tracked equipment used by creeks only be used when there is no flow and prohibits vegetation treatment activities within 48 hours of a significant rainfall, would further reduce soil erosion effects.

Hand Labor Treatments

In comparison to other treatments, hand labor treatments would likely have a relatively lower potential to cause soil erosion or loss of topsoil due to the smaller scale and reduced intensity of the treatment. However, removal of soil-binding roots can lead to soil exposure. As described above, implementation of Mitigation Measures GEO-1 and GEO-2 would also reduce the potential for soil erosion from hand labor treatments.

Herbicides

Herbicides would be used to remove targeted vegetation or prevent regrowth. Herbicide would be applied using the cut and daub method or by backpack sprayer. Herbicide use on herbaceous species is not proposed, with the exception of spot treatment of pampas grass and jubata grass. As broadcast herbicide application is not proposed on herbaceous groundcover, this would minimize the potential for significant soil exposure or the creation of large barren soil areas with subsequent erosion. Long-term effects of herbicide use could affect the root structure in treated areas, potentially causing root decay or instability, which could increase erosion in the longer-term. However, the increase in erosion from herbicide use is not anticipated to be significant.

Mitigation Measures

Mitigation Measure AES-2: Staging (VMP BMP GEN-4)

See text in Section 3.1, *Aesthetics*.

Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)

See text in Section 3.4, *Biological Resources*.

Mitigation Measure GEO-1: Minimize Soil Disturbance (revised from VMP BMP GEN-2)

To reduce the potential for erosion and loss of topsoil, the City and its contractors shall implement the following measures during ground-disturbing activities:

- To minimize impacts to natural resources, the City and its contractors shall limit the area of ground disturbance to the minimum footprint necessary to meet the goals and objectives of the vegetation management activity.
- This will be accomplished by determining a perimeter of work activity around the vegetation treatment site that will not exceed 25 feet from the treated vegetation. Entry and exit points to the treatment will be clearly defined.
- Ground-disturbing activities will not occur when soils are saturated, or within one week following an inch or more of rain, unless the ground is consistently firm and can support the weight of machinery or livestock (during grazing) without creating ruts, as determined by soil field inspection.
- The City and its contractors shall leave stumps from removed trees and shrubs intact, with stump heights not exceeding 6 inches, as measured from the uphill side.
- When heavy equipment is used, the City and its contractors shall utilize low ground-pressure equipment, to the extent feasible.
- The City and its contractors shall not use heavy equipment on unstable slope areas, slopes with gradients exceeding 65%, slopes with gradients between 50% and 65% where the erosion hazard rating is high or extreme, or slopes with gradients over 50% that lead without flattening to sufficiently dissipate water flow and trap sediment before reaching a stream or other water resource.
- The City and its contractors shall regrade or recontour any areas subject to soil disturbance from heavy equipment, including dragging or skidding of trees or other material.

Mitigation Measure GEO-2: Erosion and Sediment Control Measures (VMP BMP GEN-3)

The City and its contractors shall implement the following measures:

- Upland soils exposed by maintenance activities shall be seeded and stabilized using erosion control fabric or hydroseeding.

- Erosion control fabrics shall consist of natural fibers that biodegrade over time. No plastic or other non-porous material shall be used as part of a permanent erosion control approach. Plastic sheeting may be used to protect a slope from runoff temporarily, but only if there are no indications that special-status species would be affected by the application, as determined by a qualified biologist.

- Erosion control materials shall be absent of monofilament material or netting that can entrap wildlife.

- Erosion control measures shall be installed according to manufacturer's specifications.

- Appropriate measures include, but are not limited to, the following:

  - silt fences

  - straw bale barriers

  - brush or rock filters

  - storm drain inlet protection

  - sediment traps

  - sediment basins

  - erosion control blankets and mats

  - soil stabilization (e.g., tackified straw with seed, jute, or geotextile blankets, broadcast and hydroseeding)

- All temporary construction-related erosion control methods (e.g., silt fences) shall be removed at the completion of the project.

- The City and its contractors shall comply with California Stormwater Quality Association (CASQA) Construction BMPs guidance and specifications on implementation of the erosion control measures listed above (see also www.casqa.org/resources/bmp-handbooks/construction):

  - SC-3. Sediment Basins

  - SC-4. Straw or Sand Bag Barriers

  - SC-5. Sediment Traps

  - SC-6. Silt Fences

  - SS-1. Erosion Control Blankets, Mats, and Geotextiles

  - VR-1. Brush or Rock Filters

- VR-4a. Temporary Outlet Protection
- VR-4b. Storm Drain Inlet Protection
- WD-1. Earth Dike
- WD-1. Slope Drain
- WD-3. Temporary Drains and Swales

Mitigation Measure GEO-3: Geotechnical Evaluation

City staff shall determine on a case-by-case basis whether to retain a qualified professional (e.g., engineering geologist or geotechnical engineer) to conduct a geotechnical reconnaissance to evaluate the potential impacts of Revised Draft VMP treatment activities on future landslide potential if:

- Habitable structures are located within 100 feet of the toe of the slope downhill of the treatment area and
- The prescribed treatment would include the use of heavy equipment or machinery and substantial ground-disturbing activities (i.e., this measure would not apply to methods such as hand treatment, weed eating, or herbicide treatment), and one or more of the following conditions is identified:
  - The treatment area is listed as "unstable," "many landslides" on applicable slope stability mapping; or
  - The average slope steepness of the treatment area is greater than 10 degrees (about 18 percent); or
  - There is visible evidence of landslide activity (e.g., scarps, crooked trees, landslide-generated debris piles) within the treatment area, as documented by a field reconnaissance visit.

Mitigation Measure HYD/WQ-1: Work Windows (VMP BMP GEN-1)

See text in Section 3.9, *Hydrology and Water Quality*.

Conclusion

The Revised Draft VMP would have potential for erosion or topsoil loss due to soil disturbance and vegetation removal. Implementation of Mitigation Measures AES-2, BIO-5, GEO-1, GEO-2, GEO-3, and HYD/WQ-1 would avoid and minimize potential effects of erosion or loss of topsoil during and following Revised Draft VMP activities to a less-than-significant level. Therefore, impacts for erosion or loss of topsoil would be considered **less than significant with mitigation**.

Impact GEO-2: Substantial Adverse Effects Involving Landslides (*Less than Significant with Mitigation*)

Landslides can result in substantial property damage, injury, and loss of life. Landslides are more likely to occur with saturated soil conditions, and are more prone to happen during or following winter seasons with abundant rainfall. Landslides can also be triggered by earthquakes. As discussed in the environmental setting, much of the Revised Draft VMP is located in a region designated as highly susceptible to landslides (CDOC 2020). In addition to rainfall and earthquakes, slope instability and the likelihood for landslides is affected by several factors including geologic material and structure, slope steepness, groundwater and soil moisture conditions, soil type, land use practices, and vegetation cover conditions.

The Revised Draft VMP would not involve construction of habitable structures. Therefore, no additional long-term exposure to landslides beyond current conditions would occur as a result of the Revised Draft VMP. However, some Revised Draft VMP treatment techniques, such as those that occur on steep slopes, could result in increased potential for landslides.

Plant root systems provide cohesion to surface soils and reduce soil water content, which reduce the driving factors that favor landslide development. Treatment techniques resulting in the removal of vegetation (e.g., mechanical treatment, hand removal, herbicide application, etc.) could affect the root structure in treated areas such that the stability of slopes and soils could decrease, which could increase the risk for landslide. If the removal of vegetation is extensive, at a watershed scale, it can also affect soil moisture content by reducing evapotranspiration, also leading to increased soil moisture, runoff and in some specific instances increase the risk of landslides. However, such an effect generally requires a more comprehensive and wide-scale removal of vegetation than what is proposed in the Revised Draft VMP.

In general, regardless of vegetation management technique, areas with steeper slopes and where previous landslides have occurred are at higher risk for future landslides. Additionally, landslides can impact water quality through generation of erodible material and can result in increased sedimentation impacts to areas located below (downstream of) the Revised Draft VMP. These issues are discussed in more detail in Section 3.9, *Hydrology and Water Quality*. However, the widespread or complete removal of vegetation in treatment areas would not occur under the Revised Draft VMP, which would minimize the potential for these impacts. Vegetation treatment within the Revised Draft VMP area (provided in Appendix A of this Recirculated DEIR) includes leaving a minimum number of trees per acre in each vegetation type and guidance on spacing between retained trees. For example, mature eucalyptus stands would be thinned to ensure 35-foot horizontal spacing between trunks, and second-growth eucalyptus stands would be thinned to reach an average 25-foot spacing between trunks.

Moderate to high severity wildfire can greatly increase the likelihood of debris sliding and debris flows (Haas et al. 2017). Wildfires can also create soil hydrophobicity, whereby rainstorms following a wildfire can result in significantly increased runoff and the potential for debris flows, which can impact people or structures that are located below an area that has burned. The Revised Draft VMP would reduce risks of fire, especially catastrophic fire, and thus help reduce the risk for post-fire soil hydrophobicity and resulting debris flows. This would be a beneficial impact compared to existing conditions.

Grazing

Grazing has a lower ground disturbance potential compared to mechanical techniques; however, soil compaction, displacement and erosion can occur from over grazing and the development of animal trails. While overgrazing could increase surface runoff and erosion, it would not likely contribute to increasing the risk for landsliding. Implementation of **Mitigation Measure BIO-5** would minimize the potential of landslides from grazing by monitoring livestock to ensure over-grazing does not occur.

Hand Labor Techniques

Some hand labor techniques (e.g., use of chainsaws and weed whips) include shrub removal, minor pruning, and mulch application. The potential for these types of vegetation management activities to increase the risk of landslides is considered very minimal due to the small scale of the activity and minimal soil disturbance. The impact would be less than significant and no mitigation is required.

Mechanical Techniques

Mechanical treatment techniques would have elevated potential to create landslides from ground disturbance compared to grazing and hand labor techniques. Mechanical techniques generally including mowing, grading, tree removal, and chipping that require large mechanical equipment. Mechanical vegetation removal, especially along steep slopes and areas already prone to landslides would generate a higher potential of slope instability. For example, if many trees that were anchoring the toe of a previously active slide area were removed, the historic or previous landslide could be activated. However, the standards for vegetation treatment within the Revised Draft VMP (leaving a minimum number of trees per acres in each vegetation types and guidance on spacing between retained trees) would minimize this potential, because the wide scale removal of trees that could reactivate a slide area would not occur under the Revised Draft VMP. However, if mechanical techniques caused slope instability that could result in landslides or debris flows, resulting in impacts to habitat or infrastructure, the impacts would be potentially significant. Based on the tree removal standards proposed in the Revised Draft VMP, tree removal activities in the Revised Draft VMP would not occur at a scale or extent to result in such slope instability, landslides, or debris flows. Implementation of **Mitigation Measures GEO-1 and GEO-2** would further minimize the risk of landslides by minimizing the areas of disturbance and by implementing erosion control measures in areas where soils are disturbed. Implementation of **Mitigation Measure GEO-3** would reduce the potential for landslides through evaluation of potential for future landslide potential from Revised Draft VMP treatments by a qualified professional in situations where landslide potential is increased. Implementation of **Mitigation Measure AES-2** would reduce the potential for landslides by staging equipment on areas that have already been compacted or previously disturbed.

Herbicide

Herbicides would be used to kill vegetation or prevent growth. Potential to create landslides from ground disturbance from herbicide treatments is insignificant. However, long-term effects could affect the root structure in treated areas such that the stability of slopes and soils could decrease, which would increase the risk of landslide. Based on the areas where herbicide would be applied, and the standards proposed in the Revised Draft VMP for tree retention, herbicide application under the Revised Draft VMP would not occur at a scale or extent to result in slope

instability, landslides, or debris flows. The increase in erosion from herbicide use is not anticipated to be significant.

Mitigation Measures

The City would implement the following mitigation measures to reduce Impact GEO-2:

Mitigation Measure AES-2: Staging (VMP BMP GEN-4)

See text in Section 3.1, *Aesthetics*.

Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)

See text in Section 3.4, *Biological Resources*."

Mitigation Measure GEO-1: Minimize Soil Disturbance (revised from VMP BMP GEN-2)

See text in Impact GEO-1 above.

Mitigation Measure GEO-2: Erosion and Sediment Control Measures (VMP BMP GEN-3)

See text in Impact GEO-1 above.

Mitigation Measure GEO-3: Geotechnical Evaluation

See text in Impact GEO-1 above.

Conclusion

The Revised Draft VMP is unlikely to increase the potential risk for landslides. Application of Mitigation Measures AES-2, BIO-5, GEO-1, GEO-2, and GEO-3, would provide additional impact avoidance and minimization to reduce potential effects on long-term slope instability in landslide-prone areas during and following implementation of Revised Draft VMP activities. Therefore, potential adverse effects involving landslides would be considered **less than significant with mitigation.**

Impact GEO-3: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature (*Less than Significant with Mitigation*)

Some of the Revised Draft VMP activities (e.g., grazing, hand removal, herbicide application) would be conducted above-ground. Therefore, these treatment types would not impact paleontological resources or unique geological features. Soils would be disturbed during implementation of mechanical treatments. Mechanical treatments could disturb soils to a depth of one foot. The potential for these ground-disturbing activities to uncover, much less destroy, a previously documented or unknown paleontological resources is unlikely, since resources are usually found at least a few feet but often many feet below the ground surface. However, the possibility exists that ground disturbance could reveal the presence of a buried paleontological resource. Implementation of **Mitigation Measure GEO-4 (Stop Work if Paleontological Resources Are Unearthed during Revised Draft VMP Treatment Activities)** would ensure that paleontological resources discovered during implementation of the Revised Draft VMP would be protected in place or evaluated. The impact on unique paleontological resources from implementation of the VMP would be less than significant with mitigation.

Mitigation Measures

The City and its contractors shall implement the following mitigation measure to reduce Impact GEO-3:

> **Mitigation Measure GEO-4: Stop Work if Paleontological Resources Are Unearthed during Revised Draft VMP Treatment Activities**
>
> If evidence of any paleontological resources (e.g., fossilized remains of plants and animals) is discovered during Revised Draft VMP treatment activities, the City and its contractors shall halt all ground-disturbing activity within 20 feet of the find until a qualified professional paleontologist can assess the significance of the find and make recommendations. If the site can be protected in place and avoided, no further action is necessary. Further evaluation and treatment shall be required if the resource cannot be protected and avoided. Such evaluations shall be conducted by a qualified paleontologist. Treatment may include preparation and recovery of fossil materials for an appropriate museum or university collection, and may include preparation of a report describing the finds. The City shall be responsible for ensuring that the consulting paleontologist's recommendations for treatment are implemented.

Conclusion

The Revised Draft VMP is unlikely to uncover, much less destroy, paleontological resources. Implementation of Mitigation Measure GEO-4 would provide additional impact avoidance and minimization during implementation of the Revised Draft VMP. Therefore, the potential impacts to paleontological resources and unique geological features would be **less than significant with mitigation.**

3.7 GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE, AND ENERGY

This section includes an environmental setting that describes the existing greenhouse gas (GHG) emissions and climate change issues in the study area, which includes the Revised Draft VMP area and the broader state of California context. The environmental setting also describes energy resources that serve the Revised Draft VMP area. This section then describes the regulatory setting and evaluates the Revised Draft VMP's effects on GHG emissions, climate change, and energy resources. The impact evaluation begins by describing the methodology used to evaluate significance and then presents the impact analysis. Detailed information about the assumptions and modeling calculations used in this analysis are provided in **Appendix C**, *Air Quality/Greenhouse Gas Emissions Calculations,* of this Recirculated DEIR.

3.7.1 ENVIRONMENTAL SETTING

Climate change results from the accumulation in the atmosphere of GHGs, which are produced primarily by the burning of fossil fuels for energy. Because GHGs (CO_2, methane, and N_2O) persist and mix in the atmosphere, emissions anywhere in the world affect the climate everywhere in the world. GHG emissions are typically reported in terms of carbon dioxide equivalents (CO_2e), which convert all GHGs to an equivalent basis taking into account their global warming potential (GWP) compared to CO_2. **Table 3.7-1** shows the six GHGs and their respective GWP.

Table 3.7-1. Greenhouse Gas Overview and Global Warming Potential

Greenhouse Gas	GWP over 100 years (in IPCC 2013/SAR)[(a)]	Description
Carbon Dioxide (CO_2)	1/1	Released into the atmosphere through burning of fossil fuels (coal, natural gas and oil), solid waste, trees, and wood products, and also because of certain chemical reactions; removed from the atmosphere when it is absorbed by plants and oceans; remains in the atmosphere for 50 to more than 100,000 years.
Methane (CH_4)	28/21	Emitted during the production and transport of coal, natural gas, and oil; methane emissions also result from livestock and other agricultural practices and from the decay of organic waste, notably in municipal solid waste landfills; remains in the atmosphere for about 10 years.
Nitrous Oxide (N_2O)	265/310	Emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste; remains in the atmosphere for about 100 years.

Greenhouse Gas	GWP over 100 years (in IPCC 2013/SAR)[a]	Description
Hydrofluoro-carbons (HFCs)	4-12,400/ 650–11,700	Typically used in refrigeration and air conditioning equipment, as well as in solvents; emissions are generated primarily from use in air conditioning systems in buildings and vehicles; remains in the atmosphere from 10 to 270 years.
Perfluoro-carbons (PFCs)	6,630-11,100/ 6,500–9,200	Emitted as by-products of industrial and manufacturing sources; remains in the atmosphere from 800 to 50,000 years.
Sulfur Hexa-fluoride (SF_6)	23,500/23,900	Used in electrical transmission and distribution; remains in the atmosphere approximately 3,200 years.

[a] As scientific understanding of the global warming potential (GWP) of various greenhouse gases (GHGs) improves over time, GWP values are updated in the Intergovernmental Panel on Climate Change (IPCC) scientific assessment reports. For regulatory consistency, however, the United Nations Framework Convention on Climate Change reporting guidelines (and international treaties) for national inventories continue to the use of GWP values to those published in the IPCC's 1996 Second Assessment Report (SAR). The table shows GWP values for 100 years from IPCC 2013 and SAR.

Sources: ~~U.S. Environmental Protection Agency [USEPA]~~ 2018; IPCC 2013~~; IPCC~~, 1996

These six gases are the major GHGs that were recognized by the United Nations Framework Convention on Climate Change in 1992 and other later international climate change treaties including the Kyoto Accords which was the first international treaty to establish GHG emission reduction goals. Other GHGs were not recognized by the international treaties, chiefly because of the smaller role that they play in global climate change or the uncertainties surrounding their effects. One GHG not recognized by the international treaties is atmospheric water (H_2O) because no obvious correlation exists between H_2O and specific human activities. Water acts in a feedback manner; higher temperatures lead to higher H_2O vapor concentrations, which in turn cause more global warming (Intergovernmental Panel on Climate Change [IPCC] 2013). Nitrogen trifluoride was not recognized in the initial Kyoto Accords, but was subsequently included by the United Nations Framework Convention on Climate Change and recognized in California as a GHG.

The most important GHG in human-induced global warming is CO_2. Although many gases have much higher GWP than the naturally occurring GHGs, CO_2 is emitted in such vastly higher quantities that it accounts for about 81 percent of the GWP of all GHGs emitted by the United States (USEPA 2020a). Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions over time and, thus, substantial increases in atmospheric CO_2 concentrations. In 2018, atmospheric CO_2 concentrations were about 409 ppm, more than 46 percent higher than the pre-industrial concentrations of about 280 ppm (USEPA 2020a). In addition to the sheer increase in the volume of its emissions, CO_2 is a major factor in human-induced global warming because of its long lifespan in the atmosphere (50,000–100,000 years).

In 2015, total Bay Area GHG emissions were 85 million metric tons of carbon dioxide equivalents (MMT CO_2e) which represents a decrease from the 86.6 MMT CO_2e estimated for 2011 emissions (BAAQMD 2015, ~~BAAQMD~~ 2017a). The transportation sector was the largest source of emissions, accounting for approximately 41 percent of the total 2015 emissions. Light and medium-duty cars and trucks accounted for 72 percent of emissions in the transportation sector while heavy duty truck accounted for 16 percent.

In 2017, Oakland's core emissions, GHGs emitted within city limits were approximately 2.6 MMT CO_2e while consumption emissions, which include lifecycle GHGs emitted due to activities occurring within city limits, were approximately 7.4 MMT CO_2e. With consumption emissions included, material use and waste was the largest source of emissions (39 percent), followed by transportation and land use (32 percent), buildings and energy use (20 percent), and port operations (9 percent). Total GHG emissions have declined by 24 percent since 2005 (City of Oakland 2020a).

Vegetation and soil in natural and working lands can serve as both carbon sources and sinks depending on management practices and events like wildfires. In California, from 1995-2016, urban forests were net carbon sinks (CARB 2020).

Energy Resources and Consumption

California has extensive energy resources, including an abundant supply of crude oil, high production of conventional hydroelectric power, and leads the nation in electricity generation from renewable resources (solar, geothermal, and biomass resources) (U.S. Energy Information Administration [EIA] 2020). California has the second highest total energy consumption in the United States but one of the lowest energy consumption rates per capita (47th in 2018) due to its mild climate and energy efficiency programs (EIA 2020). A comparison of California's energy consuming end-use sectors indicates that the transportation sector is the greatest energy consumer, by approximately two to three times compared to the other end-use sectors (Industrial, Commercial, and Residential, which are listed in order of greatest to least consumption) (EIA 2020). California is the largest consumer of motor gasoline and jet fuel in the United States (EIA 2020).

The City of Oakland uses East Bay Community Energy (EBCE) as its energy provider and utilizes EBCE's 100-percent carbon-free service for municipal accounts (City of Oakland 2019). The city placed ~~3rd~~third in the 2019 Green Fleet awards and has acquired only alternative fuel or hybrid vehicles since 2002 (City of Oakland 2018a, American Council for an Energy Efficient Economy [ACEEE] 2019, 100 Best Fleets 2020). Oakland's municipal fleet is composed of greater than 9-percent-efficient vehicles, including hybrid, plug-in hybrid, and battery electric vehicles (ACEEE 2019). Between 2005 and 2013, City-wide energy use decreased 2.2 percent, with a 3.3-percent increase in electricity use being offset by a 5.4 decrease in natural gas use (City of Oakland 2020b). As of 2017, there were over 25 MW of solar capacity installed in the City (City of Oakland 2019).

Issues Linked to Climate Change

Anthropogenic (human-caused) emissions of GHGs are widely accepted in the scientific community as contributing to global warming. Temperature increases associated with climate

change are expected to adversely affect plant and animal species, cause ocean acidification and sea level rise, alter frequency and intensity of precipitation events, increase wildfire risks, affect water supplies, affect agriculture, and harm public health (BAAQMD 2017a, City of Oakland 2018b, IPCC 1996, IPCC 2013). Projected local impacts of climate change include rising Bay and Delta waters, increased vulnerability to floods, decreased water supply due to shrinking Sierra snowpack, increased fire danger, more extreme heat events and public health impacts, added stress on infrastructure, higher prices for food and fuels, and other ecological and quality of life impacts (City of Oakland 2018b). Increased wildfire risk and severity are anticipated throughout California due to the progression of climate change (Westerling 2018, Krawchuk et al. 2009). Thirteen~~Ten~~ of the most destructive fires in California have occurred since 2015 (CAL FIRE ~~2019a~~2022), and California is facing a dramatic increase in the number and severity of wildfires. The Fourth Climate Assessment (Bedsworth et al. 2018), projects that California's wildfire burn area likely will increase by 77 percent by the end of the century. As identified in in Governor Newsom's Strike Force report (State of California 2019), the growing risk of catastrophic wildfires has created an imperative for the state to act urgently and swiftly to expand fire prevention efforts. The Revised Draft VMP anticipates an increase in wildfire potential due to climate change and seeks to manage fuels such that wildfire impacts are reduced.

Global climate change is already affecting ecosystems and societies throughout the world. Climate change adaptation refers to the efforts undertaken by societies and ecosystems to adjust to and prepare for current and future climate change, thereby reducing vulnerability to those changes. Human adaptation has occurred naturally over history; people move to more suitable living locations, adjust food sources, and more recently, change energy sources. Similarly, plant and animal species also adapt over time to changing conditions; they migrate or alter behaviors in accordance with changing climates, food sources, and predators.

Many national, as well as local and regional, governments are implementing adaptive practices to address changes in climate, as well as planning for expected future impacts from climate change. Some examples of adaptations that are already in practice or under consideration include conserving water and minimizing runoff with climate-appropriate landscaping, capturing excess rainfall to minimize flooding and maintain a constant water supply through dry spells and droughts, protecting valuable resources and infrastructure from flood damage and sea level rise, and using energy- and water-efficient appliances. By reducing the risk of wildfires and thereby also reducing the significant carbon releases associated with catastrophic wildfires, the Revised Draft VMP supports adaptive practices to help address climate change.

3.7.2 REGULATORY SETTING

This subsection discusses the federal, state, and local laws, and regulations that pertain to GHG emissions in the proposed project area and the state of California.

Federal Laws, Regulations, and Policies

USEPA is responsible for the regulation of transportation-related emission sources, such as aircraft, ships, and certain types of locomotives, under the exclusive authority of the federal government. USEPA also establishes vehicular emission standards, including those for vehicles

sold in states other than California. Automobiles sold in California must meet stricter emission standards established by CARB.

In *Massachusetts v. The Environmental Protection Agency* [2007], the U.S. Supreme Court ruled that GHGs are air pollutants that can be regulated under the CAA. The court found that USEPA has a mandatory duty to enact rules regulating mobile GHG emissions under the CAA. The court held that GHGs fit the definition of an air pollutant that causes and contributes to air pollution and may reasonably be anticipated to endanger public health or welfare. Following the court's decision, in 2009, the USEPA Administrator found that the current and projected concentrations of GHGs threaten public health and welfare of current and future generations and that combined emissions from new motor vehicles contribute to GHG pollution.

Corporate Average Fuel Economy Standards

The USEPA and National Highway Traffic Safety Administration (NHTSA) have issued rulemakings regarding the national program of fuel of fuel economy standards to passenger vehicles and light-duty trucks of model years 2017-2025, culminating in fuel economy of 54.5 mpg by model year 2025 (USEPA 2012), as well as to medium- and heavy-duty vehicles of model years 2014-2018, including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses (USEPA and NHTSA 2011).

The NHTSA and USEPA updated Corporate Average Fuel Economy (CAFE) and GHG emissions standards for passenger cars and light trucks and established new standards, covering model years 2021 through 2026, under the Safer Affordable Fuel Efficient (SAFE) vehicles final rule (SAFE Rule Part Two; NHTSA 2020). This rule, which went into effect on June 29, 2020 rolled back some of the fuel efficiency mandates that had been in effect. In March 2022, CAFE standards were finalized for model years 2024-2026. The final rule establishes standards that require an industry-wide fleet average of approximately 49 mpg for passenger cars and light trucks. Current rulemaking is working on establishing standards for model years 2027 and beyond for passenger cars and light trucks, standards for model years 2029 and beyond for heavy-duty pickup trucks and vans, standards for model years 2030 and beyond for medium and heavy duty on-highway vehicles and work trucks.

Earlier, in 2019, NHTSA and USEPA had also issued a regulation revoking California's Clean Air Act waiver, which had allowed the State to set its own emissions standards, asserting that the waiver was preempted by federal law. On December 21, 2021, NHTSA published its CAFE Preemption rule, which finalizes its repeal of the SAFE Rule Part One. EPA rescinded SAFE Rule Part One on March 9, 2022, and reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and zero-emission vehicle sales mandate. Notably, California harmonized its vehicle efficiency standards through 2025 with the federal standards through the Advanced Clean Cars Program.

~~On April 1, 2010, USEPA and the National Highway Traffic Safety Administration (NHTSA) established a program to reduce GHG emissions and improve fuel economy standards for new model year 2012(2016 cars and light trucks. On August 9, 2011, USEPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses. On October 15, 2012, USEPA and NHTSA established a program to reduce GHG emissions and improve fuel economy standards for new cars and light trucks through 2025~~

~~(USEPA 2012). 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 2020b). However, in August 2018, USEPA and the NHTSA proposed amendments to the standards covering model years 2021 – 2026 that would decrease the existing fuel efficiency requirements for those years and these amendments were finalized in March 2020 (NHTSA 2020).~~

State Laws, Regulations, and Policies

California Environmental Protection Agency (Cal EPA) is a state agency that includes CARB, the SWRCB, nine RWQCBs, California Department of Resources Recycling and Recovery (CalRecycle), California Department of Toxic Substances Control (DTSC), OEHHA, and CDPR. The mission of Cal EPA is to restore, protect, and enhance the environment, to ensure public health, environmental quality, and economic vitality.

GHG Reduction Goals

In recent years, California has enacted a number of policies and plans to address GHG emissions and climate change. 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. Executive Order (EO) S-3-05 established a goal of 80 percent below 1990 levels by 2050. EO B-30-15 established an interim target to reduce California's GHG emissions to 40 percent below 1990 levels by 2030, and the 2030 target has been codified in Senate Bill (SB) 32, which was signed into law on September 8, 2016. Along with SB 32, AB 197 was also signed into law on September 8, 2016, and requires the state to focus its pollution-reduction efforts on disadvantaged communities and to increase legislative oversight of climate programs.

CARB approved the *First Update to the AB 32 Scoping Plan* on May 22, 2014 (CARB 2014). This update defines climate change priorities for the next 5 years and also sets the groundwork to reach long-term goals set forth in EOs S-3-05 and B-16-2012. The update also highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals and evaluates how to align the state's longer term GHG reduction strategies with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

~~In 2017, CARB further updated the Scoping Plan to reflect progress since 2005, additional reduction measures, and plans for reductions beyond 2020. CARB approved the 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target (CARB 2017) on December 14, 2017, to reflect the 2030 target set by EO B-30-15 and codified by SB 32 (CARB 2017, CARB 2018). The 2017 Scoping Plan includes further emission reductions from cap and trade, clean energy, doubling building energy efficiency, clean fuels, transit-oriented development, clean cars and transit, sustainable freight, reduction of methane and refrigerants, and restoration of natural and working lands.~~

In 2022, CARB released the latest iteration of the Scoping Plan, which lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045 or earlier. The 2022 Scoping Plan utilizes a technologically feasible, cost-effective, and equity-focused path to achieve the State's climate targets as outlined in the California Climate Crisis Act (AB 1279). The major element of the 2022 Scoping Plan focuses on the aggressive reduction of fossil fuels wherever

they are currently used in California. The main tenets of the Scoping Plan include 1) the electrification of vehicles, homes, and buildings; 2) stricter regulation of chemicals and refrigerants that potentiate climate change; 3) encouraging sustainable forms of public transportation, increased production of renewable energies and fuels; and 4) and promotion and expansion of healthy natural working lands (forests, shrublands/chaparral, croplands, wetlands, and other lands) (CARB 2022).

GHG Reduction Regulations

CARB has completed rulemaking to implement several GHG emission reduction regulations and continues to investigate the feasibility of implementing additional regulations. These include the low carbon fuel standard, which reduces GHG emissions associated with fuel usage, and the Renewable Portfolio Standard (RPS), which requires electricity suppliers to increase the amount of electricity generated from renewable sources to certain thresholds by various deadlines. SB 350 established a California GHG reduction target of 40 percent below 1990 levels and sets a renewable portfolio goal of 50 percent by 2030, along with encouraging energy efficiency savings and electrification of transportation. In 2018, SB 100 updated the RPS to require 50 percent renewable resources by the end of 2026, 60 percent by the end of 2030, and 100 percent renewable energy and zero carbon resources by 2045. EO B-55–18 signed by Governor Brown set a goal of statewide carbon neutrality by 2045 and net negative emissions thereafter.

In January 2012, CARB approved the Advanced Clean Cars Program, a vehicle emission control program for model years 2017–2025. To advance California's support of the national program to regulate emissions, CARB submitted a proposal that would allow automobile manufacturer compliance with USEPA's requirements to show compliance with California's requirements for the same model years. The final rulemaking package was filed on December 6, 2012, and the final rulemaking became effective on December 31, 2012.

California Integrated Energy Policy

~~SB 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 and an update every other year (CEC 2020a). The report analyzes data and provides policy recommendations on trends and issues concerning electricity and natural gas, transportation, energy efficiency, renewable energy, and public interest energy research (CEC 2020a). The 2017 Final Integrated Energy Policy Report includes policy recommendations such as implementing the Clean Energy and Pollution Reduction Act; resiliency of the electricity sector; and addressing the vulnerability of California's energy infrastructure to extreme events related to climate change, including sea-level rise and coastal flooding (CEC 2018a). The 2018 IEPR Update, Toward A Clean Energy Future, was split into two volumes that were adopted separately in August 2018 and February 2019 (CEC 2018b, CEC 2019). The 2018 Update covers a broad range of topics, including decarbonizing buildings, energy efficiency, energy equity, integrating renewable energy, climate adaptation activities for the energy sector, and the California Energy Demand Forecast. The Final 2019 Integrated Energy Policy Report provides analyses of electricity sector trends, building decarbonization and energy efficiency, zero-emission vehicles, energy equity, climate change adaptation, and electricity, natural gas, and transportation energy demand forecasts (CEC 2020b).~~

In 2002, the Legislature passed SB 1389, which required the CEC to develop an integrated energy plan biannually for electricity, natural gas, and transportation fuels, for the California Energy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for Zero Emission Vehicles and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

The latest update is the 2022 update to the Integrated Energy Policy Report (CEC 2023). The 2022 Integrated Energy Policy Report (IEPR) Update identifies actions the state and others can take to ensure a clean, affordable, and reliable energy system. The 2022 IEPR Update covers a broad range of topics, including energy reliability and western electricity integration, decarbonizing the electricity sector, and transportation electrification.

California Forest Carbon Plan

The California Forest Carbon Plan was prepared by the Forest Climate Action Team, which was comprised of members from multiple state and federal agencies. The plan contains the following goals, objectives, and targets that may be relevant to the Revised Draft VMP (Forest Climate Action Team 2018):

Goal: California's overarching climate goal for forests is to manage them as healthy and resilient net sinks of carbon that provide a range of ecosystem and societal benefits while reducing GHG and other carbon emissions associated with management activities, conversion, wildfire events, and other disturbances.

Objectives and Targets:

- 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 Private and State/Local Public Forestland
    - By 2020, double the current rate of forest restoration and fuels reduction treatments, including prescribed fire, through the CAL FIRE Vegetation Treatment Program (CalVTP; CAL FIRE 2019~~b~~) from the recent average of 17,500 acres per year to 35,000 acres per year.
    - By 2030, increase forest restoration and fuels treatments, including mechanical thinning and prescribed burning, from the current rate of approximately 17,500 acres per year to 60,000 acres per year.
  - 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.

- 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.
- Protect and Expand Urban Forests
  - Protect the existing tree canopy through policies and programs targeting ongoing maintenance and utilization of industry best management practices.
  - By 2030, increase total urban tree canopy statewide by 10 percent above current levels, targeting disadvantaged and low-income communities and low-canopy areas, with a preference for planting species and varieties that provide substantial carbon storage and are resilient to climate-linked stressors

Regional Laws, Regulations, and Policies

BAAQMD Clean Air Plan and Regional Climate Protection Strategy

The BAAQMD has adopted and released the *Final 2017 Bay Area Clean Air Plan* (also known as *Spare the Air – Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area*) and *Regional Climate Protection Strategy* (RCPS) that updates the *2010 Bay Area Clean Air Plan*; provides a road map for the BAAQMD's future efforts to reduce air pollution; and identifies rules, control measures, and strategies to reduce GHG emissions throughout the Bay Area. As part of this update, 85 control measures have been identified and categorized within nine economic sectors, including stationary sources, transportation, waste, water, and energy. Potential measures applicable to the Revised Draft VMP include (but are not limited to) the reduction of solid waste, reduction of water use, and use of clean available construction equipment in local projects (BAAQMD 2017a).

In addition, the BAAQMD has established a Climate Protection Planning Program, which aims to achieve its goal of reducing GHG emissions in the Bay Area by establishing GHG reduction goals, developing and implementing the 2017 Clean Air Plan, and working with local governments (BAAQMD 2020a). The BAAQMD's GHG emission reduction goals are 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050 (BAAQMD 2020b).

Local Laws, Regulations, and Policies

Applicable local plans, policies, regulations, and ordinances are presented below.

Oakland 2030 Equitable Climate Action Plan

The City's 2030 ECAP contains the following goals and actions that may be relevant to the Revised Draft VMP:

Goal: GHG reduction target for the year 2030 of 56 percent below 2005 levels.

ECAP Actions:

> **A-4. Wildfire Risk Reduction.** Adopt and fully implement a Vegetation Management Plan for high-fire risk areas. Continue to update and enforce the Oakland Fire Code to

require building owners in high-risk areas to maintain defensible space and implement fire prevention measures. Increase wildfire safety requirements for new construction or major renovations in high fire risk areas.

CR-2. Expand and Protect Tree Canopy Coverage. By 2022, create a fifty-year Urban Forest Master Plan that: Prioritizes strategies to address disparities among neighborhoods in tree canopy coverage; Ensures that carbon sequestration is a major factor in tree planting targets, selection of tree species, and tree management practices; Establishes a clear and sustainable funding mechanism for ongoing tree maintenance; and Establishes a protocol and goals for community partnerships for tree planting and maintenance.

CR-3. Rehabilitate Riparian Areas and Open Space. Secure funding to continue and expand programs to restore creeks and provide ecosystem services in coordination with stormwater management planning, prioritizing investment that reduces climate risks in frontline communities. Include funding for ongoing maintenance and public access.

City of Oakland General Plan

The following policies from the City of Oakland General Plan are relevant to the Revised Draft VMP (City of Oakland 1996):

Objective CO-13: Energy Resources. To manage Oakland's energy resources as efficiently as possible, reduce consumption of non-renewable resources, and develop energy resources which reduce dependence on fossil fuels.

3.7.3 IMPACT ANALYSIS

Methodology

This section describes the methods used to evaluate whether the maintenance activities of the Revised Draft VMP would result in significant impacts related to GHG emissions, climate change, and energy.

GHG Emissions from Equipment, Vehicles, and Livestock

Emissions associated with proposed management activities were quantified; the sources of these emissions include off-road equipment such as chainsaws, tractors, mowers, chippers, masticators, and excavators; material hauling vehicles; vendor trips, and worker commutes. Emissions of GHGs were estimated based on the equipment, phasing, duration, material import and export volumes, and worker quantities. See Section 2.4.9, "Construction Personnel," for more information on worker quantities. The assumptions used to develop these estimates which are summarized in Appendix C of this Recirculated DEIR.

In addition, GHG emissions from livestock and off-road equipment were estimated based on values used in a project with similar equipment and vegetation management activities, the CalVTP EIR (CAL FIRE 2019~~b~~). Emissions from worker, vendor, and hauling trips were estimated using CalEEMod Version ~~2016.3.2~~2022.1.1.5.

Carbon Sequestration Analysis

Impacts on carbon sequestration are discussed qualitatively in this analysis. Revised Draft VMP activities such as yarding, creation of shaded fuel breaks, pruning, and chipping result in temporary removal of stored carbon, accelerated release of carbon via decay, and by removing growing vegetation may initially decrease sequestration rates. Other activities such as mulching, grazing, thinning, and revegetation may gradually increase carbon stored in soil and vegetation.

While Revised Draft VMP areas have been prioritized and treatment methods selected, the Revised Draft VMP includes an adaptive management component and it is not known which specific plants will receive which type or types of treatment and when, therefore the loss of carbon stock cannot be accurately quantified. Modeling carbon content requires detailed information on the health, size, and type of vegetation removed at the time of removal, which, given the 10-year plan timeframe, would be speculative at this point. Calculation of any increases in carbon sequestration rates over time due to reduced fire risk, improved plant health, and increased soil organic carbon content would be similarly speculative at this time. Therefore, a qualitative discussion of the carbon sequestration impacts of the plan are provided as well as an analysis of the plan's consistency with BAAQMD's Clean Air Plan, the California Forest Carbon Plan, and the State's Updated Scoping Plan.

Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines and the City of Oakland CEQA Thresholds of Significance, the Revised Draft VMP would result in a significant impact on GHG emissions and energy resources if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, specifically;
  - Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs;
  - Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; or
  - Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

In addition, the Revised Draft VMP would result in a significant impact on carbon sequestration if it would:

- Result in the loss of forest land or conversion of forest land to non-forest use, such that it would release significant amounts of GHG emissions, or significantly reduce carbon sequestering.

~~The BAAQMD CEQA Guidelines included operation-related thresholds of significance for land use development and stationary-source projects. Stationary sources have a threshold of 10,000 MT CO2e. For land use development projects, including residential, commercial, industrial, and public land uses and facilities, the threshold includes compliance with a qualified GHG reduction strategy or annual emissions of less than 1,100 MT CO2e or efficiency performance criteria~~

~~based on service population (BAAQMD 2017b). This "bright-line threshold" of 1,100 MT CO2e was set for the 2020 goal established in AB 32. At the time of publication of this EIR, BAAQMD has not provided an updated analysis regarding the applicability of this bright-line threshold to the 2030 and 2050 goals of SB 32. Because implementation of the VMP would take place after 2020, the GHG analysis should consider whether the project would make substantial progress toward these future goals. In absence of guidance from BAAQMD, the relevance of an appropriate threshold for post-2020 GHG emissions must be considered. For purposes of this EIR, this analysis presents several threshold options and evaluates the VMP against each option to support the final impact conclusion.~~

In 2010, BAAQMD adopted air quality guidance that included quantitative thresholds of significance and recommendedBMPs and mitigation measures for GHG emissions, among other pollutants. These thresholds were revised in 2022 for land use projects from a Brightline threshold to a prescriptive list of project design elements for buildings and transportation or consistent with local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

The BAAQMD CEQA Air Quality Guidelines do not contain any quantitative significance thresholds for construction-related GHG emissions nor prescriptive measures for infrastructure projects. Rather, BAAQMD recommends that lead agencies quantify and disclose GHG emissions that would occur during construction. BAAQMD states that even though the significance of construction-related GHG emissions is not determined, in order to minimize GHG emissions and emissions of other air quality pollutants, projects should incorporate the BMPs for reducing GHG emissions listed in their CEQA guidance (BAAQMD 2023). BAAQMD notes that these guidelines are nonbinding recommendations, intended to assist lead agencies and they may be updated as needed in the future and any updates will likewise be nonbinding and advisory.

Bright-Line Threshold

One option to consider is to continue the use of the 1,100 MT CO_2e threshold. This threshold was established by BAAQMD by conducting a "gap" analysis, considering the emissions reductions required from projects undergoing CEQA review that are not otherwise addressed by existing regulations or strategies identified in the Scoping Plan. BAAQMD determined that, with a bright-line threshold of 1,100 MT CO_2e, most CEQA projects would be required to implement all feasible mitigation measures because they would exceed this threshold and, most importantly, that 92 percent of GHG emissions above this threshold would be captured (Appendix D of BAAQMD 2017b).

Sacramento Metropolitan Air Quality Management District (SMAQMD) initially conducted a similar analysis of the CEQA projects that would be captured by establishing a bright-line threshold for the 2020 goals. Recently, SMAQMD updated its analysis and determined that the existing bright-line threshold would still capture over 98 percent of GHG emissions (SMAQMD 2020). Thus, it would be reasonable to assume that an updated analysis by BAAQMD would find that projects would continue to achieve a high capture rate of total GHG emissions with use of this bright-line threshold. This conclusion supports the continued use of 1,100 MT CO_2e as a significance threshold post-2020 and indicates that continued progress toward the 2030 and 2050 goals is likely to be maintained with this bright-line threshold.

Revised Bright-Line Threshold

A second option to consider is applying the CARB's 40 percent reduction target for 2030 compared to 2020 levels. Applying this to BAAQMD's bright-line threshold would produce a revised bright-line threshold of 660 MT CO_2e. The City of Oakland's 56 percent reduction goal in 2030 from 2005 is not relevant as it was based on an emission inventory analysis that does not include the primary emission source categories included in the Revised Draft VMP emission inventory, such as animal grazing, off-road construction equipment, and landscaping equipment (Appendix B of City of Oakland 2020a). Even if a 56 percent reduction was applied to the 1,100 MT CO_2e threshold, this would produce a revised bright-line threshold of 484 MT CO_2e. Either of these options would be overly conservative, as existing regulations will reduce the statewide and Oakland area emissions substantially. In addition, the 2017 Scoping Plan estimates that only a 4- to 8-percent reduction will be required from natural and managed lands (the emission category most applicable to analysis of the Revised Draft VMP); the 2017 Scoping Plan indicates that this reduction is to be achieved by increased management to improve resiliency (reduce wildland fires) and more reliable long-term carbon storage~~.~~ (CARB 2017). These approaches are the purpose of the Revised Draft VMP.

Zero Equivalency Threshold

A third option is to consider a zero equivalency option, which establishes a level below which project-specific increases in GHG emissions are considered equivalent to zero. This concept is currently used for air-permitted sources by the San Joaquin Valley Air Pollution Control District (SJVAPCD), which has established that its zero equivalency level is 230 MT CO_2e per year (SJVAPCD 2012). While this policy is primarily applicable to small stationary sources, it puts into context what can be classified as a *de minimis* increase in GHG emissions.

Other Threshold Options

Other threshold options considered and dismissed for evaluation of the Revised Draft VMP in Appendix A of this ~~EIR~~Recirculated DEIR are use of an efficiency metric or comparison to a "business as usual" (BAU) or reference percent reduction. An efficiency metric, such as BAAQMD's 4.2 MT CO_2e per service population, GHG per acre managed, or GHG per animal grazed, is not a feasible option because it would be difficult to establish the correct service population or alternative metric to apply to natural and managed lands, such as comparing emissions to a typical residential/commercial land use project, where this type of threshold is more commonly used. A BAU approach would be difficult to apply because capturing the primary vegetation management source categories would require quantification of changes in resiliency and reliability of long-term carbon storage. At this time, quantitative methods to measure these changes are still being established~~., as outlined in the 2017 Scoping Plan.~~ Without a reliable method for quantifying this change, which is the primary reduction target for this source category, a BAU analysis would not be meaningful.

Threshold Used in This Analysis

Based on these three potential options of bright-line thresholds, ranging from 230 MT CO_2e per year to 1,100 MT CO_2e per year, emissions less than any of these possible values would be less than significant because the project would be making substantial progress toward the 2030 and 2050 GHG emission goals. The Revised Draft VMP is also evaluated against consistency with

strategies outlined in the 2022 Scoping Plan that are necessary to meet the goals of SB 32. Specifically the sector strategy to restore health and resilience to overstocked forests and prevent carbon losses from severe wildfire, disease, and pests:

- Improve air quality and reduce health costs related to wildfire emissions.
- Improve water quantity and quality and improve rural economies.
- Provide forest biomass for resource utilization.

Environmental Impacts

Impact GHG-1: Generate GHG Emissions (*Less than Significant*)

Revised Draft VMP activities would generate GHG emissions through the combustion of fossil fuels during the operation of gasoline- and diesel-powered equipment and off-road vehicles. Worker, vendor, and hauling trips would also generate GHG emissions. Additionally, livestock would emit methane during grazing activities. Impacts on carbon sequestration are discussed in Impact GHG-4 below. **Table 3.7-2** shows annual GHG emissions from current and recent vegetation management activities (as detailed under Section 2.3.1, "Background") were estimated to be approximately 157~~158~~ MT CO_2e, while the Revised Draft VMP's estimated annual GHG emissions would be approximately 227~~217~~ MT CO_2e. Appendix C of this Recirculated DEIR contains detailed assumptions used to estimate current and Revised Draft VMP-related annual GHG emissions. The increase in emissions from baseline would result primarily from the increase in grazing and increased use of construction and landscaping equipment to conduct mechanical treatments. Thus, the Revised Draft VMP would generate an increase of approximately 70~~59~~ MT CO_2e from baseline conditions, which is less than any of the three bright-line threshold options (ranging from 230 MT CO_2e per year to 1,100 MT CO_2e per year). These emissions would likely decrease over time as vehicles and equipment, in compliance with federal and state regulations and City goals, increase in efficiency and transition to low or no emission models. Additionally, Revised Draft VMP activities would decrease the risk of large uncontrolled and unplanned emissions from wildfires; this reduction has not been accounted for in these baseline calculations.

Table 3.7-2. Revised Draft VMP GHG Emissions

Revised Draft VMP Activity	CO_2e Emissions – Annual (Metric Tons / Year)
Baseline	
Grazing	101.72
~~Worker Trips~~	~~8.11~~
Roadside Treatments (Assume all Hand Labor)	35.20
All Worker, Vendor, and Hauling Trips Combined	20.4 ~~12.52~~
Baseline Total	157.32 ~~157.55~~

Revised Draft VMP Activity	CO_2e Emissions – Annual (Metric Tons / Year)
Revised Draft VMP	
Grazing	123.30
~~Grazing – Trips~~	~~8.98~~
Hand Labor	62.60
~~Hand Labor – Trips~~	~~18.90~~
Mechanical	10.70
~~Mechanical – Trips~~	~~5.60E-01~~
Herbicide	0.00
~~Herbicide – Trips~~	~~0.12~~
All Worker, Vendor, and Hauling Trips Combined	30.20
Revised Draft VMP Total	226.80
Summary	

	Emissions – Annual (metric tons/year)	
Annual	Revised Draft VMP Total	226.80 ~~217.06~~
	Revised Draft VMP Total – Baseline	69.48 ~~59.51~~
	BAAQMD Threshold	1,100
Above Threshold?		No

Conclusion

Revised Draft VMP activities would result in the emission of GHGs through the combustion of fossil fuels by equipment and vehicles, and in the form of methane emissions from livestock. Revised Draft VMP GHG emissions would be well below the three potential bright-line thresholds. Additionally, the purpose of the Revised Draft VMP is to reduce the risk of uncontrolled wildfires which can emit large amounts of GHGs. The control of vegetation and forests to minimize wildfires is directly in line with the goals of SB 32 as outlined in the 2022 Scoping Plan as a key strategy to achieve the goals of reducing GHG emissions to reach the goals of SB 32. These GHG emissions are necessary in order to reduce future GHG emissions and larger losses of carbon sequestration due to wildfire. Therefore, the Revised Draft VMP's impacts regarding generation of GHG emissions would be **less than significant** and no mitigation is required**.**

Impact GHG-2: Potential to Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of GHGs (*Less than Significant*)

The City of Oakland has established a goal of reducing GHG emissions by 56 percent by 2030 compared to a 2005 baseline. The Revised Draft VMP would use fossil-fuel powered vehicles and

off-road construction and landscaping equipment and would not involve the construction of any facilities that would generate GHG emissions. The Revised Draft VMP would also generate GHG emissions in the form of methane from grazing. The emission source categories included in the City's emission inventory, which was used to determine that a 56 percent reduction by 2030 would be needed to meet climate goals, did not include the primary emission source categories relevant to the Revised Draft VMP, such as animal grazing, off-road construction equipment, and landscaping equipment (Appendix B of City of Oakland 2020a).

Even though GHG emissions associated with the Revised Draft VMP are not explicitly included in the City's GHG emission inventory, the adoption and implementation of a VMP is one of the actions included in the Oakland 2030 Equitable Climate Action Plan. The Revised Draft VMP would not conflict with any of the goals, policies, or implementation actions identified in the applicable GHG reduction plans, such as the *Oakland 2030 Equitable Climate Action Plan* (City of Oakland 2020a), because it would not create any facilities that would generate future GHG emissions, and would be completed as efficiently as possible. Vegetation management and urban forestry are also recognized in the ~~2017~~2022 Scoping Plan (CARB ~~2017~~2022) as being needed to enhance carbon sequestration and resilience through management and restoration. Therefore, the activities proposed in the Revised Draft VMP are in line with the ~~2017~~2022 Scoping Plan goals for natural and working lands. Specifically this plan is directly related to the sector strategies to restore health and resilience to overstocked forests and prevent carbon losses from severe wildfire, disease, and pests:

- Improve air quality and reduce health costs related to wildfire emissions.
- Improve water quantity and quality and improve rural economies.
- Provide forest biomass for resource utilization.

Also, many of the activities that would be conducted under the Revised Draft VMP are currently performed under existing conditions. Additionally, Revised Draft VMP activities would decrease the risk of large uncontrolled and unplanned emissions from wildfires, which is key to improving resilience of natural and working lands. Thus, the Revised Draft VMP's emissions would not involve any activities that would conflict with the City's plans and reduction goals or the statewide reduction goals related to AB 32, SB 32, and EO B-55-18, and would not represent a significant source of the City's GHG emissions.

Conclusion

For the reasons described above, this impact would be **less than significant** and no mitigation is required**.**

Impact GHG-3: Result in Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources or Conflict with a State or Local Plan for Renewable Energy or Energy Efficiency (*Less than Significant with Mitigation*)

The Revised Draft VMP's activities would require the consumption of energy (fossil fuels, electricity) for equipment, worker vehicles, vendor and hauling trips, and powering the electric fence used during grazing. The consumption of energy for the Revised Draft VMP's equipment and vehicles would be reduced by implementing **Mitigation Measure AQ-1 (Fugitive Dust**

BMPs), which would minimize vehicle idling and ensure that equipment is properly tuned and maintained.

The energy consumption during Revised Draft VMP activities is necessary for fire hazard reduction and resource protection; and a portion of Revised Draft VMP activities are already conducted under current/baseline conditions. Additionally, wildfires can damage powerlines and other energy infrastructure and responses to wildfires can expend large amount of energy with protection of public safety prioritized over efficiency. Revised Draft VMP activities would not cause wasteful, inefficient, and unnecessary consumption of energy or cause a substantial increase in energy demand and the need for additional energy resources.

In addition, Revised Draft VMP activities would not conflict with any of the goals, policies, or implementation actions identified in the applicable energy plans, such as the *Final 2019 Integrated Energy Policy Report, City of Oakland General Plan,* and *City of Oakland Energy and Climate Action Plan* because the Revised Draft VMP activities would not create any future energy demands and would be completed as efficiently as possible. Thus, with implementation of Mitigation Measure AQ-1, the Revised Draft VMP would not conflict with any plans relating to renewable energy or energy efficiency.

Mitigation Measures

Mitigation Measure AQ-1: Fugitive Dust BMPs

See text in Section 3.3, *Air Quality*.

Conclusion

The Revised Draft VMP's effect on energy resources would be **less than significant with mitigation**.

Impact GHG-4: Reduction in Carbon Sequestration (*Less than Significant*)

The 2018 Forest Carbon Plan includes multiple goals relating to sustaining forests and it supports the treatment of forests to reduce wildfire risks, primarily through thinning and forest treatments that improve forest health.

Revised Draft VMP activities involving the removal of trees, shrubs, and grasses would lead to a temporary drop in carbon in live vegetation and could marginally decrease carbon sequestration rates in the short term. However, these activities would support forest health and reduce the risk of catastrophic wildfire, which can result in the uncontrolled and rapid release of significant amounts of stored carbon and the dramatic reduction in future sequestration by destroying vegetation over large areas. In the 2017 Scoping Plan, California identified that 80 percent of carbon sequestration loss from natural and working lands was a result of loss from wildland fire. The 2022 Scoping Plan has the following sector strategies to restore health and resilience to overstocked forests and prevent carbon losses from severe wildfire, disease, and pests:

- Improve air quality and reduce health costs related to wildfire emissions.
- Improve water quantity and quality and improve rural economies.

- Provide forest biomass for resource utilization.

The Revised Draft VMP activities are in line with this strategy and is one of the goals of this Revised Draft VMP.

Most forest carbon removed would be left as cut, chipped, or mulched material on the ground surface. This material would decompose into soil carbon, with some off-gassing from the decomposition process. Some material would be hauled off-site to mulch/compost facilities. Additionally, Revised Draft VMP treatments in forested areas focus on removing smaller trees such as saplings and sprouts, while retaining larger diameter trees which are both more fire-resistant and store larger amounts of carbon compared to smaller diameter trees. This approach would minimize the amount of forest carbon lost due to Revised Draft VMP treatments.

Conclusion

Revised Draft VMP activities would lead to a temporary drop in carbon in live vegetation and could marginally decrease carbon sequestration rates in the short term. However, the purpose of these activities is to reduce the risk of wildfires, which can result in the uncontrolled and rapid release of large amounts of stored carbon and a dramatic reduction in carbon sequestration rates over impacted areas over the longer term. Additionally, these activities are in alignment with the State's Forest Carbon Plan. Therefore, this impact would be **less than significant** and no mitigation is required.

3.8 HAZARDS AND HAZARDOUS MATERIALS

This section has not been revised; see prior 2020 DEIR.

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3.9 HYDROLOGY AND WATER QUALITY

This section presents the environmental setting, regulatory setting, and potential impacts of the Revised Draft VMP related to hydrology and water quality. The impact analysis describes the methodology used to evaluate significance and then presents the impact evaluation.

3.9.1 ENVIRONMENTAL SETTING

Climate and Precipitation

The Revised Draft VMP area is located in the San Francisco Bay Hydrologic Region. This hydrologic region occupies parts of 10 counties, extending from southern Santa Clara County north to Tomales Bay in Marin County, and inland to the confluence of the Sacramento and San Joaquin rivers (California Department of Water Resources [DWR] 2009). The eastern boundary follows the crest of the Coast Range, the highest peaks of which are more than 4,000 feet above sea level. Streams in the region flow into the bay estuary or the Pacific Ocean (DWR 2009). The San Francisco Bay estuary is fed by freshwater from the Sacramento and San Joaquin rivers, which interacts with salt water from the ocean.

The climate of the San Francisco Bay region is generally cool and foggy along the coast, with warmer Mediterranean-like weather in the inland valleys (DWR 2009). The Oakland area experiences warm, dry summers with maximum daily temperatures averaging 72 to 75 degrees Fahrenheit (°F), and moderate winters with minimum daily temperatures averaging 45°F to 47°F. This area receives an average of 23 inches of precipitation per year (Western Regional Climate Center 2020). The Revised Draft VMP area averages from 5-7 hours of fog per day in summer months with areas closer to the Bay experiencing more fog and areas at higher elevations and farther from the bay being less foggy (USGS 2016). Fog drip can be an important source of water for many ecosystems in the Bay Area and contributes to soil moisture during the dry summer months of June through September (USGS 2020), though it contributes less moisture in the late summer and early fall months of September through November, when the fire risk increases.

Surface Water

Multiple surface water features are located in immediate proximity to the Revised Draft VMP area (see Figure 3.4-2 and Table 3.4-~~4~~5 in Section 3.4, "Biological Resources"). Significant surface water features include (from North to South): Claremont Creek, Temescal Creek, Shephard Creek, Palo Seco Creek, Sausal Creek, Peralta Creek, Courtland Creek, Lion Creek, Horseshoe Creek, Rifle Range Branch, Arroyo Viejo, Elmhurst Creek, Lake Chabot, and San Leandro Creek. These features drain into the San Francisco Bay, which is located roughly 2 to 5 miles southwest of Revised Draft VMP sites. Of these water bodies, Sausal Creek, San Leandro Creek, Lake Chabot, and San Francisco Bay are listed on the CWA Section 303(d) list of impaired water body segments for multiple contaminants, including chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, dioxin compounds, furin compounds, invasive species, mercury, polychlorinated biphenyls (PCBs), and trash (San Francisco Bay RWQCB 2020). ~~Table 3.9-1~~**Table 3.9-1** below, provides additional information on CWA Section 303(d) listed waterbodies in the Revised Draft

VMP area and the status of their associated Total Maximum Daily Load (TMDL) development ~~status~~.

Table 3.9-1. CWA Section 303(d) Listed Waterbodies in the Revised Draft VMP Area

Waterbody	Impairment	TMDL Completed?
Lake Chabot	Chlordane, DDT, Dieldrin, Mercury, PCBs	No
San Leandro Creek	Diazinon, Trash	For Diazinon. Trash being addressed by action other than TMDL.
Sausal Creek	Trash	Addressed by action other than TMDL.
San Francisco Bay, Central	Chlordane, DDT, Dieldrin, Dioxin compounds, Furan compounds, Invasive species, Mercury, PCBs, Selenium, Trash	For Mercury, PCBs, & Selenium

Source: San Francisco Bay RWQCB 2020.

Groundwater

The Revised Draft VMP area is located in the Oakland Hills which serve as a recharge area for the East Bay Plain Subbasin portion of the Santa Clara Valley Groundwater Basin – (2-009.04). The East Bay Plain Subbasin is a northwest trending alluvial plain bounded on the north by San Pablo Bay, on the east by the contact with Franciscan Basement rock, and on the south by the Niles Cone Groundwater Basin (DWR 2003). The East Bay Plain Subbasin extends beneath San Francisco Bay to the west. Historic water levels in the deep aquifer in the basin have varied between 10 and 140 feet below mean sea level since the early 1950s (DWR 2003). The low water level was reached in roughly 1962. Water levels rose about 5 feet per year between 1965 and 1980, and have been rising continuously since then, although at a less rapid rate. As of 2000, water levels were very near surface in all aquifers (DWR 2003).

Flooding

While the Revised Draft VMP area is situated largely in upland areas, small portions of some priority treatment areas are located within FEMA flood hazard zones, including areas around Sausal Creek in Dimond Park, Temescal Creek just upstream of Lake Temescal, and Peralta Creek in Peralta Creek Park.

3.9.2 REGULATORY SETTING

Federal Laws, Regulations, and Policies

Clean Water Act

The CWA (33 USC Section 1251 et seq.) is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The key sections pertaining to water quality regulation for the Revised Draft VMP are CWA Sections 303, 401, 402, and 404.

Section 303(d) — Listing of Impaired Water Bodies

Under CWA Section 303(d), states are required to identify "impaired water bodies" (those not meeting established water quality standards); identify the pollutants causing the impairment; establish priority rankings for waters on the list; develop TMDLs for these waters; and develop a schedule for the development of control plans to improve water quality. A TMDL includes a calculation of the maximum amount of a pollutant that can be present in a waterbody and still meet water quality standards. USEPA then approves the state's recommended list of impaired waters or adds and/or removes waterbodies.

Section 401 – Water Quality Certification

Section 401 of the CWA 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 U.S. In California, the SWRCB and its nine RWQCBs issue water quality certifications. Each RWQCB is responsible for implementing Section 401 in compliance with the CWA and its water quality control plan (also known as a basin plan). Applicants for a federal license or permit to conduct activities that may result in a discharge to waters of the U.S. (including wetlands or vernal pools) must also obtain a Section 401 water quality certification to ensure that any such discharge will comply with the applicable provisions of the CWA.

Section 402—National Pollution Discharge Elimination Service Permits for Stormwater Discharge

CWA Section 402 regulates stormwater discharges of pollutants to surface waters through the NPDES, which is officially administered by USEPA. In California, USEPA has delegated its authority to the SWRCB, which, in turn, delegates implementation responsibility to the nine RWQCBs, as discussed below in reference to the Porter-Cologne Water Quality Control Act.

The NPDES program provides for both general (those that cover a number of similar or related activities) and individual (activity- or project-specific) permits.

General Permit for Construction Activities: Most projects that disturb 1.0 or more acre(s) of land are required to obtain coverage under SWRCB's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ). The general permit requires that the applicant file a public 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 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. Permittees are further required to monitor construction activities and report compliance to ensure that BMPs are correctly implemented and are effective in controlling the discharge of construction-related pollutants.

Section 404 – Discharges to Waters of the U.S.

Section 404 of the CWA regulates the discharge of dredged and fill materials into waters of the U.S., which includes all navigable waters, their tributaries, lakes and ponds, and impoundments of jurisdictional waters, as well as some wetlands adjacent to the aforementioned waters (33 CFR Section 328.3). Areas typically not considered to be jurisdictional waters include ephemeral features, diffuse stormwater runoff and directional sheet flow over upland, non-tidal drainage and irrigation ditches excavated on dry land, prior converted cropland, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial waterbodies such as swimming pools, vernal pools, water-filled depressions, stormwater control features, groundwater recharge structures, water reuse and wastewater recycling structures, and waste treatment systems (33 CFR Section 328.3). Areas meeting the regulatory definition of waters of the U.S. are subject to the jurisdiction of the USACE under the provisions of CWA Section 404. Activities involving placement of fill into jurisdictional waters of the U.S. 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 CWA.

State Laws, Regulations, and Policies

Porter-Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act, California Water Code Section 13000 et seq. (known as the Porter–Cologne Act), passed in 1969, dovetails with CWA (see discussion of the CWA above). It established SWRCB and divided the state into nine regions, each overseen by an RWQCB. SWRCB is the primary State agency responsible for protecting the quality of the state's surface water and groundwater supplies; however, much of the SWRCB's daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA Sections 401, 402, and 303[d]. In general, SWRCB manages water rights and regulates statewide water quality, whereas RWQCBs focus on water quality within their respective regions. The City of Oakland is under the jurisdiction of the ~~SFBRWQCB~~San Francisco Bay RWQCB.

The Porter–Cologne Act requires RWQCBs to develop water quality control plans (also known as basin plans) that designate beneficial uses of California's major surface-water bodies and groundwater basins and establish specific narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a waterbody (i.e., the reasons that the waterbody is considered valuable). Water quality objectives reflect the standards necessary to protect and support those beneficial uses. Basin plan standards are primarily implemented by regulating waste discharges so that water quality objectives are met. Under the Porter–Cologne Act, basin plans must be updated every 3 years.

The San Francisco Bay Water Quality Control Plan (~~2017~~2023), also known as the Basin Plan, lists the following beneficial uses for waterbodies (or watersheds) in the Revised Draft VMP area, as presented in ~~Table 3.9-2~~**Table 3.9-2**.

Table 3.9-2. Beneficial Uses in the Alameda County Watersheds

Creek	AGR	MUN	FRSH	IND	COMM	SHELL	COLD	EST	MAR	MIGR	RARE	SPAWN	WARM	WILD	REC-1	REC-2	NAV
~~South Bay~~Central Basin (north to south)																	
Claremont Creek													E	E	E	E	
Temescal Creek							E						E	E	E	E	
South Bay Basin (north to south)																	
Sausal Creek and Tributaries Shephard Creek & Palo Seco Creek							E				E	E	E	E	E	E	
Peralta Creek and Tributary Courtland Creek													E	E	E	E	
Lion Creek and Tributary Horseshoe Creek							E						E	E	E	E	
Rifle Range Branch													E	E	E	E	
Arroyo Viejo							E						E	E	E	E	
Lake Chabot		E			E		E					E	E	E	E*	E	
San Leandro Creek (Lower)			E				E			E	E	E	E	E	E	E	

Notes:

E = Existing Beneficial Use: Indicates an existing beneficial use actually attained in the surface or ground water.

AGR = agricultural supply ; MUN= municipal and domestic water supply; FRSH = freshwater replenishment; IND = industrial service supply; COMM = commercial and sport fishing; SHELL = shellfish harvesting; COLD = cold freshwater habitat; EST = estuarine habitat; MAR = marine habitat; MIGR = fish migration; RARE = preservation of rare and endangered species; SPAWN = fish spawning; WARM = warm freshwater habitat; WILD = wildlife habitat; REC-1 = water contact recreation; REC-2= noncontact water recreation; NAV = navigation.

Source: San Francisco Bay RWQCB ~~2017~~2023.

The Basin Plan contains qualitative and quantitative water quality objectives for bacteria, dissolved oxygen, oil and grease, pH, salinity, sediment and suspended material, tastes and odors, temperature, and other criteria to protect beneficial uses. The following key water quality objectives established in the Basin Plan apply to the proposed program. Where multiple water quality objectives existed, the most conservative metric was selected.

- Dissolved oxygen in non-tidal waters: coldwater habitat – 7.0 milligrams per liter (mg/L); warmwater habitat – 5.0 mg/L
- Temperature: The temperature of any cold or warm freshwater habitat shall not be increased by more than 5 degrees Fahrenheit (°F) (2.8 degrees Celsius [°C]) above the natural receiving water temperature
- Turbidity: Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 Nephelometric Turbidity Units (NTU)

- pH: The pH shall not be depressed below 6.5 or raised above 8.5, which encompasses the pH range usually found in waters within the basin; controllable water quality factors shall not cause changes greater than 0.5 unit in normal ambient pH levels

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act, California Water Code Section 10720 et seq. (SGMA), passed in 2014, became law in 2015 and created a legal and policy framework to locally manage groundwater sustainably. SGMA allows local agencies to customize groundwater sustainability plans to their regional economic and environmental conditions and needs, and establish new governance structures, known as Groundwater Sustainability Agencies (GSAs). SGMA requires that a groundwater sustainability plan (GSP) be adopted for high and medium priority groundwater basins in California by 2020 for basins with critical overdraft. Low and very low priority basins are not required to adopt GSPs. GSPs are intended to facilitate the use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results (e.g., chronic lowering of groundwater levels).

The Santa Clara Valley Groundwater Basin – East Bay Plain Subbasin, within which the Revised Draft VMP is located, is designated as a very low priority basin under SGMA (~~California Department of Water Resources [~~DWR~~]~~ 2018). Therefore, a GSP is not required for this basin.

Local Laws, Regulations, and Policies

Applicable local plans, policies, regulations, and ordinances are presented below.

City of Oakland General Plan

The following objectives, policies, and actions from the City of Oakland General Plan Open Space, Conservation, and Recreation Element, Conservation Chapter (City of Oakland 1996) are relevant to the Revised Draft VMP:

Objective CO-5: Water Quality – To minimize the adverse effects of urbanization on Oakland's groundwater, creeks, lakes, and nearshore waters.

> **Policy CO-5.1: Protection of Groundwater Recharge** – Encourage groundwater recharge by protecting large open space areas, maintaining setbacks along creeks and other recharge features, limiting impervious surfaces where appropriate, and retaining natural drainage patterns within newly developing areas.
>
> **Policy CO-5.2: Improvements to Groundwater Quality** – Support efforts to improve groundwater quality, including the use of non-toxic herbicides and fertilizers, the enforcement of anti-litter laws, the clean-up of sites contaminated by toxics, and on-going monitoring by the Alameda County Flood Control and Water Conservation District.
>
> **Policy CO-5.3 Control of Urban Runoff –** Employ a broad range of strategies, compatible with the Alameda Countywide Clean Water Program, to: (a) reduce water pollution associated with stormwater runoff; (b) reduce water pollution associated with hazardous spills, runoff from hazardous material areas, improper disposal of household hazardous wastes, illicit dumping, and marina "live-aboards"; and (c) improve water

quality in Lake Merritt to enhance the lake's aesthetic, recreational, and ecological functions.

Objective CO-6: Surface Waters – To protect the ecology and promote the beneficial uses of Oakland's creeks, lakes, and nearshore waters.

Policy CO-6.1: Creek Management – Protect Oakland's remaining natural creek segments by retaining creek vegetation, maintaining creek setbacks, and controlling bank erosion. Design future flood control projects to preserve the natural character of creeks and incorporate provisions for public access, including trails, where feasible. Strongly discourage projects which bury creeks or divert them into concrete channels.

City of Oakland Creek Protection Ordinance

The purpose and intent of the City of Oakland's Creek Protection Ordinance (Oakland Municipal Code Chapter 13.16) is as follows:

- Safeguarding and preserving creeks and riparian corridors in a natural state;
- Preserving and enhancing creekside vegetation and wildlife;
- Preventing activities that would contribute significantly to flooding, erosion or sedimentation, or that would destroy riparian areas or would inhibit their restoration;
- Enhancing recreational and beneficial uses of creeks;
- Controlling erosion and sedimentation;
- Protecting drainage facilities; and
- Protecting the public health and safety, and public and private property.

The ordinance includes permitting guidelines for development and construction projects taking place in or near creeks. This includes the clearing of vegetation for wildfire hazard reduction purposes. Vegetation management activities on any creekside property would require a Creek Protection Permit. Creekside properties are defined as properties located within Oakland, as identified by the Watershed Programs Manager, which have a creek or riparian corridor crossing the property and/or are contiguous to a creek or riparian corridor. Creekside properties within the Revised Draft VMP area are shown on Figure 3.4-2 in Section 3.4, "Biological Resources." The intent of the ordinance is to assure that any work done will avoid or limit, to the extent feasible, negative impacts to creeks. The primary measure to minimize impacts to creeks and other water courses in the Revised Draft VMP area is avoidance of work in the vicinity of these features. For vegetation management activities conducted within creekside properties, OFD shall obtain a Creek Protection Permit, as outlined in Oakland Municipal Code Chapter 13.16. A Creek Protection Plan is required for a Creek Protection Permit when the work falls within Categories III and IV as defined in Oakland Municipal Code Section 13.16.130, and the Creek Protection Plan includes BMPs to protect the creek. Category III includes work that may adversely impact the creek, beyond the 20-foot setback from the top of bank of the creek, and is within 100 feet of the centerline of the creek. Category IV includes work that is conducted from the centerline of the creek to the 20-foot setback from the top of bank of the creek.

North Oakland Hill Area Specific Plan

The North Oakland Hill Area Specific Plan (City of Oakland 1986) is a document addressing land use, infrastructure, zoning, and development in a portion of the Oakland hills. The area covered by this specific plan is generally located along the ridgeline northwest of Shepherd Canyon Road. This specific plan includes a vegetation management prescription and specific policies and mitigation measures to reduce erosion and sedimentation within the North Oakland hill area. The approach and goals addressed by these policies and mitigation measures have, in many cases, been incorporated into the City's General Plan and elements of the Revised Draft VMP.

3.9.3 IMPACT ANALYSIS

Methodology

Potential short-term and long-term impacts to hydrology and water quality were assessed qualitatively, based on the degree to which the Revised Draft VMP activities could result in violations of water quality standards, impairment of beneficial uses, or water quality conditions that could be harmful to aquatic life or human health. Each of these potential impacts is discussed below.

Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines and the City of Oakland CEQA Thresholds of Significance, it was determined that the Revised Draft VMP would result in a significant impact on hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or proposed uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area (including through the alteration of the course of a stream or river or through the addition of impervious surfaces) in a manner which would result in substantial erosion, siltation, or flooding, both on- or off- site;
- Result in substantial erosion or siltation;
- Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Risk release of pollutants due to project inundation should the project be located in a flood hazard, tsunami, or seiche zone(s);

- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, that would impede or redirect flood flows;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a substantial risk of loss, injury, or death involving flooding;
- Expose people or structures to a substantial risk of loss, injury, or death as a result of inundation by seiche, tsunami, or mudflow; or
- Fundamentally conflict with the City of Oakland Creek Protection Ordinance (~~OMC~~Oakland Municipal Code Chapter 13.16) intended to protect hydrologic resources. [Note: Although there are no specific, numeric/quantitative criteria to assess impacts, factors to be considered in determining significance include whether there is substantial degradation of water quality through (a) discharging a substantial amount of pollutants into a creek, (b) significantly modifying the natural flow of the water or capacity, (c) depositing substantial amounts of new material into a creek or causing substantial bank erosion or instability, or (d) substantially endangering public or private property or threatening public health or safety.]

Issues Not Evaluated Further

Due to the nature of the Revised Draft VMP, there would be no impacts related to the following significance criteria:

- **Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, that would impede or redirect flood flows; or place within a 100-year flood hazard area structures which would impede or redirect flood flows.** The Revised Draft VMP does not propose construction of housing or other structures, or development within a 100-year flood hazard area.
- **Expose people or structures to a substantial risk of loss, injury, or death as a result of inundation by seiche or tsunami**. The Revised Draft VMP does not propose work or construction in areas at risk of seiches or tsunamis.

Environmental Impacts

Impact HYD/WQ-1: Violate Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Water Quality or Conflict with or Obstruct the Implementation of a Water Quality Control Plan or Conflict with the City of Oakland Creek Protection Ordinance through Hand Labor, Herbicide Application, or Mechanical Techniques (*Less than Significant with Mitigation*)

Hand labor and mechanical techniques have the potential to loosen and disturb soils or expose soil through removal of surface litter. The removal of dead and dying trees within 30-100 feet of roads, through either hand or mechanical techniques, could also loosen or disturb soils. The additional treatment of dead and dying trees in the area from 30 to 100 feet from roadsides would increase the maximum annual treatment acreages for tree removal to 7 acres using mechanical techniques and 26 acres using hand labor, compared to no tree removal under baseline conditions. The maximum tree removal acreage analyzed under the prior 2020 DEIR was 5 acres of mechanical treatment and 20 acres of hand labor. The inclusion of additional dead and dying tree removal within 30-100 feet of roads would add up to 8 acres of tree removal, compared to the amount analyzed in the prior 2020 DEIR. Without adequate protection measures in place, such activities could lead to temporary effects on water quality in nearby waterways due to erosion, sedimentation, and siltation. The City would minimize vegetation management within 100 feet of streams, but some vegetation management would still be needed near creeks to reduce fire hazard. A Creek Protection Permit would be required for any projects in creekside parcels. See Table 3.4-4 in Section 3.4, "Biological Resources," for a list of Revised Draft VMP priority projects within creekside parcels. The use of herbicides has the potential to affect water quality through transportation through the air and in runoff (the Revised Draft VMP does not include any direct herbicide treatment within creek corridors or aquatic waterways). Leaks and spills associated with the operation and maintenance of motorized equipment present another potential risk to water quality.

Implementation of the following mitigation measures would reduce the Revised Draft VMP's potential for impacts to water quality. Implementation of **Mitigation Measure HYD/WQ-1 (Work Windows)** would limit vegetation treatment to periods without significant rainfall, limit herbicide use to the dry season, and limit work in waterbodies. Implementation of **Mitigation Measure GEO-1 (Minimize Soil Disturbance)** would limit ground disturbance to the minimum footprint necessary to meet objectives, leave stumps intact, (including for dead and dying trees), and minimize heavy equipment use on steep slopes. Implementation of **Mitigation Measure GEO-2 (Erosion and Sediment Control Measures)** would require the use of erosion and sediment controls. Implementation of **Mitigation Measure HAZ-1 (Vehicle and Equipment Maintenance), Mitigation Measure HAZ-2 (Vehicle and Equipment Fueling), Mitigation Measure HAZ-3 (On-Site Hazardous Materials Management)**, **Mitigation Measure HAZ-5 (Standard Herbicide Use Requirements), Mitigation Measure HAZ-6 (Spill Prevention and Response), and Mitigation Measure HAZ-8 (Existing Hazardous Materials),** would ensure proper handling and use of herbicides and other hazardous materials, and maintaining vehicles to prevent spills and leaks.

Mitigation Measures

Mitigation Measure HYD/WQ-1: Work Windows (VMP BMP GEN-1)

The City and its contractors shall implement the following measures:

- Hand pruning and hand removal of vegetation may occur year-round, except when wheeled or tracked equipment needs to access a site by crossing a creek, ponded area, or secondary channel.
- When wheeled or tracked equipment needs to access the site by crossing a creek, ponded area, or secondary channel, this shall occur only when the appropriate permits have been obtained from the City, CDFW, and the RWQCB and only when there is no flow in the creek, or when the width of the wet creek is less than 3 feet (typically June 1 – October 15).
- Vegetation treatment shall not occur within 48 hours of significant rainfall (0.25-inch of rain within a 12-hour period or greater).
- Herbicide applications (if selected as a vegetation management technique) shall only occur between June 15 and November 15, with an extension through December 31 or until the first occurrence of local rainfall greater than 0.5 inch is forecasted within a 24-hour period following planned application events.
- Work shall occur during daylight hours, except in the case of emergency.

Mitigation Measure GEO-1: Minimize Soil Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculated DEIR.

Mitigation Measure GEO-2: Erosion and Sediment Control Measures (VMP BMP GEN-3)

See text in Section 3.6 of the prior 2020 DEIR, *Geology, Soils, and Seismicity*. Full text also provided in Section 3.4, *Biological Resources,* of this Recirculated DEIR.

Mitigation Measure HAZ-1: Vehicle and Equipment Maintenance (VMP BMP GEN-8)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.3, *Air Quality,* of this Recirculated DEIR.

Mitigation Measure HAZ-2: Vehicle and Equipment Fueling (VMP BMP GEN-9)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.4, *Biological Resources,* of this Recirculated DEIR.

Mitigation Measure HAZ-3: On-Site Hazardous Materials Management (VMP BMP GEN-5)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.4, *Biological Resources,* of this Recirculated DEIR.

Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials.* Full text also provided in Section 3.3, *Air Quality*, of this Recirculated DEIR.

Mitigation Measure HAZ-6: Spill Prevention and Response (VMP BMP GEN-7)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials*. Full text also provided in Section 3.4, *Biological Resources*, of this Recirculated DEIR.

Mitigation Measure HAZ-8: Existing Hazardous Materials (VMP BMP GEN-6)

See text in Section 3.8 of the prior 2020 DEIR, *Hazards and Hazardous Materials.* Full text also provided in Section 3.4, *Biological Resources*, of this Recirculated DEIR.

Conclusion

Hand labor and mechanical techniques have the potential to loosen, disturb, and expose soils which could result in erosion, sedimentation, and siltation. Herbicide application has the potential to affect water quality through transportation in air or runoff. The use of motorized equipment presents another potential risk to water quality in the form of leaks and spills.

With implementation of Mitigation Measures HYD/WQ-1, GEO-1, GEO-2, HAZ-1, HAZ-2, HAZ-3, HAZ-5, HAZ-6, and HAZ-8, the Revised Draft VMP would not conflict with the Basin Plan, the City of Oakland's General Plan, or the City of Oakland's Creek Protection Ordinance. Therefore, impacts on water quality would be **less than significant with mitigation.**

Impact HYD/WQ-2: Violate Water Quality Standards or Waste Discharge Requirement or Otherwise Substantially Degrade Water Quality or Conflict with or Obstruct the Implementation of a Water Quality Control Plan or Conflict with the City of Oakland Creek Protection Ordinance through Grazing (*Less than Significant with Mitigation*)

Grazing activities have the potential to denude vegetation, compact soils, and create livestock trails and areas of bare soil which could result in gullies and erosional features that impact water quality. Grazing animals could congregate near water sources and degrade water quality through the accumulation of manure and urine.

Implementation of **Mitigation Measure BIO-5 (Grazing)** would reduce the Revised Draft VMP's potential for impacts to water quality by erosion impacts from grazing by monitoring livestock and rotating grazing areas to ensure over-grazing does not occur, generally excluding livestock from riparian areas, and requiring contractors to provide alternative water sources to avoid livestock concentration and reliance on natural water sources. Implementation of Mitigation Measure GEO-1 (Minimize Soil Disturbance) would limit ground disturbance to the minimum footprint necessary to meet objectives, leave stumps intact, and minimize heavy equipment use on steep slopes. Implementation of Mitigation Measure GEO-2 (Erosion and Sediment Control Measures) would require the use of erosion and sediment controls.

Mitigation Measures

Mitigation Measure BIO-5: Grazing (VMP BMP BIO-6)

See text in Section 3.4, *Biological Resources.*

Mitigation Measure GEO-1: Minimize Soil Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculated DEIR.

Mitigation Measure GEO-2: Erosion and Sediment Control Measures (VMP BMP GEN-3)

See text in Section 3.6 of the prior 2020 DEIR, *Geology, Soils, and Seismicity*. Full text also provided in Section 3.4, *Biological Resources,* of this Recirculated DEIR.

Conclusion

Grazing livestock may denude vegetation, create livestock trails and areas of bare soil, and degrade water sources with their waste. With the implementation of Mitigation Measure BIO-5, which would protect riparian areas and prevent over-grazing, and Mitigation Measures GEO-1 and GEO-2, which would minimize soil disturbance and protect waterways from erosion and sedimentation, this impact would be **less than significant with mitigation**.

Impact HYD/WQ-3: Substantially Alter Existing Drainage Pattern of Site or Area, or Create or Contribute Runoff Water that Exceeds Capacity of Stormwater Systems, or Results in Substantial Erosion or Exposes People or Structures to a Substantial Risk of Loss, Injury, or Death as a Result of Flooding or Inundation by Mudflow (*Less than Significant with Mitigation*)

Implementation of the Revised Draft VMP would involve the use of hand tools, mechanical equipment, herbicide application, and grazing to manage vegetation and reduce fire risks. Leaving large cut trees on the ground and the creation of livestock trails could potentially alter site drainage patterns. As described in Section 2.4.3, "Vegetation Management Standards," of Chapter 2, *Project Description,* tree trunks that would be removed, would be chipped and spread on-site and stumps from ~~some~~ removed trees (including dead and dying tree stumps) will be left in the ground to minimize erosion. While Revised Draft VMP activities could decrease the interception of precipitation by trees, shrubs, and grasses, any impact on surface runoff flows, flooding, and mudflow risk would be minimal. The focus of the Revised Draft VMP is to remove dead and dying trees as the top priority. Additional trees may be removed according to the standards and criteria described in the Revised Draft VMP and based on site conditions, fuel load, and fire risk. The spacing standards and density requirements developed as part of the Revised Draft VMP were selected not only for fire risk reduction but also to avoid adverse environmental effects, including runoff flows, flooding, and mudflows. As discussed in Impacts HYD/WQ-1 and HYD/WQ-2, these activities have the potential to loosen soil or create areas of bare soil that would be susceptible to erosion.

Implementation of Mitigation Measures BIO-5, GEO-1, GEO-2, ~~HAZ-1, HAZ-2, HAZ-3, HAZ-5, HAZ-6, HAZ-8~~, and HYD/WQ-1 would reduce the Revised Draft VMP's potential for resulting in

substantial erosion and altering existing drainage patterns and runoff flows. Therefore, this impact would be **less than significant with mitigation**.

Mitigation Measures

Mitigation Measure BIO-5: Grazing (revised from VMP BMP BIO-6)

See text in Section 3.4, *Biological Resources*, of this Recirculated DEIR.

Mitigation Measure GEO-1: Minimize Soil Disturbance (Revised from VMP BMP GEN-2)

See text in Section 3.6, *Geology, Soils, and Seismicity* of this Recirculated DEIR.

Mitigation Measure GEO-2: Erosion and Sediment Control Measures (VMP BMP GEN-3)

See text in Section 3.6 of the prior 2020 DEIR, *Geology, Soils, and Seismicity*. Full text also provided in Section 3.4, *Biological Resources*, of this Recirculated DEIR.

~~**Mitigation Measure HAZ-1: Vehicle and Equipment Maintenance (VMP BMP GEN-8)**~~

~~See text in Section 3.8, *Hazards and Hazardous Materials.*~~

~~**Mitigation Measure HAZ-2: Vehicle and Equipment Fueling (VMP BMP GEN-9)**~~

~~See text in Section 3.8, *Hazards and Hazardous Materials.*~~

~~**Mitigation Measure HAZ-3: On-Site Hazardous Materials Management (VMP BMP GEN-5)**~~

~~See text in Section 3.8, *Hazards and Hazardous Materials.*~~

~~**Mitigation Measure HAZ-5: Standard Herbicide Use Requirements (VMP BMP VEG-2)**~~

~~See text in Section 3.8, *Hazards and Hazardous Materials.*~~

~~**Mitigation Measure HAZ-6: Spill Prevention and Response (VMP BMP GEN-7)**~~

~~See text in Section 3.8, *Hazards and Hazardous Materials.*~~

~~**Mitigation Measure HAZ-8: Existing Hazardous Materials (VMP BMP GEN-6)**~~

~~See text in Section 3.8, *Hazards and Hazardous Materials.*~~

Mitigation Measure HYD/WQ-1: Work Windows (VMP BMP GEN-1)

See text in Impact HYD/WQ-1 above.

Conclusion

While Revised Draft VMP activities have potential for substantial erosion and altering of site drainage patterns and runoff flows, implementation of Mitigation Measures BIO-5, GEO-1, GEO-2, HAZ-1, HAZ-2, HAZ-3, HAZ-5, HAZ-6, HAZ-8, and HYD/WQ-1 would reduce the Revised Draft VMP's effect to **less than significant with mitigation**.

Impact HYD/WQ-4: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge Such That There Would Be a Net Deficit in Aquifer Volume or a Lowering of the Local Groundwater Table Level *(Less than Significant)*

Revised Draft VMP activities would include the use of hand tools, motorized equipment, herbicide application, and grazing to manage vegetation and reduce fire risks. Taking into account the BMPs included in the Revised Draft VMP (refer to **Appendix A**, *Revised Draft Vegetation Management Plan,* of this Recirculated DEIR), in some areas, the removal of vegetation and plant debris would result in greater groundwater recharge due to decreased interception, uptake, and evapotranspiration. While a decrease in shade from removed vegetation could increase soil temperatures and surface water loss from evaporation, chipping and mulching would limit soil moisture declines. In some cases, soils present in portions of the Revised Draft VMP area may experience minor surficial ground compaction due to vegetation removal activities. Such soil compaction could reduce precipitation infiltration potential in these areas. However, the application of chipping and mulching would offset this effect by enhancing infiltration capacity. Reductions in infiltration and deeper groundwater percolation are not anticipated due to vegetation management practices. Additionally, the Revised Draft VMP does not propose use of groundwater supplies or the creation of impervious surfaces that could interfere with groundwater recharge. Therefore, this impact would be **less than significant** and no mitigation is required.

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3.10 NOISE AND VIBRATION

This section has not been revised; see prior 2020 DEIR.

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3.12 TRANSPORTATION

This section summarizes the environmental and regulatory setting related to transportation and traffic in the context of the Revised Draft VMP. This section also presents the impact methodology and evaluates the potential traffic impacts associated with the Revised Draft VMP.

3.12.1 Environmental Setting

Regional Access

Regional access to the Revised Draft VMP area is available via I-580, SR 24, and SR 13, all of which are part of the California State Highway System. I-580 extends east/west from the US-101 junction in San Rafael to the I-5 junction in the Central Valley. A portion of I-580 runs parallel to the western edge of the Revised Draft VMP area, beginning at Lake Chabot Regional Park. SR 13 is entirely within Alameda County and extends from I-580 near Mills College in Oakland to the I-80/ Ashby Avenue interchange in Berkeley. SR 13 spans the majority of the Revised Draft VMP area. SR 24 is within Alameda and Contra Costa Counties and extends east/west from the I-580/I-890 interchange in Oakland to the I-680 junction in Walnut Creek. A segment of SR 24 bisects the northern portion of the Revised Draft VMP area between the SR 13 junction and Fish Ranch Road.

Local Roadway Network

Access to the Revised Draft VMP area is also provided through a number of arterial, collector and residential/local streets (City of Oakland Department of Transportation [OakDOT] 2020a). Portions of roads that are classified by the City as both arterial and collector streets that run through the Revised Draft VMP area include Grizzly Peak Boulevard (Blvd), Skyline Blvd, Claremont Avenue (Ave), Moraga Ave, Mountain Blvd, Park Blvd, Joaquin Miller Road (Rd), Redwood Rd, Keller Ave, and Golf Links Rd (Figure 2-2, sheets 1 through 10).

Grizzly Peak Blvd runs the eastern perimeter of the Revised Draft VMP area from east of Claremont Canyon Regional Reserve until it merges with Skyline Blvd near the Sibley Park Main Staging Area. Skyline Blvd continues on the eastern perimeter of the Revised Draft VMP area until it turns south and extends through Joaquin Miller Park and eventually through the central portion of the Revised Draft VMP area on the western edge of Redwood Regional Park. Claremont Ave runs southwest to northeast between SR 13/Tunnel Rd and Grizzly Peak Rd. The portion of Moraga Ave within the Revised Draft VMP area parallels northbound SR 13 until it meets Mountain Blvd. Mountain Blvd begins near the SR 13/SR 24 junction to the north and parallels northbound SR 13 to the south until it terminates at Joaquin Miller Rd and then resumes just north of Redwood Road. Joaquin Miller Rd begins at the SR 13/Lincoln Ave junction and travels east and south until it merges with Skyline Blvd. Redwood Rd, Keller Ave, and Golf Links Rd extend from Mountain Blvd to the west and run northeast until each merge with Skyline Blvd. Park Blvd runs north/south and flanks the western edge of Dimond Park until its intersection with Mountain Blvd.

Important collector and residential/local streets throughout the Revised Draft VMP area include Broadway, Shepard Canyon Rd, Thornhill Rd, Ascot Drive (Dr), and Snake Rd. Broadway runs just south of SR 24 roughly between SR 13 and Skyline Blvd. Thornhill Dr extends from Moraga Ave to the west and runs northeast until it merges with Snake Rd. Snake Rd extends from Mountain Blvd to the west and runs northeast until it merges with Skyline Blvd. Ascot Dr extends from Mountain Blvd to the west and runs northeast until it merges with Skyline Blvd.

Public Transit

Alameda-Contra Costa Transit District (AC Transit) is the principal public transit operator in the Revised Draft VMP area. AC Transit operates three bus routes throughout the Revised Draft VMP area, including the 33, 46, and 339 lines. Paratransit services are provided through East Bay Paratransit and Oakland Paratransit, which is funded by the City and Alameda County Transportation Commission (CTC).

Pedestrian, Bicycle, and Equestrian Access

As discussed in Section 3.11, *Recreation,* public recreational access for pedestrians and bicyclists is available throughout the Revised Draft VMP area and include: Beaconsfield Canyon, Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, Grizzly Peak Open Space, City Stables, Sheffield Village Open Space, Knowland Park and Arboretum, King Estates Open Space Park, Joaquin Miller Park, Tunnel Road Open Space, Marjorie Saunders Park, and Oak Knoll. For additional information on these recreation areas, see Table 3.11-1, "Parks and Open Spaces in the Revised Draft VMP Area."

Bicycle access on surface streets and arterials throughout the Revised Draft VMP area is provided through 16 miles of bike routes along Skyline Blvd, Grizzly Peak Rd, Mountain Blvd, Monterey Blvd, and Golf Links Rd. Additionally, the Montclair Railroad Trail serves as a shared and protected bicycle/pedestrian trail along Shephard Canyon Rd (OakDOT 2018, 2020b). Equestrian access within the Revised Draft VMP area is provided at the City Stables and Joaquin Miller Park.

3.12.2 Regulatory Setting

State Laws, Regulations, and Policies

California Streets and Highways Code

The California Streets and Highways Code provides the standards for administering the statewide system of streets and highways. Designated state route and interstate highway facilities are under the jurisdiction of Caltrans, except where facility management has been delegated to the county transportation authority.

According to Section 660 of the California Streets and Highways Code, permits must be obtained for all proposed activities related to the placement of encroachments within, under, or over the State highway rights of way. Examples of the type of work that may require an encroachment permit include utilities, excavations, vegetation planting or trimming, and surveys (Caltrans 2018a).

California Vehicle Code

Caltrans has discretionary authority with respect to highways under its jurisdiction and may issue a special permit to operate or move a vehicle or combination of vehicles or special mobile equipment of a size or weight of vehicle or load exceeding the maximum limitations specified in the California Vehicle Code (Caltrans 2018b).

Local Laws, Regulations, and Policies

Alameda County Congestion Management Program

The Alameda County Congestion Management Program (CMP) outlines strategies to measure and improve the performance of Alameda County's multimodal transportation system; address roadway congestion and ultimately reduce greenhouse gas emissions. The CMP is updated every two years by the Alameda CTC and is required to include five elements: level of service monitoring of a designated roadway network; a multimodal performance element; a travel demand management element; a land use analysis program; and a capital improvement program. The ~~2019~~2021 CMP describes the work performed by Alameda CTC and progress towards implementation of the major CMP elements since the ~~2017~~2019 update~~.~~ (Alameda CTC ~~2019,~~ 2020a, 2021).

Alameda Countywide Transportation Plan

The Alameda Countywide Transportation Plan (CTP) is a long-ranging policy document that guides future transportation projects, programs, and policies in Alameda County, and ultimately feeds into the "Plan Bay Area," the region's long-range transportation plan. Updated every four years, the CTP addresses capital, operating, and maintenance activities for all transportation modes. The 2020 CTP supports multi-modal and integrated planning with an emphasis on defining projects that can be pursued over the next ten years~~.~~ (Alameda CTC 2016, 2020b).

City of Oakland General Plan

Applicable objectives and policies from the City of Oakland General Plan's Land Use and Transportation Element (City of Oakland 1998) that are relevant to the Revised Draft VMP include the following:

Objective T1.5: Reduce truck traffic impacts on residential neighborhoods.

> **Policy T3.5:** The City should include bikeways and pedestrian walks in the planning new, reconstructed, or realized streets, wherever possible.

Objective T6: Make streets safe, pedestrian accessible and attractive.

> **Policy T6.2:** Improving Streetscapes: The city should make major efforts to improve the visual quality of streetscapes, particularly in neighborhoods and commercial centers, should be pedestrian-oriented and include lighting, directional signs, trees, benches, and other support facilities.
>
> **Policy T6.5:** The City should protect and encourage the enhancement of the distinctive character of scenic routes within the city, through prohibition of billboards, design review, and other means.

Oakland Department of Transportation's Strategic Plan

OakDOT developed its inaugural Strategic Plan in 2016 to provide a data-driven and trackable summary of OakDOT's commitments and to guide the development of future planning on Oakland streets. The Plan's primary goals include equitable jobs and housing; holistic community safety; vibrant sustainable infrastructure; and responsive trustworthy government. Each goal includes a number of strategies and along with the one- and three-year benchmarks the agency will use to guide their efforts. (OakDOT 2016).

Applicable goals from the OakDOT's Strategic Plan that are relevant to the Revised Draft VMP include the following:

Holistic Community Safety

1. Adopt a Vision Zero policy and pledge to eliminate traffic injuries and fatalities

3. Incorporate safe and Complete Street designs into the design process:

    - Ensure that safer designs and safety interventions are integrated into routine maintenance and operations, and into all projects

Vibrant Sustainable Infrastructure

2. Plan and develop capital projects in an equitable, timely, efficient and coordinated manner:

    - Create an interdisciplinary, interagency team that develops, coordinates and prioritizes capital projects based on city policies and programs, community proposals, specific plans, private development, utility company projects and identified maintenance needs

12. Green Oakland's streets to improve air and water quality

3.12.3 Impact Analysis

Methodology

Traffic and transportation impacts associated with implementation of the Revised Draft VMP were evaluated using a qualitative analysis due to the temporary nature of the effects on traffic operations; bicycle, pedestrian, and transit facilities; emergency access; and VMT. The analysis is based on proposed vegetation treatment activities, the equipment utilized for treatments, and methods for transporting equipment and materials. The criteria for determining the significance of potential impacts are outlined below.

Criteria for Determining Significance

Based on Appendix G of the CEQA Guidelines, City of Oakland CEQA Thresholds of Significance, and Transportation Impact Study Guidelines, the Revised Draft VMP would result in a significant impact on transportation or traffic if it would:

- Conflict with a program applicable plan, ordinance, or policy addressing the safety or performance of the circulation system, including transit, roadways, bicycle lanes, and

pedestrian paths (except for automobile level of service or other measures of vehicle delay);

- Cause substantial additional VMT per capita, per service population, or other appropriate efficiency measure;

- The following are thresholds of significance related to substantial additional VMT:

  - For residential projects, a project would cause substantial additional VMT if it exceeds existing regional household VMT per capita minus 15 percent.
  - For office projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.
  - For retail projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per capita minus 15 percent.

- Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network;

- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b):

  (b) Criteria for Analyzing Transportation Impacts.

  1) *Land Use Projects*. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

  2) *Transportation Projects*. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, a lead agency may tier from that analysis as provided in Section 15152.

  3) *Qualitative Analysis.* If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

  4) *Methodology*. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to

express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

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

- Result in inadequate emergency access.

Issues Not Evaluated Further

Due to the nature of the Revised Draft VMP, there would be no impacts related to the following significance criterion:

- **Substantially Induce Additional Automobile Travel by Increasing Roadway Capacity or Adding New Roadways to the Network:** The Revised Draft VMP would not increase physical roadway capacity or add new roadways to the network. All vehicle trips associated with Revised Draft VMP activities would utilize existing roadways or maintenance roads previously established by the City.

Environmental Impacts

Impact TRA-1: Conflict with a Program Applicable Plan, Ordinance or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle and Pedestrian Facilities (*Less than Significant with Mitigation*)

Proposed vegetation treatment activities would generate worker and maintenance vehicle trips, which could require temporary lane closure along roadways in the Revised Draft VMP area. Revised Draft VMP-related vehicular traffic could also require temporary re-routing of bicycle routes along Skyline Blvd, Grizzly Peak Rd, Mountain Blvd, Monterey Blvd, and Golf Links Rd. Additionally, temporary closure of sidewalks or parking areas adjacent to City facilities and open spaces could also occur throughout the Revised Draft VMP area, such as along Skyline Blvd.

As described in Chapter 2, *Project Description,* the estimated number of personnel required at each project site could range from a single worker for treatment activities such as grass removal to upwards of 18 workers for tree removal activities (see Table 2-94 for estimated number of personnel required by each Revised Draft VMP treatment type). While vegetation management activities would occur year-round (and potentially more than once annually), it is not yet known which and how many treatment projects would be conducted in a given year. However, maximum annual acreages of treatment activities have been developed (see Table 2-7). It can be assumed that more frequent worker and maintenance trips would occur in treatment areas that encompass larger areas and involve more labor-intensive treatment techniques (i.e., hand removal of trees). As such, the potential for impacts on the circulation system, including transit, roadway, bicycle, and pedestrian facilities, during vegetation treatment would differ by

treatment area type as well as vegetation management activity. Additionally, the Revised Draft VMP would prioritize vegetation treatment areas into three different categories, with implementation of Priority 1 and Priority 2 projects taking precedence, and Priority 3 projects being implemented as budget is available. The City would likely treat priority roadsides (Priority 1 treatment areas) at least every 3 years and possibly more frequently. It is anticipated that the remaining roadside areas (Priority treatment 2 areas) would be treated every 3-5 years.

The following sections discuss potential impacts to the circulation system by treatment area type. This analysis focuses on impacts to the circulation system from Revised Draft VMP treatments along roadsides or near roadsides, as these activities are anticipated to have the greatest potential impact on the circulation system. Impacts to the circulation system from non-roadside Revised Draft VMP treatments such as those occurring within open spaces, parks, trails or on private parcels would involve increased worker and hauling trips but would not be expected to significantly alter traffic flow or result in partial lane closures. The potential for increased VMT as a result of the Revised Draft VMP is addressed in Impact TRA-2.

Roadside Treatment Areas and Medians

Roadside treatment includes areas within 30 feet from roadside edges (including City-owned medians) along major access/egress routes~~.~~, as well as the area within 30 to 100 feet of the roadside edge where dead and dying trees are present on City-owned property and could strike the road if they fell. Under the baseline condition, the City currently conducts approximately 400 acres of roadside treatment activities annually using a combination of hand labor and mechanical methods, which requires 10-15 workers and one employee from OFD. Work occurring in roadside treatment areas and medians under the Revised Draft VMP would encompass all roads in the Revised Draft VMP area (308 miles). Similar to current practices, typical activities for Revised Draft VMP treatments would include reducing ladder fuels, controlling highly flammable species, maintaining fuel loads, reducing ignitable surface fuels, and pruning tree canopies. Priority 1 activities would focus on approximately 31~~30~~ miles of main access/egress routes in the Revised Draft VMP area as well as manual treatment (grass and tree removal) on 5.8 acres of medians.

Under the Revised Draft VMP, the City would conduct approximately ~~500~~508 acres of roadside treatment activities annually using a combination of hand labor and mechanical methods. Thus, roadside treatment would increase beyond the City's current baseline by approximately ~~100~~108 acres. The typical number of workers at any given treatment site would be similar to baseline conditions (10-15 workers) but a maximum of 18 workers may be needed to conduct individual roadside treatment activities under the Revised Draft VMP. Assuming that a maximum of 18 workers would be required at roadside and median treatment areas, the Revised Draft VMP would result in increased worker and maintenance vehicle trips. These activities would likely occur every three years in the case of Priority 1 roadside treatment areas and every 3-5 years for Priority 2 areas. As a result, any additional vehicle trips would not have an appreciable effect on traffic flow and would be unlikely to permanently affect transit, bicycle, and pedestrian facilities beyond baseline conditions. However, Revised Draft VMP treatment activities may result in temporary lane closures, temporary rerouting of bicycle routes, and temporary closure of sidewalks or parking areas; these temporary effects on the transportation system would conflict with City and County policies related to safety during routine maintenance activities and reducing truck traffic impacts in residential neighborhoods, which would be a significant impact.

Implementation of traffic and safety protocols would be necessary to avoid these temporary impacts. Implementation of **Mitigation Measure TRA-1 (Maintain Traffic Flow)** would maintain two-way traffic flow to the extent feasible. In the event of temporary lane closures, implementation of **Mitigation Measure TRA-2 (Traffic Control and Public Safety)** would include measures to guide traffic; safeguard construction workers; provide safe passage of vehicles, pedestrians, and bicyclists; and maintain public transit access.

Ridgetop Areas

Ridgetop areas include the North Oakland Regional Sports Field, Grizzly Peak Open Space, and City Stables (although no specific projects have been identified on this property at this time) and encompass approximately 130.2 acres of City-owned land. With the exception of City Stables, management practices in ridgetop areas currently involve a combination of grazing and roadside treatment activities (e.g., hand labor and mechanical techniques). Priority 1 roadside activities under the Revised Draft VMP would be expanded to Tunnel Road and additional segments of Bay Forest Drive (an additional 28.5 acres of treatment area) and would require crews of up to 18 workers. The approximate duration of these activities would be approximately 17 days. Treatment areas would also include area within 30 to 100 feet of the roadside edge where dead and dying trees are present on City-owned property and could strike the road if they fell. Thus, Revised Draft VMP-related vehicular activity associated with ridgetop areas would amount to an increase over baseline conditions, although impacts would be short term in duration, similar to conditions under the City's current vegetation management activities. Revised Draft VMP treatment activities may result in temporary lane closures, temporary rerouting of bicycle routes, and temporary closure of sidewalks or parking areas; these temporary effects on the transportation system would conflict with City and County policies related to safety during routine maintenance activities and reducing truck traffic impacts in residential neighborhoods, which would be a significant impact. Implementation of traffic and safety protocols would be necessary to avoid these temporary impacts. Implementation of Mitigation Measures TRA-1 and TRA-2 would maintain traffic flow; provide safe passage of vehicles, pedestrians, and bicyclists; and maintain public transit access.

Canyon Areas

Canyon areas, including Garber Park, Dimond Canyon Park, Shepherd Canyon Park, Leona Heights Park, and Beaconsfield Canyon, encompass approximately 188.7 acres. With the exception of Beaconsfield Canyon, these areas currently include roadside treatment activities, which would be expanded to additional Priority 1 roadway areas including: manual treatment (grass removal) along Claremont Ave (1.34 acres); manual treatment (tree removal) along Park Boulevard, Monterey Boulevard, Leimert Boulevard and El Centro Avenue (3.42 acres); manual treatment (tree removal) along Shepherd Canyon Rd, Escher Dr, Snake Rd, and Bagshotte Dr (9.26 acres); and manual treatment (tree removal) along Campus Dr (1.86 acres). Treatment areas would also include area within 30 to 100 feet of the roadside edge where dead and dying trees are present on City-owned property and could strike the road if they fell. These activities would require crews of up to 18 workers, resulting in increased worker and maintenance vehicle trips. Additionally, the approximate duration for these management activities would be 15 days. Thus, Revised Draft VMP-related vehicular activity associated with Canyon Areas would amount to an increase over current conditions, although impacts would be short term in duration, similar to conditions under the City's current vegetation management activities. Revised Draft VMP treatment activities may result in temporary lane closures, temporary rerouting of bicycle

routes, and temporary closure of sidewalks or parking areas; these temporary effects on the transportation system would conflict with City and Alameda County policies related to safety during routine maintenance activities and reducing truck traffic impacts in residential neighborhoods, which would be a significant impact. Implementation of traffic and safety protocols would be necessary to avoid these temporary impacts. Implementation of Mitigation Measures TRA-1 and TRA-2 would maintain traffic flow; provide safe passage of vehicles, pedestrians, and bicyclists; and maintain public transit access.

City Parks and Open Space Areas

City parks and open space areas, including Sheffield Village Open Space, Knowland Park and Arboretum, Joaquin Miller Park, King Estate Open Space Park, and other small City-owned parcels (see Table 2-14), encompass approximately 1,552.9 acres. Current vegetation management practices include a combination of roadside treatment through the use of hand labor or mechanical techniques, grazing, trail maintenance and vegetation management around parking lots and structures through hand labor. Priority 1 roadside activities would be expanded by approximately 108~~100~~ acres per year of mechanical and manual treatment compared to baseline conditions. These activities would occur along portions of Skyline Blvd, Golf Links Rd, Woodside Glen Court (Ct), Joaquin Miller Rd, Mountain Blvd, Fontaine St, and Crest Ave. Treatment areas would also include area within 30 to 100 feet of the roadside edge where dead and dying trees are present on City-owned property and could strike the road if they fell. These activities would require crews of up to 18 workers, resulting in increased worker and maintenance vehicle trips. Additionally, the approximate duration for these management activities would be 98 days. Thus, Revised Draft VMP-related vehicular activity associated with City parks and open space areas would amount to an increase over current conditions, although impacts would be short term in duration, similar to conditions under the City's current vegetation management activities. Revised Draft VMP treatment activities may result in temporary lane closures, temporary rerouting of bicycle routes, and temporary closure of sidewalks or parking areas; these temporary effects on the transportation system would conflict with City and Alameda County policies related to safety during routine maintenance activities and reducing truck traffic impacts in residential neighborhoods, which would be a significant impact. Implementation of traffic and safety protocols would be necessary to avoid these temporary impacts. Implementation of Mitigation Measures TRA-1 and TRA-2 would maintain traffic flow; provide safe passage of vehicles, pedestrians, and bicyclists; and maintain public transit access.

Urban and Residential Parcels

City-owned urban and residential parcels include manual vegetation management and grazing and collectively encompass 47.5 acres. These activities would continue under the Revised Draft VMP, lasting approximately 19 days and requiring crews of up to 18 workers, which would increase worker and maintenance vehicle trips relative to baseline conditions. However, Revised Draft VMP-related vehicular activity related to urban and residential parcels would not amount to an appreciable increase over current conditions, and roadside treatment would be limited to the portions of these parcels which abut roadways. The impact would be less than significant and no mitigation is required.

Other Areas

This classification includes 43 properties (e.g., parking lots, playground, urban parks) encompassing 24.5 total acres. No current vegetation management activities are conducted on these parcels by OFD and no additional vegetation management treatments are identified for these parcels, which are considered Priority 3. The impact would be less than significant and no mitigation is required.

Mitigation Measures

Mitigation Measure TRA-1: Maintain Traffic Flow

The City and its contractors will implement the following measures:

- To the extent feasible, work will be staged and conducted in a manner that maintains two-way traffic flow on roadways in the vicinity of the work site.
- Heavy equipment and haul traffic will be avoided in residential areas to the greatest extent feasible. When no other route to and from the site is available, heavy equipment and haul traffic through residential areas shall be restricted to the hours of 8 a.m. to 5:30 p.m., Monday through Friday.
- If heavy equipment or hauling is required beyond the hours above, the City or its contractor will provide notice to adjacent property owners 48 hours in advance of such activities.

Mitigation Measure TRA-2: Traffic Control and Public Safety

The City and its contractors will implement the following measures:

- In the event that work activities require the temporary closure of any traffic lanes, the City will implement measures to guide traffic (such as signage and flaggers), safeguard construction workers, provide safe passage of vehicles, and minimize traffic impacts through the duration of work activities. The City also will notify local emergency service providers regarding any planned lane closures.
- For any other work within or near the roadway that could pose a hazard to the public, the City will install/implement appropriate measures, such as fences, barriers, flagging, guards, and/or signs, to give adequate warning and provide protection from the potentially dangerous condition.
- For work activities along or near roadways with sidewalks and bike routes/lanes, the City will implement measures to ensure the safe passage of pedestrians and bicyclists around the work site.
- Public transit access and routes will be maintained in the vicinity of the work site. If public transit will be affected by temporary road closures and require detours, the City will consult affected transit authorities and keep them informed of project activities.

Conclusion

The Revised Draft VMP would have a beneficial effect on the circulation system through the removal of hazardous trees and vegetation along roadsides, and any impacts to roadways would be temporary in nature. However, there is still the potential for reduced lane capacity in the local roadway network from treatment activities. Implementation of Mitigation Measure TRA-1 would maintain two-way traffic flow to the extent feasible. In the event of temporary lane closures, implementation of Mitigation Measure TRA-2 would include measures to guide traffic; safeguard construction workers; provide safe passage of vehicles, pedestrians, and bicyclists; and maintain public transit access. Therefore, this impact would be **less than significant with mitigation**.

Impact TRA-2: Result in Substantial Increase in Vehicle Miles Traveled (*Less than Significant*)

Under current vegetation management activities, the City treats approximately 1,300 acres annually, which includes 900 acres of grazing and 400 acres of hand labor and mechanical treatment of roadsides, small city parcels and open space areas. While the Revised Draft VMP would include many of the same practices already in place, it would expand and introduce new activities throughout nearly all treatment area types, for an annual total of approximately 1,698~~1,600~~ acres. It is not yet known which and how many treatment projects would be conducted in a given year, although maximum annual acreages of treatment activities have been developed (see Table 2-7). It is estimated that total annual VMT per capita would be approximately 0.14~~0.12~~ mile (or annual VMT of 59,259~~52,958~~ miles), compared to approximately 0.09~~0.08~~ mile (or annual VMT of 38,819~~35,986~~ miles) under the City's current vegetation management practices (see Appendix C, *Air Quality/Greenhouse Gas Calculations*, of this Recirculated DEIR for calculations). As such, the increase in treatment acreage under the Revised Draft VMP would result in an increase in VMT over baseline conditions due to additional maintenance vehicle trips, worker trips and vegetation hauling.

According to the California Governor's Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact, absent substantial evidence indicating otherwise (OPR 2018). Similarly, the City of Oakland CEQA Thresholds of Significance and Transportation Impact Study Guidelines indicates that small projects generating fewer than 100 vehicle trips per day are also generally assumed to cause a less-than-significant transportation impact. As discussed in Impact TRA-1, current activities would require a maximum of 15 workers per project. Under the Revised Draft VMP, this would increase to a maximum of 18 workers across all activities. The addition of 3 workers would result in 6 additional daily vehicle trips[1] beyond the City's current activities for the duration of each project. Thus, even with two crews employed simultaneously with maximum personnel (i.e., two crews of 18 yielding a total of 72 trips), the increase in daily VMT (approximately 70~~65~~ miles) would result in vehicle trips below the City's threshold of 100 trips per day and OPR's threshold of 110 trips per day. Given that the small (0.05~~0.04~~ mile per capita or 20,440 miles ~~16,972 miles~~)

[1] It is assumed that each worker represents a trip to and from the worksite (i.e., two vehicle trips).

annual increase in VMT does not exceed City or state criteria, this impact would be less than significant and no mitigation is required.

Conclusion

The Revised Draft VMP would increase VMT per capita by 0.05~~0.04~~ mile per capita per year, which would not be a substantial increase in VMT per capita. The increase of up to 6 vehicle trips per day to conduct Revised Draft VMP treatment activities would not exceed the aforementioned thresholds of 100 and 110 vehicle trips per day. Therefore, this impact would be **less than significant** and no mitigation is required.

Impact TRA-3: Substantially Increase Hazards due to a Design Feature or Incompatible Uses (*Less than Significant with Mitigation*)

The Revised Draft VMP would not change the design of any roadway or intersection. Roadside and median treatments conducted throughout the Revised Draft VMP area would have the benefit of maintaining site distances for motorists, thereby minimizing potentially hazardous conditions resulting from overgrowth of roadside vegetation. Additionally, the removal of dead and dying trees within 100 feet of roadways on City-owned property would reduce potential hazards from trees that could fall across roadways. However, treatment activities could pose hazards to motorists, bicyclists, and pedestrians due to incompatible uses such as operation of maintenance vehicles on roadsides, ad-hoc parking along roadsides, and operation of vegetation management equipment. There is a small likelihood that these uses would substantially increase hazards, which would be a significant impact. Implementation of Mitigation Measure TRA-1 restrict the hours of heavy equipment and haul traffic through residential areas to the extent feasible. Implementation of Mitigation Measure TRA-2 would minimize the potential for the presence of vehicles and heavy equipment to result in adverse impacts through the use of signage and flaggers, as well as public notification of any planned lane closures.

Mitigation Measures

Mitigation Measure TRA-1: Maintain Traffic Flow

See text in Impact TRA-1 above.

Mitigation Measure TRA-2: Traffic Control and Public Safety

See text in Impact TRA-1 above.

Conclusion

Implementation of the avoidance measures described in the Revised Draft VMP as well as Mitigation Measures TRA-1 and TRA-2 would minimize the potential for design features or incompatible uses in the Revised Draft VMP area to result in increased roadway hazards. Therefore, this impact would be **less than significant with mitigation**.

Impact TRA-4: Result in Inadequate Emergency Access (*Less than Significant with Mitigation*)

The Revised Draft VMP would not include any activities that would permanently block or constrain publicly accessible roadways or emergency access routes. Rather, in the long term, the Revised Draft VMP would reduce fuel loads, remove dead and dying trees within 100 feet of roadways that could fall across roads, and clear roadside vegetation, which would improve emergency access for first responders and firefighters, and residents needing to evacuate in case of a wildfire or other emergency.

During some roadside/median treatment activities, partial lane closure may be required on a short-term basis. As discussed in Section 3.8, *Hazards and Hazardous Materials,* many of the roads proposed for treatment in the Revised Draft VMP are also identified evacuation routes in the City of Oakland's General Plan, Safety Element. Operation of heavy mechanical equipment, haul or transport trucks, or vehicles along these roadways during treatment activities could temporarily limit the mobility of emergency response vehicles or cause congestion for residents attempting to evacuate the area. Although any lane closures would be temporary in nature, this would be a significant impact. Implementation of Mitigation Measure TRA-1 would maintain two-way traffic flow to the extent feasible during treatment activities, and implementation of Mitigation Measure TRA-2 would include measures to guide traffic, safeguard construction workers, provide safe passage of vehicles, and notify local emergency service providers regarding any planned lane closures.

Mitigation Measures

The City would implement the following mitigation measures to reduce Impact TRA-4:

Mitigation Measure TRA-1: Maintain Traffic Flow

See text in Impact TRA-1 above.

Mitigation Measure TRA-2: Traffic Control and Public Safety

See text in Impact TRA-1 above.

Conclusion

Revised Draft VMP activities would have a beneficial effect on emergency response in the long term by ensuring that emergency vehicle and evacuation access is maintained along roadsides through vegetation clearance and fuel reduction. While emergency access may be hindered temporarily as a result of treatment activities, implementation of the Mitigation Measures TRA-1 and TRA-2 would minimize these effects. Therefore, this impact would be **less than significant with mitigation**.

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3.13 TRIBAL CULTURAL RESOURCES

This section has not been revised; see prior 2020 DEIR.

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3.14 WILDFIRE

Figure 3.14-1 is being recirculated to include the changes to priority roadside in the Revised Draft VMP. This remainder of this section has not been revised; see prior 2020 DEIR.

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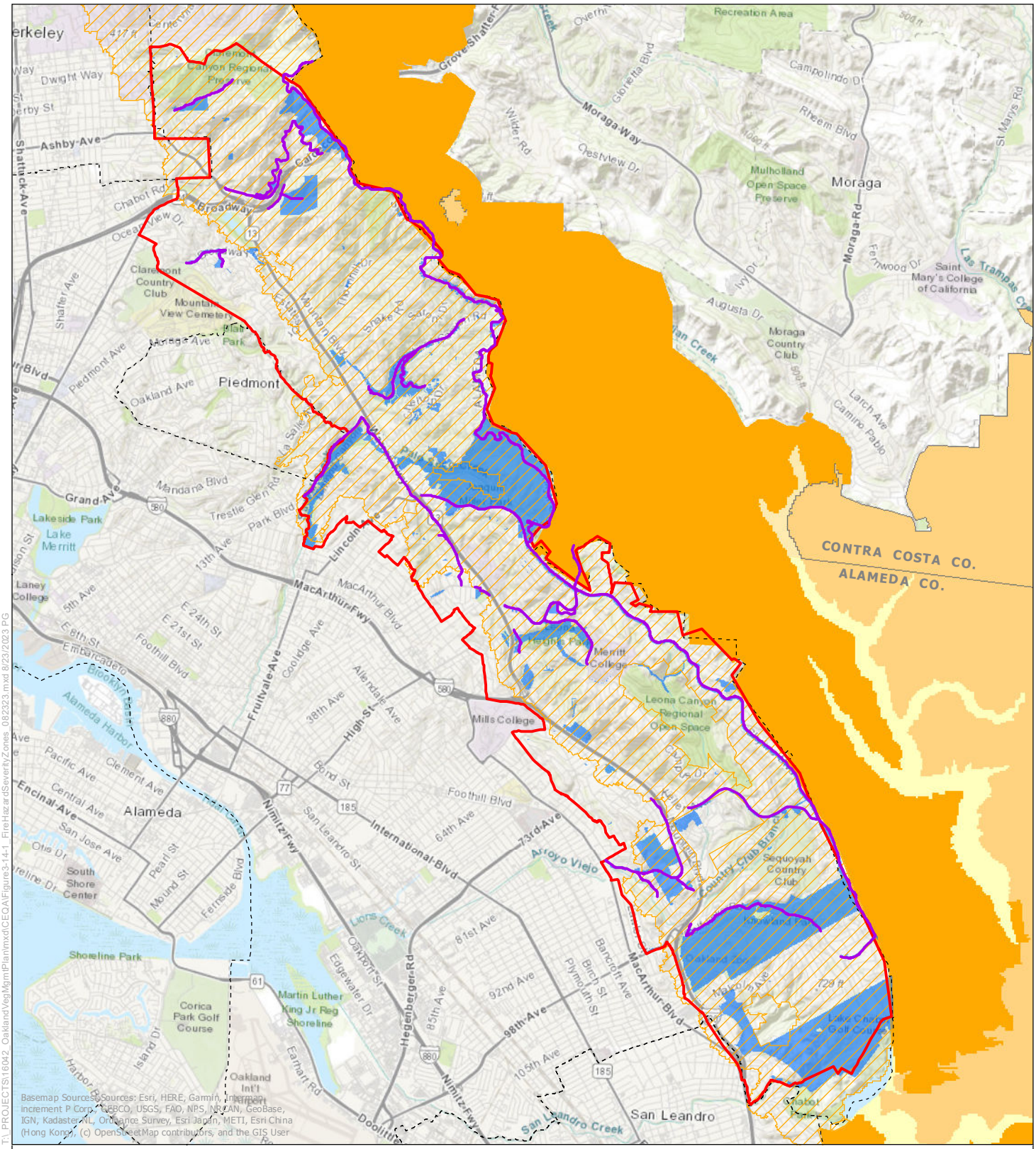

Figure 3.14-1. Fire Hazard Severity Zones

Revised Draft Vegetation Management Plan
Recirculated Draft Environmental Impact Report

MONTROSE ENVIRONMENTAL

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Chapter 4
Other Statutory Considerations

4.1 INTRODUCTION

This chapter describes other statutory considerations and potential impacts of the Revised Draft VMP that have not already been described, as required by the CEQA Guidelines. This chapter includes a discussion of irreversible impacts, significant but mitigable impacts, growth-inducing impacts, and cumulative impacts of the Revised Draft VMP.

4.2 IRREVERSIBLE IMPACTS

CEQA Guidelines Section 15126.2(d) requires that an EIR must identify any irreversible impacts (also referred to as irreversible environmental changes) that may be caused by a proposed project, such as current or future commitments to using nonrenewable resources, secondary impacts, and growth-inducing impacts that commit future generations to similar uses. Section 15126 of the CEQA Guidelines states that significant, irreversible environmental changes associated with a proposed project may include:

- use of non-renewable resources during the initial and continued phases of the project that may be irreversible because a large commitment of such resources makes removal or non-use thereafter unlikely;
- primary impacts and, particularly, secondary impacts (such as a highway improvement that provides access to a previously inaccessible area) that commit future generations to similar uses; and
- irreversible damage that may result from environmental accidents associated with the project.

An irreversible commitment of nonrenewable resources would occur as a result of the Revised Draft VMP through the temporary use of heavy equipment, which would require the use of fossil fuels. However, the vegetation management practices implemented under the Revised Draft VMP would likely reduce the need for larger and more complex vegetation management projects that could be required over time if routine maintenance activities were deferred. In addition, failure to implement vegetation treatment activities under the Revised Draft VMP would increase the risk of wildfire within the Revised Draft VMP area, which could result in a catastrophic and uncontrolled commitment of nonrenewable resources. With implementation of the mitigation measures identified in this ~~EIR~~Recirculated DEIR, the Revised Draft VMP is not anticipated to have secondary impacts that would commit future generations to similar uses or result in irreversible damage, and it would not involve expansion of existing facilities.

4.3 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Section 15126.2(c) of the CEQA Guidelines requires an EIR to describe any significant impacts that cannot be mitigated to a less than significant level. The following impacts are considered significant and unavoidable environmental impacts that cannot be avoided. Refer to Section 3.10, *Noise and Vibration*, of ~~this~~ the prior 2020 DEIR for a full description of this impact.

- Impact NOI-1: Generate Substantial Temporary or Periodic Increase in Ambient Noise Levels; or Generate Noise in Violation of the City of Oakland Municipal Code, in Excess of General Plan Standards, California Noise Insulation Standards, or Applicable Standards Established by a Regulatory Agency

4.4 GROWTH INDUCEMENT

Section 15126.2(e) of the CEQA Guidelines requires an EIR to 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 project area. The analysis also must address project-related actions that, either individually or cumulatively, would remove existing obstacles to population growth. A proposed project is considered growth inducing if it would induce growth directly (through the construction of new housing or increasing population) or indirectly (by increasing employment opportunities or eliminating existing constraints on development). Under CEQA, growth is not assumed to be either beneficial or detrimental.

The Revised Draft VMP would neither involve the construction of new housing nor directly or indirectly result in population growth. Similarly, implementation of the Revised Draft VMP would not result in significant increases in employment, given modest increases in crew sizes and the relative frequency of vegetation management activities. Therefore, the Revised Draft VMP would not result in growth-inducing impacts.

4.5 CUMULATIVE IMPACTS

A cumulative impact refers to the combined effect of "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). Cumulative impacts reflect the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable (i.e., probable) future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355[b]).

CEQA Guidelines Section 15130(a) requires that an EIR address the cumulative impacts of a proposed project when:

- the cumulative impacts are expected to be significant; and

- the project's incremental effect is expected to be cumulatively considerable, or significant, when viewed in combination with the effects of past, current, and probable future projects.

An EIR does not need to discuss cumulative impacts that do not result in part from the project evaluated in the EIR.

CEQA Guidelines Section 15130 requires an analysis of cumulative impacts to contain the following elements:

- Either a list of past, present, and probable future projects producing related cumulative impacts or a summary of projections contained in an adopted local, regional, or statewide plan that describes or evaluates conditions contributing to the cumulative effect;

- A definition of the geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic limitation used;

- 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.

The discussion of cumulative impacts is not required to provide as much detail as the discussion of effects attributable to the project alone. Rather, the level of detail should be guided by what is practical and reasonable. In addition, Section 15130(e) of the CEQA Guidelines directs that, if a cumulative impact is adequately addressed in a previous EIR for a general plan and the proposed project is consistent with that general plan, the project EIR need not analyze that cumulative impact further.

4.5.1 METHODS USED IN THIS ANALYSIS

As described above, Section 15130 of the CEQA Guidelines provides two recommended approaches for analyzing and preparing an adequate discussion of significant cumulative impacts:

- the *list approach*, which involves listing past, present, and probable future projects that would produce related or similar impacts, including those projects outside the control of the lead agency; or

- the *projection approach*, which utilizes a summary of projections contained in an adopted general plan, a related planning document, or an adopted environmental document that evaluated regional or area-wide conditions contributing to the cumulative impact.

The discussion of cumulative impacts in this Recirculated DEIR uses a combination of the list approach and the projection approach. Section 4.5.2 identifies other past, present, and

reasonably foreseeable future projects involving vegetation and wildfire management that could affect resources similar to those affected by the Revised Draft VMP. Section 4.5.3 describes aspects of relevant planning documents that reflect the City's past, present, and reasonably foreseeable future development conditions in the Revised Draft VMP area. Using this combined approach, the cumulative impact analysis focuses on environmental resources that could be affected by the Revised Draft VMP in conjunction with other past, present, and reasonably foreseeable future projects.

4.5.2 ACTIVITIES SIMILAR TO THE REVISED DRAFT VMP WITH POTENTIAL TO AFFECT RESOURCES ~~SIMILAR TO THE VMP~~

Chabot Space and Science Center Vegetation Management Implementation Plan

The City of Oakland prepared and is implementing a Vegetation Management Implementation Plan at the Chabot Space and Science Center (CSSC) (WRA 2013). The plan includes recommendations to reduce fuel loads on approximately 7.93 acres of land to the southwest of the CSSC, bounded by the CSSC driveways to the northwest and southeast and by Skyline Boulevard to the southwest.

Chabot Space and Science Center Pallid Manzanita Habitat Enhancement and Conservation Plan

The Pallid Manzanita Habitat Enhancement and Conservation Plan (CSSC 2015) was prepared to fulfill mitigation measures established in the 1995 CSSC EIR. These mitigation measures were designed to avoid and minimize impacts to pallid manzanita (*Arctostaphylos pallida*), a plant species federally listed as threatened and state listed as endangered, located in the vicinity of the CSSC. The habitat enhancement and conservation plan describes performance standards and habitat enhancement and restoration measures to restore the species to previous numbers (at a minimum) and protect the plants into the future. The plan sets forth a monitoring regimen to take place each spring to document the success of habitat enhancement and restoration efforts.

EBRPD East Bay Hills Wildfire Hazard Reduction, Resource Management Plan

The EBRPD East Bay Hills Wildfire Hazard Reduction and Resource Management Plan (LSA 2009) provides long-term strategies to reduce fuel loads and manage vegetation within the EBRPD's Study Area parks. The resource management plan includes goals for wildfire hazard reduction and resource management to minimize the risk of Diablo wind-driven catastrophic wildfire along the WUI while maintaining and enhancing ecological habitat values within the EBRPD's jurisdiction. To achieve these goals, the EBRPD established a vegetation management plan that describes vegetation types and characteristics within the EBRPD's Study Area; identifies fire hazard reduction and resource management goals; and sets forth fuel treatment methods. The vegetation management plan also discusses fuel reduction methods and allows for a feedback process to improve implementation.

East Bay Municipal Utility District East Bay Watershed Fire Management Plan

The EBMUD Fire Management Plan (EBMUD 2000) guides the implementation of fire protection and preparedness activities that meet key watershed management objectives. Using an integrated GIS-based fire-planning process, the fire management plan is periodically updated to reflect current scientific information, federal and state regulations, and natural resource constraints. The plan presents implementation strategies and tactics for fire assessment, reduction, and management.

East Bay Municipal Utility District Low Effect East Bay Habitat Conservation Plan

The EBMUD Low Effect East Bay Habitat Conservation Plan (EBMUD 2008) specifies the potential impacts of activities associated with the take of listed species occurring within the HCP area. General goals include managing maintenance of existing covered species habitat types and educating EBMUD personnel regarding identification and avoidance of sensitive species. Species-specific goals include protecting individuals and habitats of covered species on EBMUD watershed land and working toward general species recovery within the HCP area.

Alameda County Community Wildfire Protection Plan

The Alameda County Community Wildfire Protection Plan (Diablo Fire Safe Council 2015) provides an overview of wildfire hazards and risk in the WUI areas of Alameda County, California. The CWPP follows the format established by the federal Healthy Forest Restoration Act by identifying and prioritizing opportunities for fuel reduction within the county, addressing structural ignitability, and encouraging collaboration with stakeholders. The CWPP aims to aid stakeholders in preventing and reducing the threat of wildfire in the county by increasing education about wildfires, reducing hazardous fuels and structural ignitability, and assisting with emergency preparedness and fire suppression efforts. Action plan summaries identify implementation steps, leaders and partners, timeframes, and funding needs to facilitate the implementation of mitigation efforts.

Fire Hazard Mitigation Program and Fuel Management Plan for the East Bay Hills ~~(1995)~~

The *Fire Hazard Mitigation Program and Fuel Management Plan* (East Bay Hills Vegetation Management Consortium 1995) covers a study area of approximately 37,000 acres from Berkeley to Oakland and summarizes the efforts of nine public agencies collectively referred to as the Vegetation Management Consortium (VMC), to mitigate fire risk. The plan was funded by grants from FEMA and the California Office of Emergency Services matched by funding from local agencies. The plan identifies high fire hazard areas and prioritizes fuel treatment areas based on those ratings. In addition, the plan identifies vegetation management prescriptions by dominant vegetation type.

Resource Management Plan for the Caldecott Wildlife Corridor

The *Resource Management Plan for the Caldecott Wildlife Corridor* (Caldecott Corridor Committee 1998) covers the area of land above the Caldecott Tunnel, a significant habitat linkage across SR 24. The plan outlines the ecology, ownership, and fire environment of the study area and outlines management goals and objectives intended to improve wildlife habitat value and reduce wildfire hazard. The plan recommends management actions focused on fuel management, habitat restoration, power line management, public education, and road closure.

UC Berkeley Wildland Vegetative Fuel Management Plan

The University of California at Berkeley's (UC Berkeley) ~~proposed~~ Wildland Vegetative Fuel Management Plan (WVFMP; UC Berkeley 2020a) covers the University's Hill Campus (Plan Area) and aims to reduce wildfire risk and minimize the potential for harmful effects of wildfire on people, property, and natural resources in the Plan Area, as well as on adjacent public and private land. The WVFMP includes five different vegetation treatment activities: 1) manual treatment, 2) mechanical treatment, 3) prescribed broadcast burning, 4) managed herbivory (livestock grazing), and 5) targeted ground application of herbicides. UC Berkeley would implement vegetation treatment activities on an average of 200 acres per year within the Plan Area. UC Berkeley is also proposing nine identified treatment projects (two fuel break projects, four temporary refuge areas, and three fire hazard reduction projects) in the Plan Area~~.~~ (UC Berkeley 2020~~)~~).

Claremont Canyon Evacuation Support Project

UC Berkeley conducted the Claremont Canyon Evacuation Support Project in late 2020 and early 2021. The project involved vegetation removal within 100 feet from the edge of pavement on both sides of Claremont Ave, within approximately 18 acres in the Hill Campus (UC Berkeley 2020b). UC Berkeley removed trees located along and within 100 feet of portions of Claremont Avenue that were either unhealthy and determined by an arborist to be dead or in poor or fair condition, regardless of species type or maturity, or that were taller than 100 feet or located so that in a fire they could fall across the road blocking vehicle access on Claremont Avenue.

California Department of Forestry and Fire Protection California Vegetation Treatment Program

The CalVTP Program EIR (California Board of Forestry and Fire Protection 2019) evaluated the potential environmental effects of implementing qualifying vegetation treatments to reduce the risk of wildfire within the State Responsibility Area. Project proponents, such as CAL FIRE or other public agencies, can use the CalVTP as a streamlined method to comply with CEQA if they are proposing vegetation treatments which are consistent with the CalVTP Final Program EIR. The CalVTP Final Program EIR is applicable to projects at least partially within the treatable landscape defined in the Program EIR. Vegetation management projects are being reviewed and implemented under the CalVTP, including in western Contra Costa County, such as the Tunnel East Bay Hills Shaded Fuel Break.

4.5.3 PLANNING DOCUMENTS CONSIDERED FOR CUMULATIVE IMPACT ANALYSIS

City of Oakland General Plan

The Safety Element of the City of Oakland's General Plan (City of Oakland 2004) provides an overview of five specific environmental hazards (public safety, geologic hazards, fires, hazardous materials, and flooding), including the institutional framework and policy actions related to those hazards. In particular, Chapter 4, "Fire Hazards," analyzes the city's risk from wildfires and structural fires, as well as the city's firefighting capabilities, water supply and roadway standards, and emergency routes. It also addresses the City's response to the 1991 Oakland/Berkeley Hills Fire, which included special development requirements for new construction in wildfire-hazard areas, vegetation management, and fire suppression and public education programs in the Oakland Hills.

The Open Space, Conservation, and Recreation Element of the City's General Plan (City of Oakland 1996) is the official policy document addressing the management of open land, natural resources, and parks in Oakland. The element contains chapters that address City goals and policies to protect open space, soil, water, plant and animal, air, and energy resources.

City of Oakland ~~2016-~~2021 ~~Local~~ 2026 Hazard Mitigation Plan

The City of Oakland's ~~2016-~~*2021 ~~Local~~ 2026 Hazard Mitigation Plan* (City of Oakland ~~2016~~2021) is an amendment to the City's General Plan Safety Element. and an annex to the Association of Bay Area Governments (ABAG) multi-jurisdictional Local Hazard Mitigation Plan. The plan identifies the natural and human-caused hazards the City faces, assesses residents' vulnerability, and identifies specific actions that can be taken to reduce the risk. The fire prevention mitigation strategies that the City committed to include reauthorizing Wildfire Prevention Assessment District (WPAD), establishing a Defensible Space Vegetation Program to reduce wildfire hazards, and amending the Oakland Planning Code to adopt a "Fire-safe Combining Zone" for future construction.

Oakland 2030 Equitable Climate Action Plan

The City's recently adopted 2030 ECAP (City of Oakland 2020) contains goals and actions that apply to activities within the city, with a GHG reduction target for the year 2030 of 56 percent below 2005 levels. Actions relevant to the Revised Draft VMP include reducing wildfire risk, expanding and protecting tree canopy cover, and rehabilitating riparian and open space areas.

North Oakland Hill Area Specific Plan

The North Oakland Hill Area Specific Plan (City of Oakland 1986) is a document addressing land use, infrastructure, zoning, and development in a portion of the Oakland hills. The area covered by this specific plan is generally located along the ridgeline northwest of Shepherd Canyon Road. This specific plan includes a vegetation management prescription and specific policies and mitigation measures to reduce fire hazard risk within the North Oakland hill area.

Plan Bay Area 2040

Plan Bay Area 2040 is the latest update to the long-range Regional Transportation Plan and Sustainable Communities Strategy for the nine-county San Francisco Bay Area. Prepared by ABAG and the Metropolitan Transportation Council (MTC) in 2017, the plan discusses growth in the Bay Area through 2040 and identifies transportation and land use strategies to enable a more sustainable, equitable, and economically vibrant future. Starting with the current state of the region, Plan Bay Area 2040 identifies goals, a proposed growth pattern and supporting transportation investment strategy, and key actions to address ongoing and long-term regional challenges. **Table 4-1** provides the plan's estimates of population growth in the Bay Area and population in the Revised Draft VMP area.

Table 4-1. Projected Population and Housing Growth for the Revised Draft VMP Area for 2020–2030

Jurisdiction	Population		Projected Annual Population Growth (%)
	2020	2030	
City of Oakland[1]	480,270	554,325	1.4
Revised Draft VMP Area	8,425[2]	9,690[3]	

Sources: (1) ABAG and MTC 2017; (2) U.S. Census Bureau 2018; (3) calculated.

4.5.4 RESOURCE TOPICS CONSIDERED AND DISMISSED FOR CUMULATIVE IMPACTS ANALYSIS

Based on the significance thresholds in Appendix G of the CEQA Guidelines, the City of Oakland CEQA Thresholds of Significance Guidelines (City of Oakland 2013), and City of Oakland Transportation Impact Review Guidelines (City of Oakland 2017), several resource sections of the environmental analysis in Chapter 3 of this Recirculated DEIR include some level of evaluation of the Revised Draft VMP for its potential to make a considerable contribution to cumulative impacts. These resource topics are air quality, biological resources, greenhouse gases, and transportation. The Revised Draft VMP's contribution to cumulative air quality impacts is addressed in Section 3.3, *Air Quality.* Greenhouse gas emissions are inherently a cumulative issue and are addressed in Section 3.7, *Greenhouse Gas Emissions, Climate Change, and Energy.* Therefore, these topics are not discussed further in this section. Cumulative impacts on biological resources and noise are evaluated to a limited degree and are included below.

Table 4-2 describes resource topics for which significant cumulative impacts do not exist or the Revised Draft VMP 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 4-2. Resource Topics Eliminated from Further Consideration in the Analysis of Cumulative Impacts

Resource Topic	Rationale for Elimination
Aesthetics	Impacts related to aesthetics from other vegetation management and conservation plans in the Oakland Hills would be site specific and dependent upon the type of activity proposed. Several of these plans would involve similar activities to the Revised Draft VMP in contiguous areas. Similar to the Revised Draft VMP, treatment activities under the cumulative projects would be phased over multiple years, and the likelihood of any one vegetation management activity occurring over a large enough area to have a substantial adverse effect on a scenic vista or view from a scenic highway is minimal. Impacts of the Revised Draft VMP related to short-term degradation of public views as a result of large equipment would be mitigated, and clearance of roadside vegetation would generally improve visual conditions for most viewers as a result of implementation of the Revised Draft VMP. Impacts of the Revised Draft VMP related to long-term degradation of public views from recreational trails and scenic vistas as a result of tree removal would be reduced through implementation of Mitigation Measure AES-1, which requires a visual reconnaissance, potential relocation of tree removal actions, thinning of surrounding vegetation or screening of treatment areas that are publicly visible. For these reasons, the Revised Draft VMP would not contribute to a cumulatively significant impact related to aesthetics. Therefore, this resource topic is dismissed from further analysis.
Cultural Resources and Tribal Cultural Resources	Impacts related to cultural and tribal cultural resources from other vegetation management and conservation plans in the Oakland Hills would be site specific. Similar to the Revised Draft VMP, cumulative project proponents would be required to assess the presence of such resources (e.g., consultation with Native American tribes) before conducting plan-related activities. If such resources are identified on a given project site, projects would be required to implement standard measures to avoid impacts to cultural resources (similar to the cultural resources mitigation measures identified in Sections 3.5 and 3.13 of ~~this~~the prior 2020 DEIR). In addition, state-mandated protocols for unanticipated discoveries found during construction would also be required. For these reasons, the Revised Draft VMP would not contribute to a cumulatively significant impact related to cultural or tribal cultural resources. Therefore, these resource topics are dismissed from further analysis.
Geology, Soils, and Seismicity	Impacts related to geology, soils, and seismicity from other vegetation management and conservation plans in the Oakland Hills would be site specific. Similar to the Revised Draft VMP, cumulative project proponents would be required to comply with state law to avoid destruction of paleontological resources or unique geologic features. Additionally, other plans would be required to implement standard measures to avoid impacts from erosion, loss of topsoil, and landslides. For these reasons, the Revised Draft VMP would not contribute to a cumulatively significant impact regarding geology, soils and seismicity. Therefore, this resource topic is dismissed from further analysis.
Hazards and Hazardous Materials	Impacts related to hazards and hazardous materials from other vegetation management and conservation plans in the Oakland Hills would be site specific. Similar to the Revised Draft VMP, cumulative project proponents would be required to comply with federal, state, and local requirements to minimize impacts related to hazardous materials. For these reasons, the Revised Draft VMP would not contribute to a cumulatively significant impact regarding hazards and hazardous materials. Therefore, this resource topic is dismissed from further analysis.

Resource Topic	Rationale for Elimination
Hydrology and Water Quality	Similar to the Revised Draft VMP, other vegetation management and conservation plans in the Oakland Hills would be required to comply with state and local permit requirements and implement stormwater management BMPs aimed at reducing pollutants of concern and minimizing the volume and velocity of stormwater runoff from a project site. Similar to the Revised Draft VMP, cumulative project proponents would also be required to implement measures to avoid violation of water quality standards from erosion, sedimentation, and siltation from treatment activities. For these reasons, the Revised Draft VMP would not contribute to a cumulatively significant impact related to hydrology and water quality. Therefore, this resource topic is dismissed from further analysis.
Recreation	The Revised Draft VMP would not result in increased use of recreational facilities in the Revised Draft VMP area that would lead to physical deterioration or permanently disrupt use of or access to recreational facilities. Similar to the Revised Draft VMP, impacts to recreational facilities and open spaces from other vegetation management and conservation plans within the Oakland Hills would be localized and temporary. Mitigation in the Revised Draft VMP requires that public notification would be provided in the event of a temporary trail closure. For these reasons, the Revised Draft VMP would not contribute to a cumulatively significant impact related to recreation. Thus, this resource topic is dismissed from further analysis.
Transportation	The Revised Draft VMP would not result in a significant increase in VMT because the various project sites and treatment activities would take place over a 10-year period, with minimal increases in daily trips (up to 12~~18-48~~). Similar to the Revised Draft VMP, other vegetation management and conservation plans would involve periodic maintenance and treatment activities conducted by small crews, resulting in limited increases in daily trips. For these reasons, the Revised Draft VMP would not contribute to a cumulatively significant impact related to transportation. Thus, this resource topic is dismissed from further analysis.
Wildfire	The Revised Draft VMP would reduce the risk of wildfire in the treatment area through targeted vegetation and fuel management activities conducted along roadsides, medians, trails, open spaces, and urban/residential parcels in the Oakland Hills. Similar to the Revised Draft VMP, other vegetation management and conservation plans would be required to implement fire safety measures such that projects would not exacerbate wildfire risks. For these reasons, the Revised Draft VMP would not contribute to a cumulatively significant impact related to wildfire. Thus, this resource topic is dismissed from further analysis.

4.5.5 CUMULATIVE IMPACTS

Cumulative Impact BIO-1: Cumulative Effects on Biological Resources (*Less than Significant with Mitigation)*

Revised Draft VMP activities and ongoing activities conducted under regional vegetation management and conservation plans could result in the loss of wetlands and water features. These outcomes could potentially lead to direct take or loss of habitat for both common and special-status species, including the Alameda whipsnake and California red-legged frog. The Revised Draft VMP area contains a wide variety of sensitive natural communities that support many special-status species, including brittle leaf – woolly leaf manzanita chaparral, bush monkeyflower scrub, California bay forest, freshwater emergent wetland, needle grass – melic

grass grassland, redwood forest, red alder forest, and valley/foothill riparian. As a result, anticipated growth and development in Oakland, along with other vegetation management and conservation plans contiguous to the Revised Draft VMP area, could result in cumulative effects on special-status species and sensitive habitats.

Ground-disturbing activities associated with the other vegetation management and conservation plans could disturb or directly injure or kill special-status species or result in permanent loss of habitat, all of which would be significant impacts. However, it is expected that other plans contiguous to the Revised Draft VMP area would be required to implement the same types of mitigation measures to offset their adverse effects on special-status species and other sensitive biological resources as those identified for the Revised Draft VMP. Some cumulative projects in the Revised Draft VMP area would have long-term direct benefits to specific species in the area, such as the CSSC Vegetation Management Implementation Plan (WRA 2013) and CSSC Pallid Manzanita Habitat Enhancement and Conservation Plan~~,~~ (CSSC 2015), which are designed improve habit conditions for pallid manzanita. Additionally, the ~~EDMUD~~EBMUD Low Effect East Bay HCP (EBMUD 2008) identifies general and species-specific biological goals regarding identification and avoidance of sensitive species. However, the Alameda County Plan Bay Area 2040 (ABAG and MTC 2017) and the City of Oakland General Plan (City of Oakland 1996) anticipate population and housing growth over the next 10 years; this ongoing development would also contribute to significant impacts on biological resources. Overall, the potential to adversely affect special-status species, wetlands, and water features would result in a significant cumulative impact.

As described in Section 3.4, *Biological Resources,* of this Recirculated DEIR the Revised Draft VMP would involve vegetation management activities in various locations that could impact special-status plants and wildlife, as well as wetlands and water features. If left unmitigated, these impacts would result in a considerable contribution to a cumulative impact. However, adherence to Mitigation Measures BIO-1 through BIO-~~16~~18 identified in Section 3.4 would mitigate impacts of the Revised Draft VMP to special-status species, wetlands, and water features to a less than significant level. Considering that the Revised Draft VMP would not convert large areas of sensitive habitat and would avoid, minimize, or mitigate temporary and permanent effects to the maximum extent practicable with implementation of the above-mentioned mitigation measures, the Revised Draft VMP's contribution to cumulative impacts on biological resources would not be considerable. Therefore, this impact would be **less than significant with mitigation**.

Cumulative Impact NOI-2: Cumulative Effects Related to Noise (*Significant and Unavoidable)*

As described in Section 3.10 of the prior 2020 EIR, *Noise and Vibration*, Revised Draft VMP treatment activities would involve the use of equipment, including trucks used for hauling away material or transporting equipment and livestock, that may generate groundborne vibration. At any given site near sensitive receptors, groundborne vibration from equipment and trucks would be limited in duration and infrequent. Similar conditions would apply to other vegetation management and conservation plans in or near the Revised Draft VMP area. In addition, Section 17.120.060 of the City of Oakland Planning Code exempts motor vehicles and temporary construction and demolition activities from the vibration standard. Therefore, the generation of

groundborne vibration from Revised Draft VMP activities and other cumulative projects would be less than significant.

The major noise sources in the Oakland area are transportation-related, including vehicle traffic on highways and major roads, Bay Area Rapid Transit (BART) and rail operations, and aircraft operations at Oakland International Airport. In and around the Revised Draft VMP area, the primary sources of noise are ~~Interstate~~ I-580, SR 13, and BART. Many parcels targeted by vegetation management plans are in or adjacent to parks and single-family residential areas, where common noise sources include equipment used for landscaping and yardwork. Similarly, many of these areas are open spaces or recreational areas that generally have less ambient noise and no permanent or substantial onsite noise sources. On-site uses in active recreation areas such as Oakland Zoo, Chabot Science Center, sport fields, or amphitheaters constitute additional potential noise sources. These sites are generally located in the Oakland Hills, either within or bordering residential areas and open spaces, which are designated as sensitive receptors in the City of Oakland General Plan. Therefore, anticipated growth and development in Oakland, along with other contiguous vegetation management and conservation plans, could result in cumulative effects related to noise.

Mechanical treatment activities and vehicles associated with other vegetation management and conservation plans would result in increased noise levels in areas adjacent to the Revised Draft VMP area. Although these increases would likely be temporary, they would affect sensitive receptors in residential areas and open spaces that are the targets of the plans. In addition, the Alameda County Plan Bay Area 2040 anticipates population growth of approximately 1.4 percent per year over the next 10 years; this ongoing development would also contribute to significant impacts related to noise. Overall, the increases in noise levels would result in a significant cumulative impact.

Revised Draft VMP activities would be temporary at any given site. Activities would be phased over multiple years, and the likelihood of any individual management activity occurring over a large enough area to have a substantial adverse noise effect in the long term would be minimal. In general, noise levels are considered a localized issue. While implementation of Mitigation Measures NOI-1 and NOI-2 would help minimize noise impacts, the use of noise-producing equipment near residences and other sensitive receptors may be necessary in order to reduce fire risk at those receptors and in adjacent Revised Draft VMP treatment areas.

There is no additional feasible mitigation that could be implemented to decrease noise levels at receptors. The use of temporary sound barriers between construction activity and the sensitive receptors is a common construction-related noise mitigation measure. However, this strategy is not feasible to implement for Revised Draft VMP management activities because of the location, nature, and pace of the treatment work. Installing temporary sound barriers in the Revised Draft VMP area would often be a hazard to workers, the public, and nearby structures or buildings because of the hilly, vegetated, and undeveloped terrain, and sound barriers could inhibit wildlife movement in the area. Establishing a distance from residences within which noise-generating treatments or hand-operated power tools and heavy equipment would be prohibited is another potential mitigation strategy. However, prohibiting or reducing the effectiveness of treatments near residences would prevent the City from accomplishing the primary objective of the Revised Draft VMP. Therefore, these potential mitigation strategies are not feasible. For the reasons described above, even with implementation of Mitigation Measures NOI-1 and NOI-2,

the Revised Draft VMP would make a considerable contribution to the cumulative temporary increases in ambient noise levels in Revised Draft VMP treatment areas; this cumulative impact would be **significant and unavoidable.**

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Chapter 5
Alternatives

5.1 INTRODUCTION

The purpose of the alternatives analysis in an EIR is to describe a range of reasonable alternatives to the project that would feasibly attain most of the identified project objectives but would avoid or substantially lessen one or more of the project's significant impacts. This chapter describes the alternatives to the Revised Draft VMP that were considered and evaluated for their potential environmental impacts in the prior 2020 EIR, updated to reflect the Revised Draft VMP, and a new alternative to the Revised Draft VMP. The CEQA requirements for consideration of alternatives are presented. The chapter then continues with a description of the alternative development process and an analysis of the alternatives carried forward. The chapter concludes with identification of the environmentally superior alternative.

5.2 CEQA REQUIREMENTS FOR ALTERNATIVES EVALUATION

The CEQA Guidelines require that an EIR evaluate a reasonable range of alternatives to a proposed project, including an alternative where no project would be developed. Although no clear rule exists for determining a "reasonable range," the CEQA Guidelines provide direction on defining the range of alternatives for consideration in the environmental document.

The range of alternatives to be developed under CEQA is governed by the "rule of reason," which requires that the EIR examine only alternatives that could feasibly attain most of the project's objectives and would avoid or substantially lessen one or more of the significant environmental impacts of the project. The range of feasible alternatives should be selected and presented in a manner that will foster public participation and informed decision making (CEQA Guidelines Section 15126.6[f]). In determining whether an alternative is feasible, lead agencies are guided by the general definition of feasibility found in CEQA Guidelines Section 15364: "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

In accordance with CEQA Guidelines Section 15126.6(f)(1), the lead agency may consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and the proponent's control over alternative sites 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. The EIR should also 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 (CEQA Guidelines Section 15126[c]).

A "No Project Alternative" also must be considered. The No Project Alternative is the "existing conditions at the time the Notice of Preparation is published" as well as "what would be

reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans" (CEQA Guidelines Section 15126.6[e][2].). The No Project Alternative does not need to feasibly attain most of the project objectives or avoid or substantially lessen one or more of the significant environmental impacts of the project. "When the project involves revision of an existing plan, policy, or ongoing operation, the no-project alternative should reflect continuation of the existing plan, policy, or operation." (Kostka & Zischke, *Practice Under the California Environmental Quality Act* (CEB 2020) Section 15.19, citing CEQA Guidelines Section 15126.6[e][3][A].) "In such a situation, the no-project alternative should be described as a continuation of the existing operation." (Kostka & Zischke, *Practice Under the California Environmental Quality Act* (CEB 2020) Section 15.20, citing *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 254.) "The no-project analysis reflects whether failure to approve the project would preserve existing environmental conditions or instead would lead to other changes to the environment." (Kostka & Zischke, *Practice Under the California Environmental Quality Act* (CEB 2020) Section 15.19, citing CEQA Guidelines Section 15126.6[e][2].) The intent of the No Project Alternative is to allow decision makers to compare the impacts of approving the project against the impacts of not approving the project (CEQA Guidelines Section 15126[e][1]).

5.3 ALTERNATIVES DEVELOPMENT PROCESS

Public and stakeholder comments received during the public outreach process associated with development of the Revised Draft VMP and this ~~EIR~~ Recirculated DEIR provided guidance on the consideration of alternatives. In addition, the Revised Draft VMP's goals and objectives and significant environmental impacts identified in this ~~EIR~~ Recirculated DEIR were also considered while developing suitable alternatives that aim to achieve the primary project goals and objectives and avoid or substantially lessen significant environmental effects compared to the Revised Draft VMP.

5.3.1 PUBLIC MEETINGS AND COMMENTS

During development of the initial Draft VMP and the Revised Draft VMP, numerous public and stakeholder engagement meetings were conducted, including six workshops/meetings in 2017 and 2018 and 12 group meetings in spring 2019 (refer to Section 2.3.2 for more information). As part of the DEIR process to provide the public and responsible and trustee agencies an opportunity to ask questions and submit comments on the initial Draft VMP and Revised Draft VMP and the scope of the initial and Recirculated DEIR, the City also held a public scoping meeting on November 20, 2019, during the public scoping period. The City received 41 public comments during the public scoping period for the DEIR, including several comments on the consideration of different alternatives. In addition, one public meeting was held on December 16, 2020, to receive oral comments on the prior 2020 DEIR.

5.3.2 PROJECT GOALS AND OBJECTIVES

The following goals have been identified for the Revised Draft VMP:

- Reduce wildfire hazard on City-owned land and along critical access/egress routes within the City's VHFHSZ;

- Reduce the likelihood of ignitions and extreme fire behavior to enhance public and firefighter safety;
- Implement practices to avoid or minimize impacts to natural resources;
- Maintain an active role in regional efforts to reduce wildfire hazard in the Oakland hills.

The objectives of the Revised Draft VMP are as follows:

- Reduce the likelihood of catastrophic wildfires by limiting ignition potential, reducing fuel loads, and modifying fuel arrangements on City-owned lands.
- Reduce the likelihood of extreme fire behavior within the Revised Draft VMP area.
- Identify and define vegetation management actions that consider site-specific vegetation type, fuel hazard, treatment effectiveness, and ongoing maintenance requirements.
- Identify and prioritize fuel treatment areas based on fuel loads and arrangements, terrain, topographic exposure, and proximity to roads and structures.
- Retain vegetation where feasible to reduce wind exposure, retain soil and surface fuel moisture, and reduce the potential for soil erosion.
- Develop management recommendations that enable OFD to make informed, adaptive decisions on an annual basis (or more often as necessary) regarding vegetation management within the Revised Draft VMP area, considering the benefits of treatment, potential environmental effects, and treatment costs.
- Avoid, minimize, and/or reduce potential adverse effects of vegetation management on sensitive biological resources, water resources, aesthetics, soils, and slope stability.
- Increase the ability of OFD and other responding agencies to suppress wildfire in the Revised Draft VMP area in order to minimize wildfire impacts to Revised Draft VMP area resources.
- Routinely evaluate the effectiveness and implementation frequency of vegetation management actions within the Revised Draft VMP area.

5.3.3 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACT OF THE REVISED DRAFT VMP

The Revised Draft VMP would result in one significant and unavoidable impact related to generating substantial temporary or periodic increase in ambient noise in violation of the City of Oakland noise thresholds (Section 3.10 of the prior 2020 DEIR, Impact NOI-1). Mechanical treatment activities and the use of chainsaws during hand labor treatments would expose sensitive receptors to noise levels above the City's daytime weekday noise threshold of 80 dBA, resulting in a significant and unavoidable impact.

5.4 ALTERNATIVES CONSIDERED

The following alternatives were considered based on public input and because they would meet most of the Revised Draft VMP objectives, may be feasible, and would avoid or substantially reduce significant and unavoidable impacts of the Revised Draft VMP:

- Alternative 1: No Project Alternative
- Alternative 2: Reduced Vegetation Management Activities Alternative
- Alternative 3: No Herbicide Use Alternative
- Alternative 4: Reduced Herbicide Use Alternative
- Alternative 5: Prior 2019 VMP Alternative

Aside from these ~~four~~ five alternatives, no other alternatives were considered or dismissed.

5.4.1 ALTERNATIVE 1: NO PROJECT ALTERNATIVE

Characteristics of this Alternative

Under the No Project Alternative, the City would not implement a Revised Draft VMP to guide and direct targeted vegetation management activities to minimize the potential for ignitions, crown fire, and extreme fire behavior on City-owned land and along access/egress routes. Instead, the City would continue to conduct vegetation management activities consistent with existing (2017 and 2018) operations (refer to Table 3.1-1 for a summary of vegetation management activities conducted ~~over the last 15 years)~~ between 2005 and 2018. Under the No Project Alternative, the City would conduct approximately 1,100 acres of goat grazing and approximately 152 acres of roadside treatment and other activities each year, using a combination of hand labor and mechanical techniques. Similar to existing conditions, no chemical techniques (i.e., herbicides) would be used.

It is important to note that the underlying need for increased targeted vegetation management activities proposed under the Revised Draft VMP—to reduce wildfire risk in the City portions of the VHFHSZ —would remain unaddressed with implementation of the No Project Alternative. Without implementation of the Revised Draft VMP, the City would only be able to address a limited number of vegetation management activities annually based on the Public Works/OFD annual budget. By reducing the acreage of treatment that occurs in a given year compared to annual treatment acreages under the Revised Draft VMP, the No Project Alternative would fail to meet Revised Draft VMP goals and objectives. These goals and objectives, established in the midst of the region's pattern of catastrophic wildfires, include reducing wildfire hazard on City-owned land and along critical access/egress routes within the City's VHFHSZ; reducing the likelihood of ignitions and extreme fire behavior; implementing practices to avoid or minimize impacts to natural resources; reducing the likelihood of catastrophic wildfires by limiting ignition potential, reducing fuels loads, and modifying fuel arrangements on City-owned lands; and avoiding adverse effects to sensitive resources. The No Project Alternative would not meet the following Revised Draft VMP objectives: identifying site-specific vegetation management actions

based on vegetation type, fuel hazard, treatment effectiveness, and requirements; identifying and prioritizing fuel treatment areas based on fuel load arrangements, terrain, topographic exposure, and proximity to roads and structures; developing management recommendations so that OFD can make informed vegetation management decisions that consider the benefits of treatment, environmental effects, and costs; routinely evaluating the effectiveness of the Revised Draft VMP; and increasing the ability of the OFD and responding agencies to suppress wildfire.

As mentioned above, consideration of a No Project Alternative is required under CEQA Guidelines Section 15126(e)(1).

Impact Analysis

Annual goat grazing activities under the No Project Alternative would be consistent with the acreage treated under the proposed Revised Draft VMP. However, the area subject to hand labor and mechanical treatment techniques each year would be less than under the Revised Draft VMP, treating approximately 152 acres compared to an annual maximum of 563~~555~~ acres of hand labor and mechanical treatment under the Revised Draft VMP. Thus, the No Project Alternative would have no impact related to construction in comparison to the Revised Draft VMP. Because no additional vegetation management activities would be completed under the No Project Alternative, no construction-related effects (e.g., air quality/GHG emissions, noise, traffic, and biological resources effects) would result because no additional construction-related vehicle trips, equipment operations, or ground disturbance would take place.

Goat grazing activities would occur primarily between May and August, while hand labor and the use of mechanical equipment would occur year-round as needed. Under the No Project Alternative, OFD's Fire Prevention Bureau would continue to operate an annual vegetation inspection program on public and private property in the VHFHSZ portion of the City, as mandated by City of Oakland Ordinance No. 11640. The inspection program identifies properties that are out of compliance with the City's defensible space standards and requires that inspections be conducted until properties are brought into compliance. Without approval of the Revised Draft VMP, the inspection program and vegetation management activities would continue, dependent upon the Public Works/OFD annual budget and consistent with past OFD vegetation management activities.

Under the No Project Alternative, OFD would continue to conduct vegetation management activities using current equipment and techniques. The City of Oakland Planning Code contains laws and standards that may be relevant to the Revised Draft VMP, in particular Section 17.120.050, Noise, and Section 17.120.060, Vibration. In addition, Section 17.120.04 from the City Planning Code establishes allowable noise level standards (City of Oakland 2020a). Because no changes in operation would take place, the No Project Alternative would result in no additional noise impact compared to the Revised Draft VMP, which would have a significant and unavoidable impact related to sensitive receptors.

The Oakland Hills is one of the highest risk areas in the country for devastating WUI fires. Because no additional acreage of vegetation management activities would be conducted under the No Project Alternative compared to the Revised Draft VMP, the wildfire risk throughout the VHFHSZ would not be reduced and fire hazard conditions would likely worsen. As indicated in

recent risk assessments (Dudek ~~2019~~2023), without improved vegetation management practices, fuel loads and fire risk will continue to increase (Stephens et al. 2012), and future catastrophic wildfires in the region are likely to result in greater impacts to life, property, and the environment.

Additionally, the No Project Alternative would not include the requirements established in the Revised Draft VMP for close coordination between OFD and local volunteer and stewardship groups active in the Revised Draft VMP area. Without clear communication protocols in place between OFD and local stewardship groups, locally sponsored projects may conflict with City plans or goals for vegetation management, potentially resulting in greater environmental impacts.

In conclusion, the No Project Alternative would not meet any of the goals or objectives of the Revised Draft VMP, particularly reducing wildfire hazard on City-owned land and along critical access/egress routes within the City's VHFHSZ. Although it would reduce the Revised Draft VMP's significant and unavoidable noise impact on sensitive receptors and other significant impacts related to biological resources and other environmental resources, it would also fail to address the need for wildfire risk reduction identified by the City, OFD, stakeholders, and members of the public throughout the years-long initial Draft VMP and Revised Draft VMP development process.

Under the No Project Alternative, the City would fail to comply with the following plans and policies related to wildlife risk reduction and fuel management:

- Governor Newsom's Strike Force report (State of California 2019), which stated that the growing risk of catastrophic wildfires has created an imperative for the state to act urgently and swiftly to expand fire prevention efforts;
- CAL FIRE's 2018 Strategic Fire Plan for California, which sets forth sets forth goals focused on fire prevention, improved natural resource management, and increased fire suppression efforts (CAL FIRE 2018);
- policies and objectives from the City of Oakland General Plan Open Space, Conservation, and Recreation Element (City of Oakland 1996);
- goals and objectives of the California Forest Carbon Plan to reduce GHG and other carbon emissions associated with management activities, conversion, wildfire events, and other disturbances (Forest Climate Action Team 2018);
- the BAAQMD's 2017 Bay Area Clean Air Plan and Regional Climate Protection Strategy, which provide a road map for the BAAQMD's future efforts to reduce air pollution (BAAQMD 2017); and
- policies related to wildfire risk reduction from the City's 2030 Equitable Climate Action Plan (City of Oakland 2020b).

5.4.2 ALTERNATIVE 2: REDUCED VEGETATION MANAGEMENT ACTIVITIES ALTERNATIVE

Characteristics of this Alternative

Alternative 2 is a modified version of the Revised Draft VMP with reduced annual treatment acreage. Under Alternative 2, the City would conduct approximately 1,100 acres of goat grazing and approximately 300 acres of roadside treatment and other activities using a combination of hand labor, mechanical treatments, and herbicide treatments. Additionally, no vegetation management activities would occur on urban and residential treatment areas, which total 47.5 acres. While vegetation treatment activities would still occur in close proximity to sensitive uses, the use of equipment generating noise of 85 dBA at 50 feet (such as chainsaws) would be prohibited within 90 feet of sensitive receptors, and the use of equipment generating noise of 88 dBA at 50 feet (such as a chipper or excavator) would be prohibited within 130 feet of sensitive receptors.

By reducing the acreage of treatment that occurs in a given year, vegetation would be more likely to become overgrown, resulting in a greater wildfire risk in the City portion of the VHFHSZ than under the Revised Draft VMP. Additionally, urban and residential treatment areas are considered Priority 1 treatment areas; eliminating vegetation management activities adjacent to ~~these~~ structures in these areas would result in a greater risk of catastrophic wildfires affecting structures than under the Revised Draft VMP and would conflict with the City's defensible space guidelines.

Alternative 2 was selected as an alternative to the Revised Draft VMP based on public input and because the restriction on equipment use near sensitive receptors would reduce significant and unavoidable noise impacts associated with mechanical treatment activities and the use of chainsaws during hand labor treatments.

Project Objectives

Alternative 2 would only partially meet Revised Draft VMP goals and objectives, such as reducing wildfire hazard on City-owned land and along critical access/egress routes within the City's VHFHSZ; reducing the likelihood of ignitions and extreme fire behavior; reducing the likelihood of catastrophic wildfires by limiting ignition potential, reducing fuels loads, and modifying fuel arrangements on City-owned lands; identifying and prioritizing fuel treatment areas based on fuel loads arrangements, terrain, topographic exposure, and proximity to roads and structures; and increasing the ability of the OFD and responding agencies to suppress wildfire.

Impact Analysis

Goat grazing activities under Alternative 2 would be conducted consistent with the acres treated under the Revised Draft VMP; however, hand labor, mechanical, and herbicide techniques would be reduced from Revised VMP levels, treating approximately 300 acres annually compared to ~~590~~598 acres under the Revised Draft VMP, with no treatment occurring in urban and residential parcels. Compared to the Revised Draft VMP, this alternative would reduce construction-related impacts associated with the Revised Draft VMP, including air pollutant and GHG emissions from operating equipment, traffic from vehicle and truck trips, and noise. The

restrictions on the operation of loud construction equipment near sensitive receptors during hand labor treatments (i.e., chainsaws) and mechanical treatments (i.e., excavators and chippers) near sensitive receptors, noise levels would not exceed the City's weekday daytime threshold of 80 dBA. Thus, Impact NOI-1 would be reduced from a significant and unavoidable impact under the Revised Draft VMP to a less-than-significant level. Similarly, Alternative 2 would result in fewer impacts to sensitive habitats and nesting birds as a result of reducing the number of projects and overall ground disturbance relative to the Revised Draft VMP.

Reducing the acreage of vegetation treatment conducted on an annual basis would delay the reduction of fuel loads in individual treatment areas, however, resulting in an increased likelihood of ignition and catastrophic wildfires in the VHFHSZ compared with the Revised Draft VMP. A future wildfire in the region would likely be more damaging and result in greater impacts to life, property, and the environment than under the Revised Draft VMP. Additionally, deferring vegetation management projects could result in the need for emergency work that tends to be addressed without adequate planning. Further, because fewer projects would occur under this alternative and no activities would occur on urban and residential parcels, Alternative 2 may result in additional impacts not identified for the Revised Draft VMP, such as increased public safety risks. For example, without the increased level of inspection and management proposed in the Revised Draft VMP, the potential exists for fallen branches and trees located on City property to damage utility lines or existing structures (i.e., residences) on private property.

In conclusion, Alternative 2, the Reduced Vegetation Management Activities Alternative, would meet some of the goals or objectives of the Revised Draft VMP; however, the reduced annual acreage of treatment would slow OFD's progress in addressing wildfire risk concerns. Although it would reduce the Revised Draft VMP's significant and unavoidable noise impact on sensitive receptors and other significant impacts related to biological resources and other environmental resources, it would fail to fully address the need for wildfire risk reduction to the level identified by the City, OFD, stakeholders, and members of the public.

5.4.3 ALTERNATIVE 3: NO HERBICIDE USE ALTERNATIVE

Characteristics of this Alternative

Alternative 3 is a modified version of the Revised Draft VMP that excludes the use of herbicides for vegetation management. Other vegetation management methods described in the Revised Draft VMP (i.e., grazing, hand labor techniques, and mechanical techniques) would be used in lieu of herbicides. Under Alternative 3, the City would conduct approximately 1,100 acres of goat grazing and approximately 563~~555~~ acres of roadside treatment and other activities using a combination of hand labor and mechanical techniques. Under this alternative, no herbicides would be used (compared to an annual maximum of 35 acres of proposed herbicide treatment under the Revised Draft VMP). All other maintenance activities described in Chapter 2, *Project Description*, of this Recirculated DEIR~~EIR~~ would be conducted as described in the Revised Draft VMP.

As background, in 2005, the City adopted Resolution 79133, which directed staff to evaluate the selective use of glyphosate and triclopyr for managing vegetation to reduce wildfire hazard in the City's ~~Wildfire Prevention Assessment District~~ WPAD. To date, herbicides have not been used for vegetation management on City-owned property or along roadsides in the Revised

Draft VMP area. This Revised Draft VMP EIR process evaluates the potential environmental effects of herbicide use. However, the City also received feedback from the public during the initial Draft VMP and Revised Draft VMP development and scoping process to consider a "no herbicide" alternative to address concerns about the potential impacts of herbicide use in the City. As such, Alternative 3 reflects public input on early drafts of the initial Draft VMP.

Project Objectives

By eliminating herbicide treatment, Alternative 3 would be more likely to allow vegetation to become overgrown, increasing the wildfire risk and the potential for a catastrophic wildfire that would affect existing structures. Alternative 3 would only partially meet Revised Draft VMP goals and objectives such as reducing wildfire hazard on City-owned land and along critical access/egress routes within the City's VHFHSZ; reducing the likelihood of extreme fire behavior and catastrophic wildfires by limiting ignition potential, reducing fuels loads, and modifying fuel arrangements on City-owned lands; identifying and prioritizing fuel treatment areas based on fuel load arrangements, terrain, topographic exposure, and proximity to roads and structures; and increasing the ability of the OFD and responding agencies to suppress wildfire.

Impact Analysis

Alternative 3 would require additional follow-up vegetation management activities involving a combination of grazing, hand removal techniques, and mechanical removal in some areas due to rapid regrowth of certain highly flammable vegetation types when removed and not treated with herbicide. Under Alternative 3, certain types of vegetation may be even more difficult to control without herbicides, resulting in persistent degraded habitat conditions. Because grazing, hand removal, and mechanical vegetation removal techniques may be less effective than herbicides, this alternative may also require the City to remove certain rapidly spreading/high fire risk plants, including such plants as eucalyptus, acacia, French broom, Scotch broom, pampas grass, and jubata grass, on a more frequent basis. As such, an increase in use of hand labor and mechanical vegetation removal techniques across a greater area and on a more frequent basis would result in greater air pollutant emissions and more truck trips; in addition, greater noise effects could result, as this alternative would entail more worker trips and greater use of equipment, potentially in close proximity to sensitive uses. Accordingly, this alternative would result in more potentially significant environmental impacts than the Revised Draft VMP.

Alternative 3 would eliminate potential effects related to accidental spills, use of herbicides, and other risks associated with herbicide use. However, impacts related to hazards and hazardous materials are not identified as significant and unavoidable impacts of the Revised Draft VMP because all such impacts associated with the Revised Draft VMP would be mitigated to a less-than-significant level. Significant and unavoidable noise impacts associated with mechanical treatment activities and the use of chainsaws during hand labor treatments identified for the Revised Draft VMP would remain with Alternative 3.

Feasibility

Due to the need for increased frequency of vegetation removal, under this alternative, the City and OFD would require a larger number of employees and many more hours to treat a similar area compared to herbicide use and would be less effective, requiring more frequent treatment. It is estimated that if the City were to rely on hand removal and mechanical treatments in place

of herbicide, it would cost the City up to 40 times more to treat these areas than under the Revised Draft VMP. The cost for herbicide treatments, not including any associated physical treatments, is approximately $250-$500 per acre. This reflects a range of potential vegetation conditions, vegetation types, and densities. The cost for hand removal and mechanical treatments is estimated at approximately $1,000-$4,000 per acre, using the same range of site-specific conditions.

A key difference in comparing costs of herbicide treatment to hand removal and mechanical treatment is the reduced effectiveness of these treatments, requiring repeated applications up to five times to achieve the effectiveness of a single herbicide treatment (DiTomaso, Kyser, et al. 2013) (as shown in Appendix D, *Biological Resources Information*, of this Recirculated DEIR). Accounting for the need to conduct five work cycles with hand removal and mechanical treatments, the estimated treatment cost increases to $5,000-$20,000 per acre for hand removal and mechanical treatments compared to herbicide treatment.

Over the course of the 10-year planning timeframe for the Revised Draft VMP, these differences in effort and increased costs by not using herbicide treatment would result in an added cost ranging from $1,660,000 to $6,825,000 by using hand removal and mechanical treatments in place of herbicide to achieve a similar level of vegetation management. Accordingly, even though this alternative would achieve some of the project objectives, the substantial increase in cost compared to the proposed Revised Draft VMP renders this alternative infeasible (Pub. Res. Code Section 21061.1.).

In conclusion, Alternative 3, the No Herbicide Use Alternative, would meet some of the goals or objectives of the Revised Draft VMP; however, the elimination of herbicide use as an available vegetation management treatment would slow progress toward reducing fuel loads in the Revised Draft VMP area. This alternative would result in additional costs and staffing needs to conduct follow-up treatments in areas where mechanical and hand removal treatments are less effective than herbicide treatments. The significant and unavoidable noise impact of the Revised Draft VMP related to sensitive uses would not be reduced with this alternative and would likely be more severe than under the Revised Draft VMP because of the need for repeated hand labor or mechanical treatments in some locations.

5.4.4 ALTERNATIVE 4: REDUCED HERBICIDE USE ALTERNATIVE

Characteristics of this Alternative

Alternative 4 is a modification of the Revised Draft VMP that would reduce, but not eliminate, herbicide application in the Revised Draft VMP area compared to the proposed Revised Draft VMP, which does not propose any reduction in herbicide use. Under Alternative 4, annual herbicide use would be reduced to a maximum of 10 acres of treatment for trees and 7.5 acres of treatment for shrubs (compared to the annual maximum of 20 acres of treatment for trees and 15 acres of treatment for shrubs under the Revised Draft VMP). Additionally, no herbicide application would occur within 100 feet of any creeks (which is 40 feet larger than the no-herbicide-use buffer from creeks proposed in Mitigation Measure HAZ-5). Further, under this alternative, the City would use only non-Roundup™ formulations of glyphosate. In contrast, the Revised Draft VMP allows non-Roundup™ formulations of glyphosate as well as triclopyr and imazapyr. Alternative 4 would only allow application of herbicides using the cut-and-daub

application method with a hand brush or sponge; no hand spraying would be conducted under this alternative. The City would conduct approximately 1,100 acres of goat grazing, as with the Revised Draft VMP, along with approximately ~~572~~580.5 acres of roadside treatment and other activities (a reduction from ~~590~~598 acres with the Revised Draft VMP) using a combination of hand labor, mechanical, and herbicide techniques.

As described above for Alternative 3, in 2005, the City adopted Resolution 79133, which directed staff to evaluate the selective use of glyphosate and triclopyr for managing vegetation to reduce wildfire hazard in the City's Wildfire Prevention Assessment District. To date, herbicides have not been used for vegetation management on City-owned property or along roadsides in the Revised Draft VMP area. This initial Draft VMP and Revised Draft VMP EIR process evaluates the potential environmental effects of herbicide use. However, the City also received feedback from the public during the VMP development and scoping process to consider a "reduced herbicide" alternative to address concerns about the potential impacts of herbicide use in the City. As such, Alternative 4 reflects public input on early drafts of the initial Draft VMP.

Project Objectives

By reducing the acreage of herbicide treatment that occurs in a given year, vegetation would be more likely to become overgrown, increasing the wildfire risk and the potential for a catastrophic wildfire that would affect existing structures. Alternative 4 would only partially meet Revised Draft VMP goals and objectives such as reducing wildfire hazard on City-owned land and along critical access/egress routes within the City's VHFHSZ; reducing the likelihood of ignitions and extreme fire behavior; reducing the likelihood of catastrophic wildfires by limiting ignition potential, reducing fuels loads, and modifying fuel arrangements on City-owned lands; identifying and prioritizing fuel treatment areas based on fuel loads arrangements, terrain, topographic exposure, and proximity to roads and structures; and increasing the ability of the OFD and responding agencies to suppress wildfire.

Impact Analysis

Annual goat grazing, hand labor, and mechanical treatments activities under Alternative 4 would be consistent with the acreage treated under the Revised Draft VMP, for a total of 563~~555~~ acres. However, the area subject to herbicide techniques each year would be less than under the Revised Draft VMP, treating approximately 17.5 acres annually, compared to an annual maximum of 35 acres, with no herbicide treatment occurring within 100 feet of creeks. Compared to the Revised Draft VMP, this alternative would reduce potential effects to biological resources and water quality by limiting herbicide application to occur at least 100 feet from a creek (i.e., outside of riparian areas) and prohibit spraying which may result in drift. Further, although impacts related to hazards and hazardous materials are not identified as significant impacts of the Revised Draft VMP, Alternative 4 would reduce potential effects related to accidental spills, chemicals, and other risks associated with herbicide use.

Reducing the acreage treated with herbicides on an annual basis would delay the reduction of fuel loads in individual treatment areas, however, increasing the likelihood of ignition and catastrophic wildfires in the VHFHSZ as vegetation conditions worsen. Under Alternative 4, certain types of vegetation may be more difficult to control with reduced herbicides, resulting in persistent degraded habitat conditions. Additionally, under this alternative, OFD would only use

glyphosate and would be prohibited from using hand sprayers (only hand brushing or sponging would be conducted), which would reduce overall treatment options and effectiveness and increase costs. Glyphosate may not be as effective to treat certain types of vegetation as other herbicides (e.g., triclopyr, imazapyr), and excluding these herbicides may require the City to remove certain types of vegetation on a more frequent basis. As such, an increase in the frequency of herbicide application would result in more truck trips and air quality emissions, as well as more frequent ground disturbance.

Feasibility

Hand brushing or sponging under the cut-and-daub method is time consuming, requiring more labor, thereby increasing time and labor requirements for the City. As described in Alternative 3, areas proposed for herbicide treatment under the Revised Draft VMP if treated only with hand removal and mechanical treatments would require up to five additional treatment cycles to match the effectiveness of herbicide treatment (DiTomaso, Kyser, et al. 2013) (see Appendix D of this Recirculated DEIR for more information). Using the same methodology as described in Alternative 3 above, over the course of the 10-year planning timeframe for the Revised Draft VMP these differences in effort and increased costs result in an added cost ranging from $831,250 to $3,412,500 for not using herbicide and using hand removal and mechanical treatments in place of herbicide to achieve a similar level of vegetation management. Accordingly, this alternative is financially infeasible.

In conclusion, Alternative 4, the Reduced Herbicide Use Alternative, would meet some of the goals or objectives of the Revised Draft VMP; however, restrictions on the types and amounts of herbicide use as an available vegetation management treatment would slow progress toward improvement of fuel loads in the Revised Draft VMP area compared to the proposed Revised Draft VMP. This alternative would result in additional costs and staffing needs to conduct follow-up treatments in areas where mechanical and hand removal treatments are less effective than herbicide treatments. The significant and unavoidable noise impact of the Revised Draft VMP related to sensitive uses would not be reduced with this alternative and would likely be more severe because of the need for repeated hand labor or mechanical treatments in some locations.

5.4.5 ALTERNATIVE 5: PRIOR 2019 VMP ALTERNATIVE

Characteristics of this Alternative

Alternative 5 reflects the 2019 version of the VMP, which was analyzed under the prior 2020 DEIR. Alternative 5 would result in slightly reduced annual treatment acreage compared to the Revised Draft VMP, as well as changes to the vegetation treatment standards. Under Alternative 5, the City would conduct approximately 1,100 acres of goat grazing and approximately 555 acres of roadside treatment and other activities using a combination of hand labor, mechanical treatments, and herbicide treatments. This alternative would not include treatment of dead and dying trees on City-owned property within 30-100 of roadsides.

By slightly reducing the acreage of treatment that occurs in a given year, vegetation would be more likely to become overgrown, resulting in a greater wildfire risk in the City portion of the VHFHSZ than under the Revised Draft VMP. Additionally, eliminating treatment of dead and

dying trees within 30-100 feet from roadways would increase potential hazards from trees that could fall across roadways during a fire, compared to the Revised Draft VMP.

Compared to the Revised Draft VMP, this alternative would result in minor reductions in construction-related impacts associated with the Revised Draft VMP, including air pollutant and GHG emissions from operating equipment, and traffic from vehicle and truck trips.

Alternative 5 was selected as an alternative to the Revised Draft VMP to provide a comparison to the 2019 VMP evaluated in the prior 2020 DEIR.

Project Objectives

Alternative 5 would meet many of the Revised Draft VMP goals and objectives to reduce the wildfire hazard on City-owned land including reducing fuels loads, and modifying fuel arrangements on City-owned lands; identifying and prioritizing fuel treatment areas based on fuel loads arrangements, terrain, topographic exposure, and proximity to structures; and increase the ability of the OFD and responding agencies to suppress wildfire. However, the prior 2019 VMP would not reduce the wildfire hazard along critical access/egress routes or along roadways within the City's VHFHSZ as effectively as the Revised Draft VMP, which includes additional areas along roadways for the focused removal of dead and dying trees. Without clearance along critical roadways, Alternative 5 is not effective at reducing wildfire risk, ensuring safe egress, and facilitating wildfire suppression and response, consistent with Project Objectives.

Impact Analysis

Goat grazing activities under Alternative 5 would be conducted consistent with the acres treated under the Revised Draft VMP; however, hand labor, mechanical, and herbicide techniques would be slightly reduced from Revised Draft VMP levels, treating approximately 590 acres annually compared to 598 acres under the Revised Draft VMP. Compared to the Revised Draft VMP, this alternative would slightly reduce construction-related impacts associated with the Revised Draft VMP, including air pollutant and GHG emissions from operating equipment, and traffic from vehicle and truck trips. Similarly, Alternative 5 would result in slightly fewer impacts to habitats and nesting birds as a result of reducing the annual maximum treatment acreage relative to the Revised Draft VMP.

Reducing the acreage of vegetation treatment conducted on an annual basis would delay the reduction of fuel loads in individual treatment areas, however, resulting in an increased likelihood of ignition and catastrophic wildfires in the VHFHSZ compared with the Revised Draft VMP. Eliminating treatment of dead and dying trees within 30-100 feet from roadways would increase potential hazards from trees that could fall across roadways during a fire, compared to the Revised Draft VMP.

Feasibility

This alternative is considered feasible. In conclusion, Alternative 5, the Prior 2019 VMP Alternative, would meet many of the goals or objectives of the Revised Draft VMP; however, the slightly reduced annual acreage of treatment and elimination of treatment of dead and dying trees within 30-100 feet from roadways would slow OFD's progress in addressing wildfire risk

concerns, and would therefore be less effective than the Revised Draft VMP. Although it would slightly reduce the Revised Draft VMP's significant impacts related to biological resources and other environmental resources, it would not reduce any significant impacts associated with the Revised Draft VMP to a less-than-significant level and it would fail to fully address the need for wildfire risk reduction (particularly along roadways) to the level identified by the City, OFD, stakeholders, and members of the public.

5.5 COMPARISON OF ALTERNATIVES

In accordance with CEQA Guidelines Section 15126.6(e)(2), this section compares the ~~EIR~~ Recirculated DEIR alternatives and identifies the environmentally superior alternative among the alternatives.

Table 5-1 compares the acres treated among the Revised Draft VMP and the four alternatives. All alternatives would use goat grazing to treat the same acreage of vegetation (1,100 acres). The Revised Draft VMP, Alternative 3 (No Herbicide Alternative), Alternative 4, and Alternative 54 would treat nearly the same acreage of vegetation (~~1,100 acres of goat grazing; 590~~ 598 acres of roadside and parcels for the Revised Draft VMP, 563~~555~~ acres for Alternative 3, and 580.5~~572.5~~ acres for Alternative 4, and 590 for Alternative 5). Alternative 1 (No Project Alternative) would treat the least amount of vegetation, reflecting what the City's current vegetation management practices. Alternative 2 (Reduced Vegetation Management Activities Alternative) would treat ~~of the least~~ more vegetation than Alternative 1, but less than the ~~VMP~~ other alternatives due to reduced vegetation management activities.

Table 5-1. Comparison of Acres Treated Among the Revised Draft VMP and Alternatives

Vegetation Management Activities	Acres of Treatment					
	Revised Draft VMP	**Alternative 1: No Project Alternative**	**Alternative 2: Reduced Vegetation Management Activities Alternative**	**Alternative 3: No Herbicide Alternative**	**Alternative 4: Reduced Herbicide Use Alternative**	**Alternative 5: Prior 2019 VMP Alternative**
Goat Grazing	1,100	1,100	1,100	1,100	1,100	1,100
Roadside and Parcel Treatments using Hand Labor, Mechanical, and Chemical Treatment Techniques	598~~590~~	152	300	563~~555~~	580.5~~572.5~~	590

Alternative 1 (No Project Alternative) was not identified as the environmentally superior alternative because, although it would provide a reduction in vegetation management activities in the City portion of the VHFHSZ and thereby largely reduce construction-related impacts (e.g.,

air and GHG emissions, noise, traffic, biological resources) of the Revised Draft VMP, it would substantially increase the risk of wildfires in the region, resulting in greater impacts to life, property, and the environment.

Alternative 3 (No Herbicide Use) was not identified as environmentally superior because it would not reduce any significant and unavoidable impacts associated with the Revised Draft VMP. Alternative 3 would however, result in an incremental increase in truck trips, air pollutant emissions, and noise effects because this alternative would involve greater use of hand labor and mechanical techniques for vegetation management. Using hand labor and mechanical treatments in some locations may not be as effective at controlling highly flammable vegetation, particularly in areas that are difficult to access, and is anticipated to require additional follow-up treatments. Additionally, the increased use of hand labor and mechanical treatments would require more City staff, increasing costs, which would not be feasible for the City. This alternative would be fairly similar to the Revised Draft VMP and would avoid potential water quality impacts such as accidental spills and other impacts associated with herbicide use. In conclusion, Alternative 3 was not deemed environmentally superior because it would not reduce significant and unavoidable impacts associated with the Revised Draft VMP; would result in an increase in air quality emissions, truck trips, and noise effects adjacent to sensitive uses; may not be as effective at controlling vegetation.

Alternative 5 (Prior 2019 VMP Alternative) would slightly reduce the acreage of vegetation treatment completed in a given year, but would generally result in fairly similar impacts compared to the Revised Draft VMP, with slight decreases in impacts related to air pollutant and GHG emissions from operating equipment and traffic from vehicle and truck trips. Eliminating treatment of dead and dying trees within 30-100 feet from roadways would increase potential hazards from trees that could fall across roadways during a fire, compared to the Revised Draft VMP. This alternative would not reduce any significant and unavoidable impacts associated with the Revised Draft VMP, and was therefore not identified as environmentally superior.

Both Alternative 2 (Reduced Vegetation Management Activities Alternative) and Alternative 4 (Reduced Herbicide Use Alternative) would reduce the acreage of vegetation treatment completed in a given year, thereby resulting in less construction-related emissions, traffic on local roads, and other potential effects on biological resources. Between these two alternatives, Alternative 4 would result in less adverse effects to biological resources and water quality by limiting herbicide application to a maximum of 17.5 acres annually, limit herbicide application from occurring within 100 feet of a creek, limiting the City to the use of only one herbicide, and prohibiting spraying and allowing only hand brushing and sponging for herbicide application throughout the Revised Draft VMP area. The cut-and-daub method is time consuming, requiring more labor, thereby increasing costs for the City. Additionally, because hand removal and mechanical treatments may still occur adjacent to sensitive receptors, significant and unavoidable noise effects would still occur under Alternative 4. Alternative 2, on the other hand, would prohibit the use of loud equipment near sensitive receptors, avoiding a significant and unavoidable noise impact on sensitive receptors. For this reason, Alternative 2 is considered the environmentally superior alternative of the alternatives to the Revised Draft VMP evaluated in this chapter.

5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Considering the issues described above, the Revised Draft VMP is considered to be environmentally superior to the other identified alternatives. In comparison to the alternatives, the Revised Draft VMP provides the most appropriate balance of reducing wildfire hazard through limiting ignition potential, reducing fuel loads, and modifying vegetation in an effective manner; avoiding and minimizing impacts to the natural environment through implementation of practices; prioritizing management needs based on fuel loads, terrain, and proximity to roads and structures; and ensuring vegetation management needs are addressed in a reasonable timeframe to protect life and property and reduce public safety and wildfire hazards. The Revised Draft VMP would also ensure that vegetation management activities are conducted consistently in compliance with the methods and approaches identified in the Revised Draft VMP to reduce effects to natural resources and prevent excess and unnecessary vegetation removal. The Revised Draft VMP would also increase the ability of OFD to suppress wildfire in the Revised Draft VMP area, further protecting Revised Draft VMP area resources and require the routine evaluation of effectiveness of vegetation management activities.

Chapter 6
References

Note that all weblinks are provided in underline.

Executive Summary

CEB. 2020. *Practice Under the California Environmental Quality Act.* Kostka & Zischke.

Chapter 1 Introduction

None cited.

Chapter 2 Project Description

CAL FIRE. *See* California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2018. 2018 Strategic Fire Plan for California

CAL FIRE. 2022a. Top 20 Most Damaging California Destructive Wildfires. https://www.fire.ca.gov/media/t1rdhizr/top20_destruction.pdf~~California Department of Forestry and Fire Protection. 2019. Top 20 Most Damaging California Destructive Wildfires. Available at: www.fire.ca.gov/communications/downloads/fact_sheets/Top20_Destruction.pdf.~~

CAL FIRE. 2022b. 2020 and 2021 Fire Seasons. https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf

City of Oakland. 2017. "Watershed Improvement Program: Fire Wise Native Plants." Available at: www2.oaklandnet.com/oakca1/groups/fire/documents/webcontent/oak042152.pdf.

Diablo Fire Safe Council. 2015. CWPP Community Wildfire Protection Plan Update, Alameda County. January 5, 2015. Available at: www.diablofiresafe.org/pdf/2015_Draft_AlCo_CWPP_Update.pdf. Accessed April 28, 2020.

Dudek. 2023. Revised Draft City of Oakland, California, Vegetation Management Plan. Prepared for the City of Oakland, Oakland Fire Department.

~~Dudek. 2019. Revised Draft – City of Oakland, California Vegetation Management Plan. Prepared for City of Oakland and Oakland Fire Department. November 2019.~~

FireFamilyPlus: Version 4.2. 2016. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. https://www.firelab.org/project/firefamilyplus

Moritz, R., and P. Svihra. 1998. "Pyrophytic vs. Fire Resistant Plants." University of California Cooperative Extension. HortScript No. 18 (October 1996). Available at: www.cityofmillvalley.org/civicax/filebank/blobdload.aspx?BlobID=22865.

University of California, Berkeley. 2016. Forest Pathology and Mycology Lab: SODmap Project. Google Earth file. Available at: nature.berkeley.edu/matteolab/?page_id=755. Accessed June 23, 2020.

Chapter 3 Environmental Setting, Impacts, and Mitigation Measures

Section 3.1 Overview

Bay Area Open Space Council. 2011. Williamson Act Contracted Lands: San Francisco Bay Area, California, 2006. Available at: earthworks.stanford.edu/catalog/stanford-hb456ch5128. Accessed May 4, 2020.

California Department of Conservation. 2018. Alameda County Important Farmland 2016. Farmland Mapping and Monitoring Program, Sacramento, CA. Available at: www.conservation.ca.gov/dlrp/fmmp. Accessed May 4, 2020.

City of Oakland. 1998. *Oakland General Plan – Open Space, Conservation, and Recreation Element*. "Earth Resources." Available at: www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD008821. Accessed April 30, 2020.

City of Oakland. 2012. *Oakland Annex to the 2010 ABAG Local Hazard Mitigation Plan – Taming Natural Disasters*. Available at: www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak033052.pdf. Accessed April 27, 2020.

City of Oakland. 2020. ~~(multiple) –~~ Multiple t~~T~~elephone conversations with Horizon staff regarding treatment activities within the VMP.

City of Oakland. ~~2016~~2021. ~~2016-2021~~ *City of Oakland 2021-2026~~Local~~ Hazard Mitigation Plan.* Available at: https://cao-94612.s3.amazonaws.com/documents/2021-07-01_OaklandHMP_AdoptedFinal-1.pdf~~www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak058455.pdf~~. Accessed ~~April 27, 2020~~July 11, 2023.

Section 3.2 Aesthetics

California Department of Transportation. 2020. List of Eligible and Officially Designated State Scenic Highways. Available at: dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed June 10, 2020.

Caltrans. *See* California Department of Transportation.

City of Oakland. 1974. Scenic Highways. *An Element of the Oakland Comprehensive Plan*. September. Available at: www.oaklandca.gov/documents/city-of-oakland-scenic-highways-element. Accessed May 20, 2020.

City of Oakland. 1986. North Oakland Hill Area Specific Plan. November 10.

Section 3.3 Air Quality

BAAQMD. *See* Bay Area Air Quality Management District.

Bay Area Air Quality Management District. 2010. *Bay Area 2010 Clean Air Plan*. Available at: www.baaqmd.gov/~/media/files/planning-and-research/plans/2010-clean-air-plan/cap-volume-i-appendices.pdf?la=en. Accessed May 7, 2020.

Bay Area Air Quality Management District. 2012. *Understanding Particulate Matter: Protecting Public Health in the San Francisco Bay Area*. Available at: www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Plans/PM%20Planning/ParticulatesMatter_Nov%207.ashx?la=en. Accessed May 7, 2020.

Bay Area Air Quality Management District. 2014. Improving Air Quality & Health in Bay Area Communities. Available at: www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CARE%20Program/Documents/CARE_Retrospective_April2014.ashx?la=en. Accessed May 6, 2020.

Bay Area Air Quality Management District. 2017a. *California Environmental Quality Act, Air Quality Guidelines*. Available at: www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed May 6, 2020.

Bay Area Air Quality Management District. 2017b. *Final 2017 Clean Air Plan, Spare the Air Cool the Climate.* Available at: www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed May 7, 2020.

~~Bay Area Air Quality Management District. 2019a. Regulation 5, Open Burning. Available at: www.baaqmd.gov/~/media/dotgov/files/rules/regulation-5/documents/20191120_r0500_final-pdf.pdf?la=en. Accessed May 7, 2020.~~

~~Bay Area Air Quality Management District. 2019b. Prescribed Burning Smoke Management Plan, Form Rx-1. Available at: www.baaqmd.gov/~/media/files/compliance-and-enforcement/open-burning/rx_burn_smp_form.pdf. Accessed May 7, 2020.~~

Bay Area Air Quality Management District. 2020a. Naturally Occurring Asbestos. Available at: www.baaqmd.gov/permits/asbestos/naturally-occuring-asbestos. Accessed May 21, 2020.

Bay Area Air Quality Management District. 2020b. Current Rules. Available at: www.baaqmd.gov/rules-and-compliance/current-rules. Accessed May 21, 2020.

Bay Area Air Quality Management District. 2020c. Air Quality Standards and Attainment Status. Available at: www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status. Accessed May 6, 2020.

California Air Resources Board. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* Available at: ww3.arb.ca.gov/ch/handbook.pdf. Accessed May 21, 2020.

California Air Resources Board. 2013. *The California Almanac of Emissions and Air Quality*. Available at: ww3.arb.ca.gov/aqd/almanac/almanac13/almanac2013all.pdf. Accessed May 6, 2020.

California Air Resources Board. 2019. Summaries of Historical Area Designations for State Standards. Available at: ww2.arb.ca.gov/our-work/programs/state-and-federal-area-designations/state-area-designations/summary-tables. Accessed May 6, 2020.

California Air Resources Board. 2020~~a~~. CARB Identified Toxic Air Contaminants. Available at: ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants. Accessed May 6, 2020.

California Air Resources Board. ~~2020b~~2023. iADAM Top 4 Summary. Available at: www.arb.ca.gov/adam/topfour/topfour1.php. Accessed ~~May 6, 2020~~March 22, 2023.

California Board of Forestry and Fire Protection. 2019. *California Vegetation Treatment Program, Draft Program Environmental Impact Report*. (State Clearinghouse No. 2019012052.) June 24, 2019. Available at: ceqanet.opr.ca.gov/2019012052/2. Accessed July 22, 2020.

California Department of Conservation, Division of Mines and Geology. 2002. *Guidelines for Geologic Investigations of Naturally Occurring Asbestos in California*. Special Publication 124. Available at: www.conservation.ca.gov/cgs/Documents/Melange/Asbestos_Guidelines_SP124.pdf. Accessed May 6, 2020.

California Office of Environmental Health Hazard Assessment. 2001. Health Effects of Diesel Exhaust. Available at: oehha.ca.gov/media/downloads/calenviroscreen/indicators/diesel4-02.pdf. Accessed May 6, 2020.

California Office of Environmental Health Hazard Assessment. 2015. *Air Toxics Hot Spots Program, Risk Assessment Guidelines.* Available at: oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed May 6, 2020.

CARB. *See* California Air Resources Board.

City of Oakland. 1996. *General Plan Open Space Conservation and Recreation Element*. Available at: www2.oaklandnet.com/oakca1/groups/ceda/documents/webcontent/oak035254.pdf. Accessed May 26, 2020.

City of Oakland. 2013. *CEQA Thresholds of Significance Guidelines*. Available at: https://wbcapp.oaklandnet.com/cs/groups/public/documents/report/b2fr/mdux/~edisp/oak051200.pdf. Accessed May 26, 2020.

City of Oakland. 2020. *Oakland 2030 Equitable Climate Action Plan*. Available at: cao-94612.s3.amazonaws.com/documents/Oakland-ECAP-07-24.pdf. Accessed August 4, 2020.

Hansen, Travis. Vegetation Management Supervisor AHR, Oakland Fire Department. October 20, 2020 – email communication with Robin Hunter of Horizon regarding odor complaints about goat grazing.

OEHHA. *See* California Office of Environmental Health Hazard Assessment.

U.S. Environmental Protection Agency. 2020. *Green Book*. Available at: www3.epa.gov/airquality/greenbook/anayo_ca.html. Accessed May 6, 2020.

USEPA. *See* U.S. Environmental Protection Agency.

Section 3.4 Biological Resources

Alexander, J. M., and S. V. Swain. 2010. Pest Notes: Sudden Oak Death. University of California, Agriculture and Natural Resources Publication 74151. Available at: pm.ucanr.edu/PDF/PESTNOTES/pnsuddenoakdeath.pdf. Accessed June 23, 2020.

Bartosh, H., L. Naumovich, and L. Baker. 2010. *A Guidebook to Botanical Priority Protection Areas of the East Bay.* East Bay Chapter of the California Native Plant Society.

~~Caldecott Corridor Committee. 1998. Resource Management Plan for the Caldecott Wildlife Corridor. Available at: www.contracosta.ca.gov/DocumentCenter/Home/Index/298. Accessed June 23, 2020.~~

CAL FIRE. *See* California Department of Forestry and Fire Protection

Calflora. 2020. Calflora Plant Search [web application]. Berkeley, California. Available at: www.calflora.org. Accessed July 30, 2020.

~~California Department of Fish and Wildlife. 2019a. Sensitive Natural Communities List. Available at: wildlife.ca.gov/Data/VegCAMP/Natural-Communities. Updated November 8, 2019.~~

California Department of Fish and Wildlife. 2019~~b~~. Map of California Natural Community Conservation Plans. April.

California Department of Fish and Wildlife. ~~2020~~2023a. California Natural Diversity Data Base. Biogeographic Data Branch. Sacramento, California. ~~April 8~~July 11.

California Department of Fish and Wildlife. 2023b. Sensitive Natural Communities List. Available at: wildlife.ca.gov/Data/VegCAMP/Natural-Communities. Updated June 1, 2023.

California Department of Fish and Wildlife. 2023c. Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species. June 6.

California Department of Food and Agriculture. 2020. California Noxious Weeds. Available at: www.cdfa.ca.gov/plant/ipc/encycloweedia/weedinfo/winfo_table-sciname.html#. Accessed July 9, 2020.

California Department of Forestry and Fire Protection. 1998. Coastal Pitch Canker Zone of Infestation and Bark Beetle Zones of Infestation Map.

California Department of Forestry and Fire Protection. 2005. Sudden Oak Death Zone of Infestation Map.

California Department of Forestry and Fire Protection. 2013. Pitch Canker Disease in California. Tree Notes Number 32.

California Invasive Plant Council. ~~2020~~2023. The California Invasive Plant Council Inventory. Available at: www.cal-ipc.org/plants/inventory. Accessed ~~April 8, 2020~~July 19, 2023.

California Native Plant Society. ~~2020~~2023. Inventory of Rare and Endangered Plants (online edition, v~~8-02~~9.5). California Native Plant Society, Sacramento, CA. Available at: www.rareplants.cnps.org. Accessed on ~~April 8, 2020~~July 19, 2023.

California Native Plant Society, East Bay Chapter. 2023. Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties [web application]. Available at: ebcnps.org/ebrare-plant-database. Accessed July 19, 2023.

Cal-IPC. *See* California Invasive Plant Council.

CDFA. *See* California Department of Food and Agriculture.

CDFW. *See* California Department of Fish and Wildlife.

City of Oakland. 1986. North Oakland Hill Area Specific Plan. November 10.

City of Oakland. 1996. *General Plan Open Space, Conservation, and Recreation Element*. Available at: www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD009017. Accessed August 17, 2020.

City of Oakland. 2017. History of Fires in the Oakland Hills. Available at: www2.oaklandnet.com/oakca1/groups/fire/documents/webcontent/oak042168.pdf. Accessed March 2017.

CNPS. *See* California Native Plant Society.

CNPSEB. *See* California Native Plant Society, East Bay Chapter.

~~County of San Mateo. 2020. Routine Maintenance Program Draft Environmental Impact Report. February. Prepared by Horizon Water and Environment, Oakland, CA.~~

~~del Moral, R., and C. H. Muller. 1970. The Allelopathic Effects of Eucalyptus camaldulensis. The American Midland Naturalist 83(1):254-282.~~

~~East Bay Municipal Utility District. 2016. East Bay Watershed Master Plan Update.~~

eBird. ~~2020~~2023. eBird: An online database of bird distribution and abundance [web application]. Ithaca, New York. Available at: www.ebird.org. Accessed ~~April 8, 2020~~July 19, 2023.

~~EBMUD. See East Bay Municipal Utility District.~~

Federal Emergency Management Agency. 2014. Final Hazardous Fire Risk Reduction Environmental Impact Statement.

Fellers, G. M., and Kleeman, P. M. 2007. California Red-Legged Frog (*Rana draytonii*) Movement and Habitat Use: Implications for Conservation. *Journal of Herpetology* 41(2):276-286.

FEMA. *See* Federal Emergency Management Agency.

Gordon, T. R., D. L. Wood, and A. J. Storer. 2012. Summary of current research on pitch canker at the University of California. Available at: ufei.calpoly.edu/pitch_canker/uc_summary.lasso. Accessed June 23, 2020.

Huntsinger, L., J. W. Bartolome, and C. M. D'Antonio. 2007. Grazing Management in California's Mediterranean Grasslands. Pages 233-253. *In* Stromberg, M. R., J. D. Corbin, and C. M. Antonio [eds.]. *California Grasslands: Ecology and Management*. University of California Press, Berkeley and Los Angeles, CA. 390 pp.

Jepson Flora Project. ~~2020~~2023. Jepson eFlora. Available at: ucjeps.berkeley.edu/eflora. Accessed July ~~22, 2020~~19, 2023.

Jurjavcic, N., M. Keever, L. Baker, and T. Keeler-Wolf. 2015. Maritime Chaparral in the East Bay. California Native Plant Society Conservation Conference.

Kie, J. G. 1988. Annual Grassland. *In* Mayer, K. E., and W. F. Laudenslayer, eds., *A Guide to Wildlife Habitats of California*. California Department of Fish and Game. Sacramento, CA. Updated April 2005.

Kramer, G. 1988. Fresh Emergent Wetland. *In* Mayer, K. E., and W. F. Laudenslayer, eds., *A Guide to Wildlife Habitats of California.* California Department of Fish and Game. Sacramento, CA. Updated April 2005.

~~Lake, D. 2020. Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties [web application]. Available at: ebcnps.org/ebrare-plant-database. Accessed July 30, 2020.~~

Laurel Marcus and Associates, NewFields River Basin Services, and Hydrologic Systems Inc. 2010. *Final Sausal Creek Watershed Enhancement Plan*. Prepared for Friends of Sausal Creek. March.

Leidy, R. A., G. S. Becker, and B. N. Harvey. 2005. Historical Distribution and Current Status of Steelhead/Rainbow Trout (*Oncorhynchus mykiss*) in Streams of the San Francisco Estuary, California.

Leidy, R. A., J. Cassianni, J. Van Der Hout, T. Vendlinski, and B. Sanchez. 2020. Conservation and Management Plan for Sausal Creek Wild Rainbow Trout. July.

Lowe, M. 2000. The Upper Sausal Creek Watershed (Oakland, California): Historical and Contemporary Ecology, Watershed Assessment, and Recommendations for Ecosystem Restoration and Management, Sonoma State University.

LSA Associates, Inc. 2009a. *East Bay Regional Park District Draft Wildfire Hazard Reduction and Resource Management Plan*. July.

LSA Associates, Inc. 2009b. *East Bay Regional Park District Wildfire Hazard Reduction and Resource Management Plan Environmental Impact Report*. July.

Mayer, K. E., and W. F. Laudenslayer, eds. 1988. *A Guide to Wildlife Habitats of California*. California Department of Fish and Game. Sacramento, CA. Updated descriptions available at: www.wildlife.ca.gov/Data/CWHR/Wildlife-Habitats. Accessed May 3, 2017.

McBride, J. R., and H. F. Heady. 1968. Invasion of grassland by *Baccharis pilularis* DC. *Journal of Range Management* 21(2):106-108.

McBride, J. R., and C. Reid. 1988. Urban. *In* Mayer, K. E., and W. F. Laudenslayer, eds., *A Guide to Wildlife Habitats of California*. California Department of Fish and Game. Sacramento, CA. Updated April 2005.

Naumovich, L. 2019. Serpentine Prairie Restoration Project, Redwood Regional Park. 2018 Annual Report. January 19.

Nowak, D. L. 1993. Historical Vegetation Change in Oakland and Its Implications for Urban Forest Management. *Journal of Arboriculture* 19(5).

Oakland Wildland Stewards. 2017. Native Plants of the Oakland Hills City Parks.

OWLS. *See* Oakland Wildland Stewards.

Pearson, D. C. 1988. Eucalyptus. *In* Mayer, K. E., and W. F. Laudenslayer, eds., *A Guide to Wildlife Habitats of California*. California Department of Fish and Game. Sacramento, CA. Updated April 2005.

Phytosphere Research. 2018. Best Management Practices for Preventing *Phytophthora* Introduction and Spread: Trail Work, Construction, Soil Import. Prepared for Golden Gate National Parks Conservancy.

Pilliod, D. S., J. L. Welty, and R. Stafford. 2013. Terrestrial Movement Patterns of Western Pond Turtles (*Actinemys marmorata*) in Central California. *Herpetological Conservation and Biology* 8(1):207–221. Available at: www.elkhornsloughctp.org/uploads/files/1371057133Pilliod_etal_2013.pdf.

Placemakers. 2011. Amendment to Oakland Zoo Masters Plan: Subsequent Mitigated Negative Declaration/Addendum. Prepared for the City of Oakland. February.

Sawyer, J. O., T. Keeler-Wolf, and J. Evens. 2009. *A Manual of California Vegetation.* Second edition. California Native Plant Society Press.

Simon, G. L. 2014. Vulnerability-in-Production: A Spatial History of Nature, Affluence, and Fire in Oakland. *California Annals of the Association of American Geographers* 104(6).

Sowers, J. M., C. Richard, R. Dulberg, and J. F. Holmberg. 2010. Creek & watershed map of the Western Alameda County: a digital database, version 1.0: Fugro William Lettis and Associates, Inc., Walnut Creek, CA, 1:24,000 scale.

Stromberg, M. R., and J. R. Griffen. 1996. Long-Term Patterns in Coastal California Grasslands in Relation to Cultivation, Gophers, and Grazing. *Ecological Applications* 6(4).

Sugihara, N.G., J. W. Van Wagtendonk, K. E. Shaffer, J. Fites-Kaufman and A. Thode, eds. 2006. Fire in California's Ecosystems. Chapter 14. University of California Press. Berkeley and Los Angeles, California.

Swaim, K. E. 1994. Habitat associations of the Alameda whipsnake. *Transactions of the Western Section of the Wildlife Society* 28:107-111.

UC Berkeley. See University of California, Berkeley.

University of California, Berkeley. 2016. Forest Pathology and Mycology Lab: SODmap Project. Google Earth file. Available at: nature.berkeley.edu/matteolab/?page_id=755. Accessed June 23, 2020.

~~URS. 2009. Strawberry Canyon Vegetation Mitigation letter. May 27.~~

USACE. *See* U.S. Army Corps of Engineers.

U.S. Army Corps of Engineers. 2015. Regional Compensatory Mitigation and Monitoring Guidelines for the South Pacific Division.

U.S. Environmental Protection Agency. 1998. Triclopyr Reregistration Eligibility Decision Facts. EPA-738-F-98-007.

U.S. Environmental Protection Agency. 2005. EFED Ecological Risk Assessment Supporting the Reregistration Eligibility Decision for the Use of the Herbicide, Imazapyr, in Previously Registered Non-Agricultural and Horticultural Settings, and on Clearfield Corn. September 30.

U.S. Environmental Protection Agency. 2019. Glyphosate. Proposed Interim Registration Review Decision. Case Number 0178. April.

U.S. Environmental Protection Agency. 2020. Technical Overview of Ecological Risk Assessment – Analysis Phase: Ecological Effects Characterization.

USEPA. *See* U.S. Environmental Protection Agency.

U.S. Fish and Wildlife Service. 2002. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). May 28.

U.S. Fish and Wildlife Service. 2009. Bay checkerspot butterfly (*Euphydryas editha bayensis*) 5-Year Review: Summary and Evaluation. August.

U.S. Fish and Wildlife Service. 2010a. *Clarkia franciscana* (Presidio clarkia) 5-Year Review: Summary and Evaluation. November.

U.S. Fish and Wildlife Service. 2010b. *Chorizanthe robusta* var. *robusta* (Robust Spineflower) 5-Year Review: Summary and Evaluation. February.

U.S. Fish and Wildlife Service. 2011. Alameda Whipsnake *(Masticophis lateralis euryxanthus)* 5-Year Review: Summary and Evaluation. September.

U.S. Fish and Wildlife Service. 2015. Recovery Plan for *Arctostaphylos pallida* (pallid manzanita). July.

U.S. Fish and Wildlife Service. 2017. Species Information: Alameda Whipsnake. Sacramento, CA. Available at: www.fws.gov/sacramento/es_species/Accounts/Amphibians-Reptiles/alameda-whipsnake. Accessed June 30, 2020.

U.S. Fish and Wildlife Service. 2019. Habitat Conservation Plans webpage. Sacramento Fish and Wildlife Office. Available at: www.fws.gov/sacramento/es/Habitat-Conservation-Plans. Accessed April 9, 2020.

U.S. Fish and Wildlife Service. 2020. Monarch (*Danaus plexippus*) Species Status Assessment Report, version 2.1. September.

U.S. Fish and Wildlife Service. 2023a~~20b~~. Information for Planning and Conservation (IPaC) Report for the Oakland Vegetation Management Plan. Accessed ~~April 8, 2020~~July 19, 2023.

U.S. Fish and Wildlife Service. ~~2020b~~2023b. Critical Habitat Database. Critical Habitat Portal. Available at: ecos.fws.gov/ecp/report/table/critical-habitat.html. Accessed ~~October 12, 2020~~July 19, 2023.

USFWS. *See* U.S. Fish and Wildlife Service.

U.S. Geological Survey. 2016. USGS National Hydrography Dataset (NHD) Downloadable Data Collection – National Geospatial Data Asset (NGDA) National Hydrography Dataset (NHD): USGS – National Geospatial Technical Operations Center (NGTOC): Rolla, MO and Denver, CO.

USGS. *See* U.S. Geological Survey.

Western Monarch Count Resource Center. 202~~0~~3. Find an Overwintering Site Near You. Available at: www.westernmonarchcount.org/find-an-overwintering-site-near-you. Accessed July ~~23~~19, ~~2020~~2023.

~~Whittemore, A. T. 2017. Juglans californica. In Jepson Flora Project (eds.), Jepson eFlora. Available at: ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=29566. Accessed February 28, 2017.~~

~~WRA, Inc. 2013. Vegetation Management Implementation Plan: Chabot Space and Science Center. Prepared for City of Oakland. November.~~

Xerces Society. 2016. State of the Monarch Butterfly Overwintering Sites in California. Report to the U.S. Fish and Wildlife Service.

Xerces Society. 2017. Protecting California's Butterfly Groves: Management Guidelines for Monarch Butterfly Overwintering Habitat.

Xerces Society, Defenders of Wildlife, Center for Food Safety. 2018. A Petition to the State of California Fish and Game Commission to List the Crotch bumble bee (*Bombus crotchii*), Franklin's bumble bee (*Bombus franklini*), Suckley cuckoo bumble bee (*Bombus suckleyi*), and western bumble bee (*Bombus occidentalis occidentalis*) as Endangered under the California Endangered Species Act. October.

Section 3.5 Cultural Resources

This section has not been recirculated; see prior 2020 DEIR for references.

Section 3.6 Geology, Soils, and Seismicity

California Geological Survey. 1991. Geologic Map of the San Francisco – San Jose Quadrangle, California, 1:250,000. Map No. 5A. Compilation by D. L. Wagner, E. J. Bortugno, and R. D. McJunkin. Available at: www.quake.ca.gov/gmaps/RGM/sfsj/sfsj.html. Accessed May 29, 2020.

California Geological Survey. 2010. Geologic Data Map No. 6. Compilation and Interpretation by C. W. Jennings and W. A. Bryant. Available at: maps.conservation.ca.gov/cgs/fam. Accessed May 29, 2020.

California Department of Conservation. 2002. California Geomorphic Provinces. Note 36.

California Department of Conservation. 2020. Deep-Seated Landslide Susceptibility Map Description. Available at: cadoc.maps.arcgis.com/home/item.html?id=3cdc744bec6b45c28206e472e8ad0f89. Accessed June 1, 2020.

City of Oakland. 2004. *Protect Oakland: City of Oakland General Plan, Safety Element*.

Contra Costa County Community Development Department. 2004. Contra Costa County Watershed Atlas. Available at: cocowaterweb.org/wp-content/uploads/Watershed-Atlas.pdf. Accessed May 29, 2020.

Field, E. H., and 2014 Working Group on California Earthquake Probabilities. 2015. UCERF3: A new earthquake forecast for California's complex fault system. U.S. Geological Survey 2015–3009, 6 p. Available at: dx.doi.org/10.3133/fs20153009. Accessed June 1, 2020.

Natural Resources Conservation Service. 2020. Web Soil Survey [online mapping tool]. Available at: websoilsurvey.sc.egov.usda.gov. Accessed May 28, 2020.

University of California Museum of Paleontology. 2020. The UCMP Collections Catalog. Available at: ucmpdb.berkeley.edu/about.shtml. Accessed June 25, 2020.

U.S. Geological Survey. 2006. Liquefaction Susceptibility Map. Open-File Report 06-1037.

USGS. *See* U.S. Geological Survey.

Section 3.7 Greenhouse Gas Emissions

100 Best Fleets. 2020. Green Fleet Awards: 2019 Winners. Available at: www.the100bestfleets.com/gf_winners_2019.htm. Accessed May 15, 2020.

ACEEE. *See* American Council for an Energy Efficient Economy.

American Council for an Energy Efficient Economy. 2019. State and Local Policy Database. Available at: database.aceee.org/city/oakland-ca. Accessed May 15, 2020.

BAAQMD. *See* Bay Area Air Quality Management District.

Bay Area Air Quality Management District. 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011. Available at: www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf. Accessed August 4, 2020.

Bay Area Air Quality Management District. 2017a. Final 2017 Clean Air Plan. Available at: www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed May 14, 2020.

Bay Area Air Quality Management District. 2017b. California Environmental Quality Act Guidelines. Available at: www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed July 6, 2020.

Bay Area Air Quality Management District. 2020a. Climate Protection. Available at: www.baaqmd.gov/plans-and-climate/climate-protection. Accessed July 23, 2020.

Bay Area Air Quality Management District. 2020b. Climate Protection Planning Program. Available at: www.baaqmd.gov/plans-and-climate/climate-protection/climate-protection-program. Accessed July 23, 2020.

Bay Area Air Quality Management District. 2023. California Environmental Quality Act Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed August 30, 2023.

CAL FIRE. *See* California Department of Forestry and Fire Protection

California Air Resources Board. 2014. *First Update to the AB 32 Scoping Plan*. Available at: ww3.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm. Accessed May 18, 2020.

California Air Resources Board. 2017. *California's 2017 Climate Change Scoping Plan*. Available at: ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed May 18, 2020.

California Air Resources Board. 2018. *AB 32 Scoping Plan*. Available at: ww3.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed May 18, 2020.

California Air Resources Board. 2020. *An Inventory of Ecosystem Carbon in California's Natural and Working Lands*. Available at: ww3.arb.ca.gov/cc/inventory/pubs/nwl_inventory.pdf. Accessed May 14, 2020.

California Air Resources Board. 2022. *2022 Scoping Plan for Achieving Carbon Neutrality*. Available at: https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf. Accessed August 30, 2022.

~~California Department of Forestry and Fire Protection. 2019a. Top 20 Most Damaging California Destructive Wildfires. www.fire.ca.gov/communications/downloads/fact_sheets/Top20_Destruction.pdf. Accessed May 14, 2020.~~

California Board of Forestry and Fire Protection. 2019~~b~~. *California Vegetation Treatment Program, Draft Program Environmental Impact Report.* (State Clearinghouse No. 2019012052.) June 24, 2019. Available at: ceqanet.opr.ca.gov/2019012052/2. Accessed July 22, 2020.

California Department of Forestry and Fire Protection. 20~~19a~~22. Top 20 Most ~~Damaging California~~ Destructive California Wildfires. October 24, 2022.~~www.fire.ca.gov/communications/downloads/fact_sheets/Top20_Destruction.pdf. Accessed May 14, 2020.~~

California Energy Commission. 2018a. *Final 2017 Integrated Energy Policy Report*. Available at: efiling.energy.ca.gov/getdocument.aspx?tn=223205. Accessed May 18, 2020.

California Energy Commission. 2018b. *Toward A Clean Energy Future, 2018 Integrated Energy Policy Report Update*, Volume I. Available at: efiling.energy.ca.gov/getdocument.aspx?tn=224344. Accessed May 18, 2020.

~~California Energy Commission. 2019. Toward A Clean Energy Future, 2018 Integrated Energy Policy Report Update, Volume II. Available at: efiling.energy.ca.gov/getdocument.aspx?tn=227391. Accessed May 18, 2020.~~

~~California Energy Commission. 2020a. Integrated Energy Policy Report. Available at: www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report. Accessed May 18, 2020.~~

~~California Energy Commission. 2020b. Final 2019 Integrated Energy Policy Report. Available at: efiling.energy.ca.gov/getdocument.aspx?tn=232922. Accessed May 19, 2020.~~

California Energy Commission. 2023. Final 2022 Integrated Energy Policy Report Update. Available at: https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2022-integrated-energy-policy-report-update. Accessed August 30, 2023.

CARB. *See* California Air Resources Board.

CEC. *See* California Energy Commission.

City of Oakland. 1996. *General Plan Open Space, Conservation, and Recreation Element*. Available at: www2.oaklandnet.com/oakca1/groups/ceda/documents/webcontent/oak035254.pdf. Accessed May 26, 2020.

City of Oakland. 2018a. 2015 Greenhouse Gas Emissions Inventory Report. Available at: cao-94612.s3.amazonaws.com/documents/Oakland-2018-GHG-Emissions-Inventory-Report.pdf. Accessed May 14, 2020.

City of Oakland. 2018b. *City of Oakland Energy and Climate Action Plan*. Available at: cao-94612.s3.amazonaws.com/documents/oak069942.pdf. Accessed May 15, 2020.

City of Oakland. 2019. Sustainable Oakland Report 2017-2018. Available at: cao-94612.s3.amazonaws.com/documents/Sustainable-Oakland-Report-2017-2018.pdf. Accessed May 15, 2020.

City of Oakland. 2020a. *Oakland 2030 Equitable Climate Action Plan*. Available at: cao-94612.s3.amazonaws.com/documents/Oakland-ECAP-07-24.pdf. Accessed August 4, 2020.

City of Oakland. 2020b. Sustainable Oakland. Available at: www2.oaklandnet.com/government/o/PWA/o/FE/s/SO/OurFocusAreas/Legislation/index.htm. Accessed May 15, 2020.

EIA. *See* U.S. Energy Information Administration.

Forest Climate Action Team. 2018. *California Forest Carbon Plan*. Available at: resources.ca.gov/CNRALegacyFiles/wp-content/uploads/2018/05/California-Forest-Carbon-Plan-Final-Draft-for-Public-Release-May-2018.pdf. Accessed May 20, 2020.

Intergovernmental Panel on Climate Change. 1996. *Climate Change 1995: The Science of Climate Change*. Available at: www.ipcc.ch/site/assets/uploads/2018/02/ipcc_sar_wg_I_full_report.pdf. Accessed May 13, 2020.

Intergovernmental Panel on Climate Change. 2013. *Climate Change 2013: The Physical Science Basis*. Available at: www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf. Accessed May 13, 2020.

IPCC. *See* Intergovernmental Panel on Climate Change.

Krawchuk, M. A., M. A. Moritz, M.-A. Parisien, J. Van Dorn, and K. Hayhoe. 2009. Global Pyrogeography: the Current and Future Distribution of Wildfire. PLoS ONE 4(4): e5102. doi:10.1371/journal.pone.0005102. Accessed May 13, 2020.

National Highway Traffic Safety Administration. 2020. SAFE. Available at: www.nhtsa.gov/corporate-average-fuel-economy/safe. Accessed May 15, 2020.

NHTSA. *See* National Highway Traffic Safety Administration.

Sacramento Metropolitan Air Quality Management District. 2020. *Greenhouse Gas Thresholds for Sacramento County*. Available at: www.airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-04v2.pdf. Accessed August 27, 2020.

San Joaquin Valley Air Pollution Control District. 2012. *Zero Equivalency Policy for Greenhouse Gases.* Available at: www.valleyair.org/policies_per/Policies/REVISEDAP2015.pdf. Accessed August 27, 2020.

SJVAPCD. *See* San Joaquin Valley Air Pollution Control District.

SMAQMD. *See* Sacramento Metropolitan Air Quality Management District.

State of California. 2019. Wildfires and Climate Change: California's Energy Future. A Report from Governor Newsom's Strike Force. April 12.

U.S. Energy Information Administration. 2020. California State Energy Profile. Available at: www.eia.gov/state/print.php?sid=CA. Accessed May 14, 2020.

U.S. Environmental Protection Agency. 2012. Federal Register Vol. 77, No. 199. Available at: www.govinfo.gov/content/pkg/FR-2012-10-15/pdf/2012-21972.pdf. Accessed May 15, 2020.

U.S. Environmental Protection Agency. 2018. Emissions Factors for Greenhouse Gas Inventories. Available at: www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf. Accessed May 13, 2020.

U.S. Environmental Protection Agency. 2020a. Inventory of US Greenhouse Gas Emissions and Sinks 1990-2018. Available at: www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf. Accessed May 13, 2020.

U.S. Environmental Protection Agency. 2020b. Regulations for Greenhouse Gas Emissions from Commercial Trucks & Buses. Available at: www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks. Accessed May 15, 2020.

U.S. Environmental Protection Agency and National Highway Traffic Safety Administration. 2011. Federal Register Vol. 76 No. 179. Available at: https://www.govinfo.gov/content/pkg/FR-2011-09-15/pdf/2011-20740.pdf. Accessed August 30, 2023.

USEPA. *See* United States Environmental Protection Agency.

Westerling, A. L. 2018. Wildfire Simulations for California's Fourth Climate Change Assessment: Projecting Changes in Extreme Wildfire Events with a Warming Climate. University of California, Merced. California's Fourth Climate Change Assessment, California Energy Commission. Publication Number: CCCA4-CEC-2018-014.

Section 3.8 Hazards and Hazardous Materials

This section has not been recirculated; see prior 2020 DEIR for references.

~~Bay Area Air Quality Management District. 2017. California Environmental Quality Act, Air Quality Guidelines. Available at: www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed May 6, 2020.~~

~~CAL FIRE. See California Department of Forestry and Fire Protection.~~

~~California Air Resources Board. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. Available at: ww3.arb.ca.gov/ch/handbook.pdf. Accessed May 21, 2020.~~

~~California Board of Forestry and Fire Protection. 2019. California Vegetation Treatment Program, Draft Program Environmental Impact Report. (State Clearinghouse No. 2019012052.) June 24, 2019. Available at: ceqanet.opr.ca.gov/2019012052/2. Accessed July 22, 2020.~~

~~California Department of Toxic Substances Control. 2020. EnviroStor database query.~~

~~California Office of Environmental Health Hazard Assessment. 2015. Air Toxics Hot Spots Program, Risk Assessment Guidelines. Available at: oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed July 22, 2020.~~

~~CARB. See California Air Resources Board.~~

~~City of Oakland. 1986. North Oakland Hill Area Specific Plan. November 10.~~

~~City of Oakland. 2004. Protect Oakland: City of Oakland General Plan, Safety Element.~~

DTSC. See California Department of Toxic Substances Control.

Extension Toxicology Network. 1993. Pesticide Information Profile: Fluazifop-p-butyl. Available at: pmep.cce.cornell.edu/profiles/extoxnet/dienochlor-glyphosate/fluazifop-p-butyl-ext.html. Accessed June 25, 2020.

National Pesticide Information Center. 2018. Triclopyr: General Fact Sheet. Available at: www.npic.orst.edu/factsheets/triclogen.pdf. Accessed May 22, 2020.

OEHHA. See California Office of Environmental Health Hazard Assessment.

State Water Resources Control Board. 2020. GeoTracker database query.

SWRCB. See State Water Resources Control Board.

The Nature Conservancy. 2001. Weed Control Methods Handbook: Tools & Techniques for Use in Natural Areas. Fluzifop-p-butyl. Available at: www.invasive.org/gist/products/handbook/12.Fluazifop.pdf. Accessed June 25, 2020.

USEPA. See U.S. Environmental Protection Agency.

U.S. Environmental Protection Agency. 1998. Triclopyr Reregistration Eligibility Decision Facts. EPA-738-F-98-007.

U.S. Environmental Protection Agency. 2020a. Glyphosate. Available at: www.epa.gov/ingredients-used-pesticide-products/glyphosate. Accessed May 22, 2020.

U.S. Environmental Protection Agency. 2020b. 2,4-D. Available: www.epa.gov/ingredients-used-pesticide-products/24-d#:~:text=2%2C4%2DD%20generally%20has%20moderate%20toxicity%20to%20birds%20and,D%20is%20not%20Agent%20Orange. Accessed June 25, 2020.

Section 3.9 Hydrology and Water Quality

California Department of Water Resources. 2003. California's Groundwater, Bulletin 118: Santa Clara Valley Groundwater Basin, East Bay Plain Subbasin. Available at: water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/2_009_04_East-BayPlainSubbasin.pdf. Accessed May 5, 2020.

California Department of Water Resources. 2009. California Water Plan, Update 2009: Vol. 3, Regional Reports, San Francisco.

California Department of Water Resources. 2020. CIMIS Reference Evapotranspiration Zones. Available at: cimis.water.ca.gov/App_Themes/images/etozonemap.jpg. Accessed April 29, 2020.

City of Oakland. 1986. North Oakland Hill Area Specific Plan. November 10.

City of Oakland. 1996. *General Plan Open Space, Conservation, and Recreation Element*. Available at: www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD008821. Accessed June 4, 2020.

DWR. *See* California Department of Water Resources.

San Francisco Bay Regional Water Quality Control Board. 2017. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Available at: www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf. Accessed June 22, 2020.

San Francisco Bay Regional Water Quality Control Board. 2020. The 303(d) List of Impaired Water Bodies. Available at: www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/303dlist.html. Accessed June 4, 2020.

U.S. Geological Survey. 2016. Decadal Summertime Fog & Coastal Low Cloud Dataset for North and Central Coastal California for 1999-2009. Available at: climate.calcommons.org/datasets/summertime-fog. Accessed June 3, 2020.

U.S. Geological Survey. 2020. The Pacific Coastal Fog Project. Available at: www.usgs.gov/centers/wgsc/science/pacific-coastal-fog-project?qt-science_center_objects=0#qt-science_center_objects. Accessed June 4, 2020.

USGS. *See* U.S. Geological Survey.

Western Regional Climate Center. 2020. Oakland Museum, California (046336). Available at: wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6336. Accessed April 29, 2020.

Section 3.10 Noise and Vibration

This section has not been recirculated; see prior 2020 DEIR for references.

Section 3.11 Recreation

City of Oakland. 1996. *General Plan Open Space, Conservation, and Recreation Element*. Available at: www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD008821. Accessed June 2, 2020.

Section 3.12 Transportation

Alameda County Transportation Commission. 2016. *Alameda Countywide Transportation Plan*. Available at: www.alamedactc.org/wp-content/uploads/2018/11/Final_Alameda CTC_2016_CTP.pdf. Accessed June 2, 2020.

~~Alameda County Transportation Commission. 2019. Congestion Management Program. Available at: www.alamedactc.org/wp-content/uploads/2019/11/2019_Alameda_County_CMP_FINAL.pdf. Accessed June 2, 2020.~~

Alameda County Transportation Commission. 2020a. *Congestion Management Program* [web page]. Available at: www.alamedactc.org/planning/congestion-management-program. Accessed June 2, 2020.

Alameda County Transportation Commission. 2020b. *Countywide Transportation Plan* [web page]. Available at: www.alamedactc.org/planning/countywidetransportationplan. Accessed June 2, 2020.

Alameda County Transportation Commission. 2021. *Congestion Management Program. Available at:* https://www.alamedactc.org/wp-content/uploads/2021/12/2021_CMP_Update_FINAL.pdf. Accessed June May 15, 2023.

Alameda CTC. *See* Alameda County Transportation Commission.

California Department of Transportation. 2018a. Caltrans Encroachment Permits [web page]. Available at: dot.ca.gov/programs/traffic-operations/ep. Accessed June 7, 2020.

California Department of Transportation. 2018b. Caltrans Transportation Permits [web page]. Available at: dot.ca.gov/programs/traffic-operations/transportation-permits. Accessed June 7, 2020.

California Governor's Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. Available at: opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Accessed April 10, 2020.

Caltrans. *See* California Department of Transportation.

City of Oakland. 1998. *City of Oakland General Plan, Land Use and Transportation Element*. March.

City of Oakland Department of Transportation. 2016. *Oakland Department of Transportation Strategic Plan.* Available at: www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak060949.pdf. Accessed June 1, 2020.

City of Oakland Department of Transportation. 2018. Zone Analysis for Bicycle Planning. Available at: www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak068239.pdf. Accessed April 10, 2020.

City of Oakland Department of Transportation. 2020a. DOT Dashboard. Available at: oakbec.s3.amazonaws.com/MapLanding/maps/DOTDashboard.html#. Accessed June 7, 2020.

City of Oakland Department of Transportation. 2020b. Bicycle Facilities & Projects. Available at: oakgis.maps.arcgis.com/apps/MapSeries/index.html?appid=e778c7f232c8400182a7f11e7449b9b2. Accessed April 10, 2020.

OakDOT. *See* City of Oakland Department of Transportation.

OPR. *See* California Governor's Office of Planning and Research.

Section 3.13 Tribal Cultural Resources

This section has not been recirculated; see prior 2020 DEIR for references.

Section 3.14 Wildfire

This section has not been recirculated; see prior 2020 DEIR for references.

Chapter 4 Other Statutory Considerations

ABAG and MTC. *See* Association of Bay Area Governments and Metropolitan Transportation Council.

Association of Bay Area Governments and Metropolitan Transportation Council. 2017. *Plan Bay Area 2040 – Final Plan*. Available at: 2040.planbayarea.org. Accessed August 20, 2020.

Caldecott Corridor Committee. 1998. *Resource Management Plan for the Caldecott Wildlife Corridor*. Available at: www.contracosta.ca.gov/DocumentCenter/Home/Index/298. Accessed August 20, 2020.

~~CAL FIRE. See California Department of Forestry and Fire Protection.~~

California Board of Forestry and Fire Protection. 2019. *California Vegetation Treatment Program, Draft Program Environmental Impact Report*. (State Clearinghouse No. 2019012052.) June 24, 2019. Available at: ceqanet.opr.ca.gov/2019012052/2. Accessed July 22, 2020.

Chabot Space and Science Center. 2015*. Pallid Manzanita Habitat Enhancement and Conservation Plan*. October 2015.

City of Oakland. 1986. North Oakland Hill Area Specific Plan. November 10.

City of Oakland. 1996. *General Plan Open Space Conservation and Recreation Element*. Available at: www2.oaklandnet.com/oakca1/groups/ceda/documents/webcontent/oak035254.pdf. Accessed May 26, 2020.

City of Oakland. 2004. *Protect Oakland: City of Oakland General Plan, Safety Element.*

City of Oakland. ~~2016~~2021. ~~2016-2021~~ *City of Oakland ~~Local~~2021-2026 Hazard Mitigation Plan.* Available at: https://cao-94612.s3.amazonaws.com/documents/2021-07-01_OaklandHMP_AdoptedFinal-1.pdf~~www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak058455.pdf~~. Accessed July 11, 2023~~April 27, 2020~~.

City of Oakland. 2017. *City of Oakland Transportation Impact Review Guidelines.* Available at: www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak063581.pdf. Accessed April 28, 2020.

City of Oakland. 2020. Oakland 2030 Equitable Climate Action Plan. Available at: cao-94612.s3.amazonaws.com/documents/Oakland-ECAP-07-24.pdf. Accessed August 4, 2020.

CSSC. *See* Chabot Space and Science Center.

Diablo Fire Safe Council. 2015. *CWPP Community Wildfire Protection Plan Update, Alameda County.* January 5, 2015. Available at: www.diablofiresafe.org/pdf/2015_Draft_AlCo_CWPP_Update.pdf. Accessed April 28, 2020.

East Bay Hills Vegetation Management Consortium. 1995. *Fire Hazard Mitigation Program and Fuel Management Plan for the East Bay Hills*. May.

East Bay Municipal Utility District. 2000. *Fire Management Plan*. October 2000. Available at: www.ebmud.com/index.php/download_file/force/1006/189/?FMP_0602_1.pdf. Accessed April 28, 2020.

East Bay Municipal Utility District. 2008. *East Bay Municipal Utility District Low Effect East Bay Habitat Conservation Plan.*

EBMUD. *See* East Bay Municipal Utility District.

LSA Associates Inc. 2009. *East Bay Regional Park District Draft Wildfire Hazard Reduction and Resource Management Plan*. July 2009.

UC Berkeley. *See* University of California, Berkeley

University of California at Berkeley. 2020a. Hill Campus: Wildland Vegetative Fuel Management Plan [website]. Available at: capitalstrategies.berkeley.edu/hill-campus. Accessed November 5, 2020.

University of California at Berkeley. 2020b. Claremont Canyon Evacuation Support Project Filing of Notice of Determination.

U.S. Census Bureau. 2018a. *Total Population, 2018 American Community Survey 5-year estimates*. Available at: data.census.gov/cedsci/table?g=0400000US06.140000&tid=ACSDT5Y2018.B01003&hidePreview=false. Accessed August 23, 2020.

U.S. Census Bureau. 2018b. *Households and Families, 2018 American Community Survey 5-year estimates*. Available at: data.census.gov/cedsci/table?g=0400000US06.140000&tid=ACSST5Y2018.S1101&hidePreview=false. Accessed August 23, 2020.

WRA Inc. 2013. *Vegetation Management Implementation Plan: Chabot Space and Science Center.* Prepared for City of Oakland. November 2013.

Chapter 5 Alternatives

Bay Area Air Quality Management District. 2017. Final 2017 Clean Air Plan. Available at: www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed May 14, 2020.

CAL FIRE. 2018. 2018 Strategic Fire Plan for California

CEB. 2020. *Practice Under the California Environmental Quality Act.* Kostka & Zischke.

City of Oakland. 1996. *General Plan Open Space, Conservation, and Recreation Element*. Available at: www2.oaklandnet.com/oakca1/groups/ceda/documents/webcontent/oak035254.pdf. Accessed May 26, 2020.

City of Oakland. 2020a. Planning Code. Available at: library.municode.com/ca/oakland/codes/planning_code?nodeId=TIT17PL_CH17.120PEST_17.120.050NO. Accessed May 27, 2020.

City of Oakland. 2020b. Oakland 2030 Equitable Climate Action Plan. Available at: cao-94612.s3.amazonaws.com/documents/Oakland-ECAP-07-24.pdf. Accessed August 4, 2020.

DiTomaso, J. M., G. B. Kyser, et al. 2013. Weed Report – *Eucalyptus globulus* Labill – Tasmanian blue gum. *Weed Control in Natural Areas in the Western United States*. Weed Research and Information Center, University of California. 544 pp. Available at: wric.ucdavis.edu/information/natural%20areas/wr_E/Eucalyptus.pdf. Accessed September 15, 2020.

Dudek. ~~2019~~2023. Revised Draft City of Oakland, California, Vegetation Management Plan. Prepared for the City of Oakland, Oakland Fire Department.

Forest Climate Action Team. 2018. California Forest Carbon Plan. Available at: resources.ca.gov/CNRALegacyFiles/wp-content/uploads/2018/05/California-Forest-Carbon-Plan-Final-Draft-for-Public-Release-May-2018.pdf. Accessed May 20, 2020.

Stephens, S. L., J. D. McIver, R. E. J. Boerner, C. J. Fettig, J. B. Fontaine, B. R. Hartsough, P. L. Kennedy, and D. W. Schwilk. 2012. The Effects of Forest Fuel-Reduction Treatments in the United States. *BioScience* 62(6):549-560.

State of California. 2019. Wildfires and Climate Change: California's Energy Future. A Report from Governor Newsom's Strike Force. April 12. Available at: www.gov.ca.gov/wp-content/uploads/2019/04/Wildfires-and-Climate-Change-California%E2%80%99s-Energy-Future.pdf. Accessed May 15, 2019.This page intentionally left blank

Chapter 7
Report Preparation

CITY OF OAKLAND/OAKLAND FIRE DEPARTMENT

150 Frank H. Ogawa Plaza, Suite 43354

Oakland, CA 94612

(510) 238-3707

Angela Robinson Piñon	Interim Assistant Director, Planning and Building (prior 2020 DEIR)
Kristin Hathaway	Watershed Program Manager (prior 2020 DEIR)
Michael Hunt	Oakland Fire Department
Brian Mulry	Supervising Deputy City Attorney, Land Use Unit
Vince Crudele	Oakland Fire Department (prior 2020 DEIR)

MONTROSE ENVIRONMENTAL ~~HORIZON WATER AND ENVIRONMENT, LLC~~

1 Kaiser Plaza, Suite 340

Oakland, CA 94612

(510) 986-1850

~~266 Grand Avenue, Suite 210~~

~~Oakland, CA 94610~~

~~(510) 986-1840~~

Ken Schwarz, Ph.D.	Principal-in-Charge
Allison Chan	Senior Consultant – Project Manager, Aesthetics (prior 2020 DEIR)
Robin Hunter	~~Associate~~ Senior Consultant – Deputy Project Manager, Aesthetics, Biological Resources, Wildfire, Hydrology and Water Quality, Recreation, Transportation, Environmental Analysis, Alternatives, Cumulative Impacts
Janis Offermann	Senior Consultant – Cultural Resources, Tribal Cultural Resources (prior 2020 DEIR)
Megan Giglini	Senior Consultant – Air Quality, GHG, Energy, Noise (prior 2020 DEIR)
Debra Lilly	Senior Consultant – Cumulative Impacts, QA/QC

Brian Piontek	Senior Consultant – Geology, Soils and Seismicity, Hydrology/Water Quality (prior 2020 DEIR), Biological Resources
Eric Christensen	Senior Consultant – Biological Resources (prior 2020 DEIR)
Bridget Lillis	Associate Consultant – Environmental Analysis, Alternatives (prior 2020 DEIR)
Johnnie Chamberlin, Ph.D.	Associate Consultant – Air Quality, GHG, Energy, Noise, Hydrology/Water Quality
Patrick Donaldson	Associate Consultant – Hazards and Hazardous Materials (prior 2020 DEIR)
Alex Wolk	Associate Consultant – Transportation (prior 2020 DEIR)
Ryan Johnson	Associate Consultant – Geology, Soils and Seismicity (prior 2020 DEIR)
Lorrie Jo Williams	Graphic Artist, Word Processor (prior 2020 DEIR)

DUDEK

853 Lincoln Way, Suite 208

Auburn, CA 95603

(510) 986-1840

Scott Eckardt	Registered Professional Forester No. 2835
Michael Scott	Fire Protection Planner
Scott Stephenson	Registered Professional Forester No. 2949